PSYCHOLINGUISTICS

UNREVEALING THE SCIENTIFIC STUDY OF LANGUAGE

Psycholingualism comes from two syllables, namely psychologys and linguistics. Psychology is the science of behavior and mental processes. Meanwhile, linguistics is concerned with the systematic study of language as an object of inquiry. So, Psycholinguists also study the relationship between language and thought, and how language use affects cognitive processes such as perception, attention, and memory. This includes examining how language influences the way people perceive and categorize the world around us.

The title of book named "Psycholinguisticse, Unrevealing the Scientific Study of Languange" tell abaout urgently needed to whoever is interested in psychology and linguistics. This book is merely for students who firstly study about psycholinguistics, so this book can be as references to study further. This book has been written to meet the requirements of the students, particularly English Education Department. The main purpose of this book is to help the students to understand the basic knowledge of Psycholinguistics. Hopefully useful~~

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Suswanto Ismadi Megah, S.Pd., M.Ling., Ph.D.

PSYCHOLINGUISTICS

UNREVEALING THE SCIENTIFIC STUDY OF LANGUAGE

EDITOR
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Psycholinguistics

Unrevealing the Scientific Study of Language

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Psycholinguistics

Unrevealing the Scientific Study of Language

Suswanto Ismadi Megah, S.Pd., M.Ling., Ph.D.

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Psycholinguistics: Unrevealing the Scientific Study of Language

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PREFACE

This book has been written to meet the requirements of the students, particularly English Education Department. The main purpose of this book is to help the students to understand the basic knowledge of Psycholinguistics.

This book mainly adapted from the book of Prof. Dr. Loga Baskaran. She taught me when I was master students. She encouraged me to understand basic knowledge, particularly in linguistics. Great thank goes to her. In addition, this book also got inspiration from Mr. Chaer who has invented good writing in psycholinguistics, so that, he dared me to write this book although I myself never see him directly. Special thank goes to him.

This book urgently needed to whoever is interested in psychology and linguistics. This book is merely for students who firstly study about psycholinguistics, so this book can be as references to study further. This book is quite lack of perfectness in writing or content. Therefore, I do apologize to the readers. So, any critics or valuable suggestion will be welcome. Much care has been given to the preparation of this book.

Batam, March 23, 2023

Suswanto Ismadi Megah, S. Pd., M.Ling., Ph.D.

Chapter
1

INTRODUCTION

This study can be classified as extern linguistics because linguistics is combined with another field of science, namely psychology, used in communication. Due to in communication with language is carried out through two fundamental human activities speaking and listening. These are of particular importance to psychologists; they are mental activities that hold clues to the very nature of the human mind in speaking. First, people use ideas in words, talking about perceptions, feelings and intentions they want others to grasp. In listening they turn words into ideas, trying to reconstruct the perceptions, feelings and intentions they were meant to grasp.

The psychology of language, as stated by Clark (1977) the subject of this book, is fundamentally concerned with these two skills and their acquisition. It is concerned with three broad questions:

a. By what mental processes do people listen to, comprehend, and remember what they hear? (Comprehension)
b. By what mental processes do people come to say what they say (Production)
c. What course do children follow in learning to comprehend and produce their first language, and why? (Acquisition)

These questions lead to others: How does language influence thought? How does thought influence language? How does language fit into other human activities? Why does language have the structure it does? Do animals have language? And so on. But these further questions are intimately tied to three fundamental questions and must be taken up with respect to them. So, there is how we will proceed. This chapter will be broken down into some as follows:

A. Psychology

Psychology is the science of behavior and mental processes. According to Zimbardo et al. (2012) the term psychology comes from psyche, the ancient Greek word for “mind,” and the suffix -

ology, meaning “a field of study.” Literally, then, *psychology* means “the study of the mind.” Most psychologists, however, use the broader definition given Core Concept Psychology is a broad field, with many specialties, but fundamentally psychology is the science of behavior and mental processes. While Chaer (2002) states that etymologically "psyche" means soul or spirit and “ “logos’ means science. Therefore, psychology means the study of the soul.

Zimbardo et al. (2012) mention one important point to note about this definition: Psychology includes mental processes and behaviors. In other words, psychology's domain covers internal mental processes that we observe only indirectly (such as thinking, feeling, and desiring) and external, observable behaviors (such as talking, smiling, and running). It implies that by integrating knowledge from different disciplines, psychologists aim to develop a more complete understanding of human nature and behavior.

In the perspective of Zimbardo et al (2012), psychology is concerned with a wide range of topics, including perception, attention, memory, language, thinking, motivation, emotion, personality, social influence, and psychopathology. The field uses a variety of research methods, including experiments, surveys, observations, and case studies, to gather data and test theories. One important aspect of psychology, according to Zimbardo et al. (2012), is the study of individual differences. They suggest that understanding how people differ in their thoughts, feelings, and behaviors can help psychologists develop more effective interventions and treatments for psychological disorders.

A second important part of our definition concerns the scientific component of psychology. In brief, the science of psychology is based on objective, verifiable evidence, not just the opinions of experts and authorities, as we often find in nonscientific fields. For now, though, let's take a closer look at what psychologists actually do.

B. Linguistics

According to Akmajian (2001) linguistics is the scientific study of language. In everyday talk, we use the word 'language' in many different ways. The term language analogically, as a metaphor, we talk of such things as "body language " language of music, painting or dance, act. These various ordinary uses of the word refer to different aspects of language that are only partially related. In the view of Finch (2003), language is one of human beings' most fundamental and defining features. It is a complex and dynamic system of communication that allows us to convey thoughts, ideas, and emotions to others. Language is unique to humans and sets us apart from other animals. It is also a cultural phenomenon, shaped by social and historical factors. In addition, Lyons (1989) stated that the meaning of linguistics expressions is commonly described in terms of the notion of signification: that is to say, words and others expressions are held to be signs which, in some sense, signify, or stand for other things.

These definitions suggest that linguistics is a complex and multifaceted field that involves the study of language from a variety of perspectives, including its structure, use, function, and cultural and social context. It also highlights the unique nature of language as a human-specific phenomenon that sets us apart from other animals. It is not just a set of arbitrary symbols, but rather a culturally and socially shaped system of communication that allows us to express our thoughts, ideas, and emotions to others. The notion of signification, as mentioned by Lyons (1989), also implies that linguistics is concerned with understanding the meaning of linguistic expressions and how they convey information. This involves analyzing the structure and use of words, phrases, and sentences, as well as the ways in which they are used in different contexts and by different speakers.

While, Chaer (2002) defines linguistics as the study of using a language as an object of the study. Wardhaugh (2006) explains that a language is what the members of a particular society speak. The definition of language includes a reference to society. Language is a communal possession, although admittedly an abstract one. Knowing a language also means knowing how to use that language since speakers know not only how to form sentences, but also how to use them appropriately. A language use occurring in a speech community must be in relation to speech situation, speech event, speech act and speech styles, as well as components of speech.

The view of Chaer (2002) and Wardhaugh (2006) above suggests that linguistics is concerned with the systematic study of language as an object of inquiry. Chaer's definition emphasizes that linguistics is focused on analyzing and understanding how language is used as a subject of study, while Wardhaugh's definition highlights that language is a social phenomenon that is shared and used by members of a particular society. Together, these definitions suggest that linguistics is concerned with investigating the properties and characteristics of language, including its structure, function, and use, as well as its role in social interaction and communication. Linguists examine how languages vary across different contexts, cultures, and societies, and they analyze the ways in which language is learned, processed, and used by speakers. In other words, linguistics is a multifaceted field that involves the scientific study of language as a complex and dynamic system of communication that is shaped by social, cultural, and cognitive factors. By understanding the nature of language and its use, linguists aim to develop a deeper understanding of human cognition and social behavior.

C. Psycholinguistics

Chaer (2002) explains that etymologically psycholinguistics formed from psychology and linguistics. Therefore, the fields can stand on its own. Furthermore, those fields combine linguistics and psychology, which can be mentioned as "psychology of language". Chaer (2002) also adds that psycholinguistics describes the process of psychology followed if people communicate by saying sentences.

Clark (1977) describes where the study of speaking and listening should begin. For over two thousand years, philosophers, orators, and linguists have answered: "With the study of language, its structure and function." However. Clark (1997) suggests that we should look at the social context in which language is used. For traditional scholars, speaking and listening were an integral part of language. To understand how people speak and listen, we must consider the social and cultural contexts in which language is used and the psychological processes underlying communication. In the view Clark (1977), we should begin by studying the social and psychological dimensions of speaking and listening, rather than just focusing on the linguistic structure of language. This approach allows us to gain a more holistic and nuanced understanding of language use and communication, and can help us develop more effective strategies for teaching and learning language.

Speech appears to be a succession of ideas expressed bit by bit words, phrases, and clauses. But just how are the ideas expressed? This is an important question for the psychology of language, for the goal is to discover how speakers turn ideas into words and how listener turns words into ideas. A remarkable conclusion linguistics has aided this quest has reached their analysis of language structure: sentences can be divided into parts that reveal the elementary ideas being expressed and their conceptual relations to each other.

We will start, therefore, with the sentence. By many it is considered the unit of language. It can best stand on its own for all linguistic units, and everyday speech has the most coherent function. The focus in this discussion will be on the order and arrangement of words themselves and the ways in which they are used in sentences. Finally, we will deal with the sounds that are strung together make up words. Psychology and linguistics may go together to form a new field of science, Psycholinguistics.

Cowles (2011) identifies several major themes of psycholinguistics, which include:

1. Language processing: Psycholinguists are interested in understanding how people process language, from the perception of speech sounds to the comprehension and production of sentences. This involves studying the cognitive processes involved in language use, such as attention, memory, and reasoning.
2. Language acquisition: Another important theme in psycholinguistics is the study of how children acquire language. This involves examining how infants and young children learn to understand and produce language, and the factors that contribute to successful language acquisition.
3. Language and thought: Psycholinguists also study the relationship between language and thought, and how language use affects cognitive processes such as perception, attention, and memory. This includes examining how language influences the way people perceive and categorize the world around them.
4. Bilingualism and multilingualism: Psycholinguistics also focus on the study of bilingualism and multilingualism, including how individuals who speak more than one language process and use language, and the cognitive and social benefits and challenges of bilingualism.

5. Language disorders: Finally, psycholinguistics also investigates language disorders, such as aphasia and dyslexia, and how they affect language processing and acquisition. This involves studying the cognitive and neural bases of language disorders, and developing interventions and therapies to help individuals with these conditions.

The above core issues of psycholinguistics implied that the study of the relation between psychology and linguistics places significant importance on these domains as they provide a means to assess the psychological validity of linguistic structures. The relationship between psycholinguistics and linguistic theory has been characterized by a continuous, mutually influential, and lively exchange (MacWhinney, 2001).

Chapter 2

HISTORICAL PSYCHOLOGY AND LINGUISTICS

Historical psychology and linguistics are the fields of psychology and linguistics that describe the causes and characteristics of psychology and language change that occurred over the years and even centuries. All languages, when studied closely, will be observed to have changed at all levels, from phonological to morpho-syntactic as well as lexico–semantic changes. The cause of such changes is manifold and the resultant former equally of varied types. Historical linguistics, therefore, enables us to look at the evaluation of languages as well as the effect of languages upon each other. Since, in some instance, the influences of one language on another resulted in the change.

Such historical studies of psychology and linguistics of language change enable postulates on inter-language relationship and pre-historical contact among psychology and languages, which will also give us some insight into the language groups or families that the various languages belong to.

A. Psychology in Linguistics

There is a relationship between linguistics with psychology. Chaer (2002) mentioned that Von Humboldt, a linguistic expert, has studied the relationship between linguistics and the human mind (psychology). So, there is a relationship between language with its own ethnic which uses the language, for example, European language such as English. It shows time in verbs. It has a relationship with its speaker that English people who concern much of time. In another place in Asian language such as Tamil in India has degree of usage level. It shows that Indian people follow the caste system.

The notion of psychology in linguistics means that the study of language is not just about the formal structures of grammar and syntax, but also involves the mental processes that enable humans to use language. This includes investigating the cognitive and psychological processes involved in language use, such as how we process and understand speech, how we acquire language, and how language is produced and comprehended in different contexts. The study of psychology in linguistics helps us understand how language is processed in the brain, how it relates to other cognitive processes, and how it is influenced by individual and cultural factors.

B. Linguistics in Psychology

Some experts in psychology concern linguistics, as mentioned in Chaer (2002) John Dewey studied the development of children's language based on psychological principles. He grouped words the children used based on meanings the children understand. The meaning is understood by the children not understood by adults.

Psychological principles will be found in the relationship in the adverb and preposition classes, then those related to noun and adjective classes. Therefore, it is to separate the classes based on the understanding of the children's understanding. It can identify how the children understand meaning in linguistics.

In addition, Chaer (2002) explains that Wundt develops systematically mentalist theory of language. He states that language is a tool to invent thinking. Firstly, language emerged when it released “unconsciously strong feeling”. In addition, Wundt is known as the owner of language performance theory. This theory has two aspects: outside phenomenon, sounds, and inside phenomenon, mind. Therefore, there is a relationship between linguistics and psychology that may change language. Although language is from one language, it may change, for example

Germanic language can make three different languages such as German, Dutch and English. Furthermore, there is phenomenon in language change as in below:

C. Phenomenon of Language Change

It is based on the phenomenon above that language may change based on the speaker's mind and need. The European languages tend to use time in changing of verbs. In addition, nouns may change as well. Baskaran (2005) concerns that language change occurs in a certain language not due to a concerted effort by its speakers to change it but due to some subconscious of psychological mechanisms that have some effect on its users while list communicating with each other, for example, the word "fantab" fantastic and fabulous. It used so commonly today when it used to be fab (fabulous) that was slightly more often need just a few years ago only indicates a matter of preferences, vogue and just ease of use. For example, when we say “she arrives Monday” instead of “she arrives on Monday”. Amongst the many causes of language change, the following are some common ones.

1. Articulatory ease

Some sounds seem easier to articulate than others, especially when occurring in consonant clusters or certain word positions. Thus, sound can be either deleted for pronunciation, although other types of sound changes can occur as well. Deletions occur when, for example, the letter is maintained in the spelling. Still, the sound is deleted in the pronunciation, as in long/lon/stalk/staik/bright/brait/live/liv/knife /naïf/where the consonant g, I, gh, e and k respectively are not realized phonologically, although occurring orthographically.

Assimilating occurs when, for example, the plural – marker morpheme (s) becomes voiced when occurring after voiced consonants and vowel. Buds /badx/ and bees/ biz/

while it is usually voiceless after voiceless consonants (books/buks/) such assimilation is also known as phonological conditioning.

2. Reanalysis and metanalysis

Reanalysis and metanalysis occur when morphological items are given a new combination or backformation. Reanalysis occurs when, for example from the word “escalator” we get “walkalator" and travelator. Likewise, another very common example is the “hamburger” (ham and burger) combination, which has been reanalyzed (from its original “Hamburg”), “fish burger”, “vege-burger”, “beanburger”, “beefburger” and “chickenburger” as well.

Metanalysis occurs when a morpheme is analyzed in a new way (as compared to its original morphological structured) and then reused with other morpheme combination as in “horrific” and “amorific” (from terrific or jogathon, walkathon, mileathon, from the original “marathon”).

3. Language contact

The phenomenon of language contact occurs when two or more language exist in the same socio-cultural and, therefore, linguistic setting. Borrowings and inevitable influences occur between the languages and all the more. So, if one of them is politically or logistically more dominant than the other.

For example, the words “hotel” and “herb” are borrowing from French into English as are the words “bumi’ (earth) and “putera” (son) which are borrowing from Sanskrit into Malay. There are also examples of “miruku” (milk) and gerasu (glass) in Japanese which phonologically modifies borrowings from English (with /i/ from English becoming /r/ in Japanese, along with vowel epenthesis or insertion).

4. **Innovative meaning**

   As time and society progress, people also tend to coin new words and terms with the advent of all the modernisms in the material world today. Innovation can cover an assortment of fields and concepts, from day-to-day items to ideas and concepts, besides jargon and slang, which are not just novelty markers but also indicators of group sense and solidarity. Some of such example are faxs (from facsimile), Xerox (from photocopy), email (from electronics mail), bird-watching (to mean staring at girls) grass (to mean drugs or marijuana), groovy (modern) and member (to mean an inmate of group).

5. **Antiquated meaning**

   Some words no longer enter the speaker's normal repertoire as the references or items they signify do not occur or exist anymore. Thus, words such as “gramophone” and “rediffusion” are slowly getting obsolete in English, with the advent of more sophisticated audio equipment in this hi-tech world. Likewise, with the word "type" (replaced by "key in”) and “typewriter” (which is not being dramatically phased out by the word-processing computer).

D. Features of Language Change

According to Baskaran (2005), language change occurs over a long period of time so that in most cases, the change is not so immediately noticeable, especially changes in sound (phonological changes) when compared to lexical and semantic changes. In addition, morphological and syntactic changes also are often slow to be perceived.

1. **Phonological change**

   Changes in particular sound and sound combinations and phonetic features (e.g. velarization, nasalization and

glottalization) very often occur due to phonological conditions and articulatory ease. Most phonological changes, however, tend to be in the segmental phonemes more than the suprasegmentals, although these are not totally absent.

2. Lenitions (weakening) or fortitions (strengthening)

A change of lenition or fortition implies in the strength of a sound particularly applicable only to consonant sounds either weakening (involving less articulatory effort) or strengthening (involving more articulatory effort) the consonants, normally in intervocalic positions. Some examples in English are lenitions and fortitions.

Lenitions in English involve the weakening or softening of consonant sounds in certain contexts, typically in unstressed syllables or between vowels. Examples of lenitions in English include: (1) Voiced stops becoming fricatives: For example, the 'b' sound in "tab" may become a 'v' sound in "tabby" because the 'b' is in a lenition position. (2) Devoicing of voiced consonants: Voiced consonants become voiceless in certain positions, such as at the end of a word, or when preceded by another voiceless consonant. For example, the 'd' sound in "bed" may become a 't' sound in "bedding". (3) H-dropping: The sound /h/ is omitted from words that begin with 'h', especially in certain dialects. For example, "house" may be pronounced as "ouse". In general, lenitions can help with the smooth flow of speech and can be an important feature of natural-sounding speech. For instance, “t-tappin” in American English, where words such as “pity”/piti/ and “ready”/redi/ are realized as [pifi] and [re§I] respectively. Glottarization in Scottish and Cockney English where intervocalic /t/ becomes glottalic [ʔ] as in examples such as “butter/ bʌtə/ and “little/ litl/ , productions [baʔə].

Fortition in English involve the strengthening or hardening of consonant sounds in certain contexts, typically in stressed syllables or at the beginning of a word. Examples of fortitions in English include: (1) Voiceless stops becoming aspirated: Voiceless stops (p, t, k) are pronounced with an accompanying puff of air, especially at the beginning of a stressed syllable. For example, the 't' sound in "top" is aspirated in "topper". (2) Voiceless fricatives becoming affricates: Voiceless fricatives (f, s, θ, ʃ) are pronounced as an affricate (tʃ) before certain vowels, such as 'u' and 'o'. For example, the 's' sound in "sit" may become 'ʃ' in "pressure". (3) Glottalization of t: The 't' sound at the end of a syllable or word is pronounced with a glottal stop (ʔ) in some dialects. For example, "cat" may be pronounced as "caʔ". Fortitions, in general, can add emphasis and clarity to speech, and can be used to distinguish between words that would otherwise sound similar. For instance, the deaffrication in Malay, where word-initial fricative /f/ tends to become plosive /p/, as in faham/ fΛhΛm / → /pΛham/ and (fasal) / fΛsΛl/ → /pΛsal/; devoicing in word-final positions as in Malay example of /biadap/ → / biadap/ and /lembab → /lembΛp.

3. Assimilation or dissimilation

When two sounds that occur close together become either more alike or are put apart further due to nasalization or place of articulation factors, assimilation occurs. Assimilation in English occurs when the pronunciation of a sound changes to become more similar or identical to a neighboring sound in a word or phrase. This can happen in various contexts, including when a sound is influenced by a neighboring sound that has a similar or identical articulation. Some examples of assimilation in English include: (1) Nasal assimilation: This occurs when a

nasal sound (m, n, ŋ) takes on the place of articulation of a neighboring consonant sound. For example, the 'n' sound in "handbag" may become a 'm' sound, so that it is pronounced as "hambag". (2) Labial assimilation: This occurs when a non-labial sound (such as a dental or alveolar sound) becomes a labial sound (p, b, m) because of a neighboring labial sound. For example, the 't' sound in "act" may become a 'p' sound, so that it is pronounced as "app". (3) Voicing assimilation: This occurs when a voiceless consonant sound becomes voiced because of a neighboring voiced sound. For example, the 't' sound in "cats" may become a 'd' sound, so that it is pronounced as "cads".

In other words, assimilation is a natural process that helps to make speech more fluent and efficient by reducing the amount of articulatory effort needed to produce sounds. As an example, the negative prefix (in) English which undergoes assimilation producing the allomorphs, labial, /im/ before bilabials /p/b/m/ as in "impervious", "imbalanced" and "immobile" and velar /ŋ/ before velar /k/g/, as in "incorrigible" and "ingratitude". The agent/instrument morpheme [pe(N)] in Indonesian Language which undergoes assimilation producing the allomorphs: velar /paŋ/- before velars /k/g/ as in "*pengail* (root : kail), pengawal (root : kawal), *penyapu* (root : sapu), *penyelamat* (root : *selamat*)

Dissimilation is a phonological process in English and other languages that involves changing one or more sounds in a word to make it easier to pronounce or distinguish from other words. Specifically, dissimilation occurs when two adjacent sounds in a word are too similar and one of them changes to become less similar to the other sound. For example, in the word "comfortable," the /t/ sound between the two /m/ sounds has undergone dissimilation, becoming /f/ to create a less

similar sound sequence. Similarly, in the word "library," the /r/ and /b/ sounds are dissimilated, with the /r/ being pronounced as /l/ in some dialects.

In general, dissimilation is one of many phonological processes that can affect the pronunciation of words in English and other languages, and it is often used unconsciously by native speakers as a way to make speech easier and more efficient. Frequently, two similar placed phonemes occur next to each other and are then changed as in bottle /botl/ , which often becomes / batal/ or mutton / mʌtən. which is often pronounced / mʌtən/, particularly in the new English's.

4. Deletion and insertion

Deletion and additional or insertion of a phoneme is another common type of change which has, over the years, occurred in many languages. There are various types of deletions and insertions depending on the type of phonemes and place occurred of the phonemes involved. Deletion of a phoneme, also known as phoneme deletion, is a common phonological process that occurs in many languages, including English. It involves the omission or removal of one or more sounds (phonemes) from a word, which can alter its pronunciation and meaning.

In English, some common examples of phoneme deletion include: (1) Consonant cluster reduction: This involves deleting one of the consonants in a cluster when two or more consonants come together in a word. For example, the word "ask" may be pronounced as "aks" or "s" may be dropped from the word "sixth" resulting in "sikth". (2) Final consonant deletion: This involves deleting the final consonant in a word, which often occurs in casual or rapid speech. For example, the word "hand" may be pronounced as "han" or "night" may be pronounced as "nigh". (3) Vowel deletion: This involves deleting

a vowel sound in a word, which can happen in certain dialects or when speaking quickly. For example, "library" may be pronounced as "libry" or "family" may be pronounced as "famly".

Phoneme deletion is not unique to English, and it occurs in many other languages as well. For example, in Spanish, final consonant deletion is common in casual speech, and in Japanese, the deletion of the final vowel sound in a word is a common feature of the language. In word – initial position, as in English “k” for example “knave”/netv, “knowledge”/ naled/, - also known as aphesis (or aphaeresis). In word – medical position, as in English /e/a/ for example “camera”/ kamra/ “tolerant”/talrnt/ - also known as syncope. In word-final position, as in French /ng/n/ for example "bon" /ban/ (good), "pain"/paen/(bread)- also known as apocopate.

Insertion of a phoneme, also known as epenthesis, is a common phonological process that occurs in many languages, including English. It involves the addition of one or more sounds (phonemes) to a word, which can alter its pronunciation and meaning. In English, some common examples of phoneme insertion include: (1) Vowel epenthesis: This involves inserting a vowel sound between two consonants to make a word easier to pronounce. For example, the word "film" may be pronounced as "filum" or "athlete" may be pronounced as "ath-uh-leet". (2) Consonant epenthesis: This involves inserting a consonant sound between two vowels to make a word easier to pronounce. For example, the word "empty" may be pronounced as "em-pty" or "handbag" may be pronounced as "han(d)b-ag". (3) Intrusive R: This involves the insertion of the /r/ sound in certain contexts where it is not typically pronounced, such as between a vowel and a word-final consonant. For example, "law and order" may be pronounced as "lawr and order" or "saw a movie" may be pronounced as "sawr a movie".

Insertion is not unique to English, and it occurs in many other languages as well. For example, in Japanese, vowel epenthesis is common when words ending in certain consonants are followed by words beginning with certain consonants. In Spanish, epenthesis of the /e/ or /i/ sound is common before certain consonant clusters. In word- initial position, as in Spanish/e/ from Latin “scala”/escala/(ladder), also known as protheis. In word- medial position, as in malay /e/ from English lian-word, “filem”/filem, “sekolah”/sakolah/ (from English film and school). Also known as epenthesis. In word – final position, as in “naifu” and “rekoda’ in Japan from English “knife”/naïf/ and “record”/ rekaid/ also known as paralogues.

Chapter 3

PSYCHOLINGUISTICS DEVELOPMENT OF THE SPEECH PRODUCTION

Speech production is an essential part of the way we communicate. We indicate intonation through stress and pitch while communicating our thoughts, ideas, requests or demands and maintaining grammatically correct sentences. However, we rarely consider how this ability develops. We know infants often begin producing one-word utterances, such as "mama," eventually move to two-word utterances, such as "gimme toy" and finally sound like an adult. However, the process itself involves development not only of the vocal sounds (phonology), but also semantics (meaning of words), morphology and syntax (rules and structure).

How do children learn to this complex ability? Considering that an infant goes from an inability to speak to two-word utterances within two years, the accelerated development pattern is incredible and deserves some attention. When we ponder children's speech production development more closely, we begin to ask more questions. How does a child who says "tree" for "three" eventually learn to correct him/herself? How does a child know "nana" (banana) is the yellow, boat-shaped fruit he/she enjoys eating? Why does a child call all four-legged animals "horsie"? Why does this child say "I goed to the kitchen"? What causes a child to learn words such as "doggie" before "hand"? This chapter will address these questions and focus on the four areas of speech development mentioned: phonology, semantics, and morphology and syntax.

A. Pre-linguistic Speech Development

Throughout infancy, vocalizations develop from automatic, reflexive vocalizations with no linguistic meaning to articulated words with meaning and intonation. This section will examine the various stages an infant goes through while developing speech. In general, researchers agree that as infants develop they increase their speech-like vocalizations and decrease their non-speech vocalizations (Nathani et al., 2006). Many researchers (Buder et al., 2013) have documented this development and suggest growth through the following five stages: reflexive vocalizations, cooing and laughing, vocal play (expansion stage), canonical babbling and finally, the integration stage.

1. Stage 1: Reflexive Vocalization

Does baby's cry actually belong to language? As newborns, infants make noises responding to their environment and current needs. These reflexive vocalizations may consist of crying or vegetative sounds such as grunting, burping, sneezing, and coughing (Buder et al., 2013). Although it is often thought that infants of this age do not show evidence of linguistic abilities, a recent study has found that newborns' cries follow the melody of their surrounding language input (Mampe et al., 2009). They discovered that the French newborns' pattern was a rising contour, where the melody of the cry rose slowly and then quickly decreased. In comparison, the German newborns' cry pattern rose quickly and slowly decreased. These patterns matched the intonation patterns that are found in each of the respective spoken languages. Their finding suggests that perhaps infant's vocalizations are not exclusively reflexive and may contain patterns of their native language.

2. **Stage 2: Gooing, Cooing and Laughing**

Between 2 and 4 months, infants begin to produce “cooing” and “gooing” to demonstrate their comfort states. These sounds may often take the form of vowel-like sounds such as “aah” or “oooh." This stage is often associated with a happy infant as laughing and giggling begin and crying is reduced. Infants will also interact more with their caregivers, smiling and attempting to make eye contact (Buder et al., 2013). The gooing, cooing, and laughing stage is an important period of development in which infants begin to explore the sounds and rhythms of language and to engage in social interactions with their caregivers. These early experiences lay the foundation for later language development, as infants gradually learn to use words and syntax to express themselves and interact with the world around them.

3. **Stage 3: Vocal Play**

From 4 to 6 months, and infants will attempt to vary the sounds they can produce using their developing vocal apparatus. They desire to explore and develop new sounds, including yells, squeals, growls and whispers (Buder et al., 2013). Face-to-face interactions are still important at this stage as they promote conversation development. Beebe et al. (1988) found that even at this young age, infants' vocal expression show a "dialogic structure” - meaning that, during interactions with caregivers, infants were able to take turns vocalizing.

Infants at this stage also begin to demonstrate a greater awareness of their surroundings and may show increased interest in objects and people in their environment. They may reach for objects and attempt to manipulate them, using vocalizations to express their excitement or frustration. Face-to-face interactions with caregivers remain important at this stage, as infants continue to develop their conversational skills. They

may begin to take turns vocalizing with their caregivers, demonstrating an emerging understanding of turn-taking in conversation. These interactions help to support the development of language and communication skills, as well as social and emotional development. As they continue to grow and develop, they will build on these early skills to become fluent speakers and communicators.

4. Stage 4: Canonical babbling

This infant may be engaging in conversational babble as he is using a gesture (pointing). In the final stage of pre-linguistic speech, 10 month-old infants use intonation and stress patterns in their babbling syllables, imitating adult-like speech. This stage is sometimes known as conversational babble or gibberish because infants may also use gestures and eye movements which resemble conversations (Buder et al., 2013). Interestingly, they also have acoustic differences in their vocalizations depending on the purpose of their communication. Papaeliou and Trevarthen (2006) found that when they were communicating for social purposes, they used a higher pitch and were more expressive in their vocalizations and gestures than when exploring and investigating their surroundings.

The transition from gibberish to real words is not obvious (Buder et al., 2013) as this stage often overlaps with the acquisition of an infant's first words. These words begin when an infant understands that the sounds produced are associated with an object. During this stage, infants develop vocal motor schemes, the consistent production of certain consonants in a certain period of time. Keren-Portnoy et al. (2009) showed that these vocal motor schemes play a significant part in the development of first words. Children who mastered them earlier, produced words earlier. These consistent consonants were used

in babble and vocal motor schemes, and would also be present in a child's first words. Evidence that a child may understand the connection between context and sounds is shown when they make consistent sound patterns in specific contexts (Buder et al., 2013). For example, a child may begin to call his favorite toy "mub." These phonetically-consistent sound patterns, known as protowords or quasi-words, do not always reflect real words, but they are an important step towards achieving adult-like speech (Buder et al., 2013). Infants may also use their proto-words to represent an entire sentence (Vetter). For example, the child may say "mub" but may be expressing "I want my toy", "Give me back my toy" "Where is my toy?", etc.

B. Phonological Development

When a child explicitly pronounces their first word they have understood the association between sounds and their meaning Yet, their pronunciation may be poor, they produce phonetic errors, and have yet to produce all the sound combinations in their language. Researchers have come up with many theories about the patterns and rules children and infants use while developing their language. This section will examine some frequent error patterns and basic rules children use to articulate words. We will also look at how phonological development can be enhanced.

1. Patterns of Speech

Infants develop speech production slightly differently depending on their personalities and individual development. Some children, productive learners, attempt any word regardless of proper pronunciation. Conservative learners are hesitant until they are confident in their pronunciation (Rabagliati et al., 2011). Other differences include a preference

to use nouns and name things versus the use of language in a more social context. (Bates et al., as cited in Smits-Bandstra, 2006). Although infants vary in their first words and the development of their phonology, by examining the sound patterns found in their early language, researchers have extracted many similar patterns. For example, McIntosh and Dodd examined these patterns in 2 year olds and found that they were able to produce multiple phonemes but were lacking [ʃ,θ,tʃ,dʒ,r]. They were also able to produce complex syllables. Vowel errors also occurred, although consonant errors are much more prevalent. The development of phonemes continues throughout childhood and many are not completely developed until age 8 (Vetter & Howell, 1971).

2. Phonological Errors

As a child pronounces new words and phonemes, he/she may produce various errors that follow patterns. However, all errors will reduce with age (McIntosh & Dodd, 2008). Although each child does not necessarily produce the same errors, errors can typically be categorized into various groups. For example, they are multiple kinds of consonant errors. A cluster reduction involves reducing multiple consonants in a row (i.e. skate). Most often, a child will skip the first consonant (thus skate becomes kate), or they may leave out the second stop consonant or consonant deletion (thus skate becomes sate) (Wyllie-Smith et al., 2006) . For words that have multiple syllables, a child may skip the unstressed syllable at the beginning of the sentence (i.e. potato becomes tato) or in the middle of a sentence (i.e. telephone becomes tephone) (Ganger & Brent, 2004). This omission may be due to the properties of unstressed syllables as they are more difficult to perceive and thus a child may simply lack attention to it. As a child grows

more aware of the unstressed syllable, he/she may choose to insert a dummy syllable in place of the unstressed syllable to attempt to lengthen the utterance (Aoyama et al., 2010). For example, a child may say [ə hat] ('ə hot') (Clark, as cited in Smits-Bandstra, 2006). Replacement shows that the child understands there should be some sound, but the child has inserted the wrong one. Another common phonological error pattern is assimilation. A child may pronounce a word such that a phoneme within that word sounds more like another phoneme near it (McIntosh & Dodd, 2008). For example, a child may say “ug" instead of "bug". This kind of error may also be seen for with vowels and is common in 2 year-olds, but decreases with age (Newton & Ridgway, 2016).

3. Factors affecting development of phonology

Parent-infant interaction is crucial to help the infant to increase babbling sounds in their native language. It belongs to one of the factors that affects the infant’s development of phonology. As adequate phonology is essential in effective communication, researchers are interested in factors that can enhance it. In a study done by Goldstein and Schwade (2008), it was found that interactions with caregivers provided opportunities for 8-10 month old infants to increase their babbling of language sounds (consonant-vowel syllables and vowels). Their study also found that infants were not simply imitating their care-givers vocalizations as they produced various phonological patterns and had longer vocalizations. Thus, it would seem that social feedback from caregivers advances infants phonological development. On the other hand, factors such as hearing impairment, can negatively affect phonological development (Nicolaidis, 2004). A Greek population with hearing impairments was compared to a

control group and found that they have a different pronunciation pattern of phonemes. Their pattern displayed substitutions (ie: [x] for target /k/), distortions (i.e.: place of articulation) and epenthesis/cluster production (ie:[ʃtʃ] or [jθ] for /s/) of words.

Another factor that affects the phonological development of infants is the language input they receive from their environment. Infants are constantly exposed to the language and speech patterns of their caregivers and the people around them, and this exposure can have a significant impact on their phonological development. Research has shown that infants who are exposed to a rich and varied language environment tend to have stronger phonological skills than those who are exposed to a more limited language environment (Fernald & Marchman, 2012).

In addition to language input, other factors that can impact phonological development include genetic factors, such as a family history of speech or language disorders, and environmental factors, such as exposure to toxins or other environmental hazards that can affect hearing and speech development. It is also important to note that individual differences in phonological development are common, and that some infants may develop more quickly or slowly than others. However, early identification of phonological delays or disorders can be important in ensuring that children receive the support they need to develop strong communication skills.

Chapter
4

PIONEERS OF THE PSYCHOLINGUISTICS

This chapter highlights pioneers of the psychologist who concern of psycholinguistics. They are Ferdinand Mongin de Saussure was born in Geneva in 1857. Leonard Bloomfield (April 1, 1887 – April 18, 1949) was an American linguist who led the development of structural linguistics in the United States during the 1930s and the 1940s. Finally, Avram Noam Chomsky (born December 7, 1928) is an American linguist philosopher, cognitive scientist, logician, political commentator, social justice, activist, and anarcho-syndicalist advocate. They will be more detailed explained as follows:

A. Ferdinand De Saussure

Ferdinand Mongin de Saussure was born in Geneva in 1857. Saussure showed signs of considerable talent and intellectual ability as early as the age of fourteen. After a year of studying Latin, Greek, and Sanskrit, and taking a variety of courses at the University of Geneva, he commenced graduate work at the University of Leipzig in 1876. Two years later at 21, Saussure published a book entitled *Mémoire sur le système primitif des voyelles dans les langues indo-européennes* (Dissertation on the Primitive Vowel System in Indo-European Languages). After this he studied for a year at Berlin under the 'Privatdozenten' Heinrich Zimmer, with whom he studied Celtic (Culler, 1986).

Saussure attempted at various times in the 1880s and 1890s to write a book on general linguistic matters. His lectures about important principles of language description in Geneva between 1907 and 1911 were collected and published by his pupils posthumously. Some of his manuscripts, including an unfinished essay discovered in 1996, were published in *Writings in General Linguistics*, though most of the material in this book had already

been published in Engler's critical edition of the *Course* in 1967 and 1974 (Culler, 1986).

Saussure's theoretical reconstructions of the vocalic system, and particularly his theory of laryngeal otherwise unattested at the time, bore fruit and found confirmation after the decipherment of Hittite in the work of later generations of linguists like Emile Benveniste and Walter Couvreur, who both drew direct inspiration from their reading of the 1878 *Mémoire.* Saussure also had a major impact on the development of linguistic theory in the first half of the 20th century. His two currents of thought emerged independently of each other, one in Europe, the other in America. The results of each incorporated the basic notions of Saussure's thought in forming the central tenets of Structural linguistics. Unfortunately, his status in contemporary theoretical linguistics is much diminished, with many key positions now dated or subject to challenge (Culler, 1986).

Saussure posited that linguistic form is arbitrary, and therefore that all languages function in a similar fashion. According to Saussure, a language is arbitrary because it is systematic, in that the whole is greater than the sum of its parts. Also, all languages have their own concepts and sound images (or signifieds and signifiers). Therefore, Saussure argues that languages have a relational conception of their elements: words and their meanings are defined by comparing and contrasting their meanings. For instance, the sound images for and the conception of a book differ from the sound images for and the conception of a table. Languages are also arbitrary because of the nature of their linguistic elements: they are defined in terms of their function rather than in terms of their inherent qualities. Finally, he posits, language has a social nature in that it provides a larger context for analysis, determination and realization of its structure (Culler, 1986).

Saussure took the sign as the organizing concept for linguistic structure, using it to express the conventional nature of language in the phrase "l'arbitraire du signe". This highlights what is, in fact, the one point of arbitrariness in the system, namely the phonological shape of words, and hence allows the non-arbitrariness of the rest to emerge with greater clarity. An example of something that is distinctly non-arbitrary is the way different kinds of meaning in language are expressed by different kinds of grammatical structure, as appears when linguistic structure is interpreted in functional terms (Culler, 1986).

B. Leonard Bloomfield

Leonard Bloomfield (April 1, 1887 – April 18, 1949) was an American linguist who led the development of structural linguistics in the United States during the 1930s and the 1940s. His influential textbook *Language*, published in 1933, comprehensively described American structural linguistics. He made significant contributions to Indo-European historical linguistics, the description of Austronesian languages, and description of languages of the Algonquin family (Hall, 1987).

Bloomfield's approach to linguistics was characterized by its emphasis on the scientific basis of linguistics, adherence to behaviorism, especially in his later work, and emphasis on formal procedures for the analysis of linguistic data. However, the influence of Bloomfieldian structural linguistics declined in the late 1950s and 1960s as the theory of generative grammar developed by Noam Chomsky came to predominate (Hall, 1987).

Bloomfield was famous for his contribution to the development of structural linguistics, which was one of the most prominent linguistic theories in the early to mid-20th century. He emphasized the importance of analyzing the formal structures of language, particularly its phonetic, grammatical, and semantic

structures, and believed that these structures could be objectively studied using scientific methods (Hall, 1987).

His approach was behaviorist, which means that he believed that language acquisition is based on habit formation through reinforcement, repetition, and conditioning, rather than on innate principles or mental processes. This perspective influenced his emphasis on language as a behavior and on the importance of empirical observation and experimentation in the study of language (Hall, 1987).

Bloomfield's work had a significant impact on the development of linguistics in the United States and beyond, particularly in the areas of language description and comparative linguistics. He was also an important figure in the development of language teaching methods, particularly through his work on the development of the audio-lingual method.

C. Noam Chomsky

Avram Noam Chomsky (born December 7, 1928) is an American linguist philosopher, cognitive scientist, logician, political commentator, social justice, activist, and anarcho-syndicalist advocate. Sometimes described as the "father of modern linguistics", Chomsky is also a major figure in analytical philosophy. He has spent most of his career at the Massachusetts Institute of technology (MIT), where he is currently Professor Emeritus, and has authored over 100 books. In addition, he has been described as a prominent cultural figure, and was voted the "world's top public intellectual" in a 2005 poll.

Born to a middle-class Ashkenazi Jewish family in Philadelphia, Chomsky developed an early interest in anarchism from relatives in New York City. He later undertook studies in linguistics at the University of Pennsylvania, where he obtained his BA, MA, and PhD, while from 1951 to 1955 he was appointed to

Harvard university's Society of Fellows. In 1955 he began work at MIT, soon becoming a significant figure in the field of linguistics for his publications and lectures on the subject. He is credited as the creator or co-creator of the Chomsky Hierarchy, the universal grammar theory (Barsky, 1998).

The basis of Chomsky's linguistic theory is that the principles underlying the structure of language are biologically determined in the human mind and hence genetically transmitted. He therefore argues that all humans share the same underlying linguistic structure, irrespective of socio-cultural difference. In this he opposes the radical behaviorist psychology of B.F. Skinner, instead arguing that human language is unlike modes of communication used by any other animal species (Barsky, 1998).

Chomskyan linguistics, beginning with his Syntactic Structures, a distillation of his *Logical Structure of Linguistic Theory* (1955, 75), challenges structural linguistics and introduces transformational grammar. This approach takes utterances (sequences of words) to have a syntax characterized by formal grammar, particularly context-free grammar extended with transformational rules (Barsky, 1998).

Perhaps his most influential and time-tested contribution to the field is the claim that modeling knowledge of language using formal grammar accounts for language's "productivity" or "creativity". In other words, a formal grammar of a language can elucidates the ability of a hearer-speaker to produce and interpret an infinite number of utterances, including novel ones, with a limited set of grammatical rules and a finite set of terms.

Chomsky has argued that linguistic structures are at least partly innate, and that they reflect a "universal grammar" (UG) that underlies and can account for all human grammatical systems (in general known as mentalism). Chomsky based his argument on observations about human language acquisition. For example,

while a human baby and a kitten are both capable of inductive reasoning, if they are exposed to exactly the same linguistic data, the human will always acquire the ability to understand and produce language, while the kitten will never acquire either ability. Chomsky labeled whatever the relevant capacity the human has that the cat lacks as the language acquisition device (LAD), and he suggested that one of the tasks for linguistics should be to determine what the LAD is and what constraints it imposes on the range of possible human languages. The universal features that would result from these constraints are often termed "universal grammar" or UG. Chomsky's ideas have strongly influenced researchers of language acquisition in children (Barsky, 1998).

Chapter 5

THEORIES OF LANGUAGE LEARNING

This theory consists of the theory of stimulus and response, the theory of cognitive and cognitive versus stimulus and response. Those will be explained as below.

A. Theory of Stimulus and Response

In 1927 Pavlov conducted perhaps one of the most famous psychological experiments when he showed that by pairing a conditioned stimulus (a bell) with an unconditioned stimulus (food), a dog would begin to salivate (response) when the bell was rung without presenting the food. Hence, it becomes known as Classical Conditioning or Stimulus-Response Theory of behavior (Pearce, 1987).

In psychology, a stimulus is an energy change (such as light or sound) that is registered by the senses. In behaviorism and related stimulus-response theories, a stimulus constitutes the basis for behavior, whereas it constitutes the basis for perception in perceptual psychology. In this context, a distinction is made between the *distal stimulus* (the external, perceived object) and the *proximal stimulus* (the stimulation of sensory organs).

In contemporary experimental psychology, stimulus is usually used to describe the event or object to which a response is measured. Thus, not everything that is presented to participants qualifies as stimulus: For example, a fixation cross is not said to be a stimulus, because it merely serves to center participants' gaze at the center of the screen. Also, it is uncommon to refer to longer events (e.g., the Tries Social test) as a stimulus, even if a response to such an event is measured (Pearce, 1987).

The concept of *stimulus* was essential to behaviorism and the behavioral theory of B.F. Skinner in particular. Within such a

framework several kinds of stimuli have been distinguished. An eliciting stimulus was defined as a stimulus that precedes a certain behavior and thus causes a response. A discriminative stimulus in contrast increases the probability of a response to occur, but does not necessarily elicit the response. A reinforcing stimulus usually denoted a stimulus delivered after the response has already occurred; in psychological experiments it was often delivered on purpose to reinforce the behavior. Finally, emotional stimuli were regarded as not eliciting a response. Instead, they were thought to modify the strength or vigor with which a behavior is carried out (Pearce, 1987).

B. Theory of Cognitive

Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. Piaget believed that one's childhood plays a vital and active role in a person's development. Piaget's idea is primarily known as a developmental stage theory. The theory deals with the nature of knowledge and how humans gradually acquire, construct, and use it. To Piaget, cognitive development was a progressive reorganization of mental processes resulting from biological maturation and environmental experience. He believed that children construct an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, then adjust their ideas accordingly. Moreover, Piaget claimed that cognitive development is at the center of the human organism, and language is contingent on knowledge and understanding acquired through cognitive development. Piaget's earlier work received the greatest attention. Many parents have been encouraged to provide a rich, supportive environment for their child's natural propensity to grow and learn. Child-centered classrooms and " open education" are direct

applications of Piaget's views. Despite its huge success, Piaget's theory has some limitations like any others, for example, continuous development (decalage) rather than sharp stages that Piaget recognized himself. Below is a short description of Piaget's views about the nature of intelligence.

Piagetians' accounts of development have been challenged on several grounds. First, as Piaget himself noted, development only sometimes progress in the smooth manner his theory seems to predict. "Decalage," or progressive forms of cognitive developmental progression in a specific domain, suggest that the stage model is, at best, a useful approximation. Furthermore, studies have found that children may be able to learn concepts and capability of complex reasoning that supposedly represented in more advanced stages with relative ease (Lourenço & Machado, 1996). More broadly, Piaget's theory is "domain general," predicting that cognitive maturation occurs concurrently across different domains of knowledge (such as mathematics, logic, and understanding of physics or language). Piaget did not take into account variability in a child's performance notably how a child can differ in sophistication across several domains.

During the 1980s and 1990s, cognitive developmentalists were influenced by" neo-nativist" and evolutionary psychology ideas. These ideas de-emphasized domain general theories and emphasized domain specify Modularity implies that different cognitive faculties may be largely independent of one another, and thus develop according to quite different timetables, which are "influenced by real world experiences". In this vein, some cognitive developmentalists argued that, rather than being domain general learners, children come equipped with domain specific theories, sometimes referred to as "core knowledge," which allows them to break into learning within that domain. For example, even young infants appear to be sensitive to some predictable regularities in

the movement and interactions of objects (for example, an object cannot pass through another object), or in human behavior (for example, a hand repeatedly reaching for an object has that object, not just a particular path of motion), as it becomes the building block of which more elaborate knowledge is constructed.

Piaget's theory has been said to undervalue culture's influence on cognitive development. Piaget demonstrates that a child goes through several stages of cognitive development and come to conclusions on their own but in reality, a child's socio-cultural environment plays an important part in their cognitive development. For example, social interaction teaches the child about the world and helps them develop through the cognitive stages, which Piaget neglected to consider (Lourenço & Machado, 1996).

More recent work has strongly challenged some of the basic presumptions of the "core knowledge" school, and revised ideas of domain generality—but from a newer dynamic systems approach, not from a revised Piagetian perspective. Dynamic systems approach harkens to modern neuroscientific research that was not available to Piaget when he was constructing his theory. One important finding is that domain-specific knowledge is constructed as children develop and integrate knowledge. It enables the domain to improve the accuracy of the knowledge as well as the organization of memories. However, this suggests more of a "smooth integration" of learning and development than either Piaget or his neo-nativist critics envisioned. Additionally, some psychologists, such as Lev Vygotsky and Jerome Bruner, thought differently from Piaget, suggesting that language was more important for cognition development than Piaget implied (Lourenço & Machado, 1996).

C. Cognitive Versus Stimulus and Response

There are cognitive versus stimulus and response. According to Hollan (2008), it relates to specification of stimulus-stimulus associations in associative learning, and the characterization of neural systems underlying those associations. Those will be explained more detailed as follows

1. Metaphors: map control rooms vs telephone switchboards

Perhaps because spatial-learning tasks provided an important test arena for early cognitive and S-R psychologists, cognitive theories of learning became associated with the metaphor of "map control rooms", in which spatial representations and relations were acquired, computed, and exploited. By contrast, S-R theories became attached to the analogy of "telephone switchboards" by which stimulus inputs were, through learning, connected to new response outputs. Spence (1950) asserted that "no scientifically oriented person in psychology, however, would ever take such analogies, whether telephone switchboards or map control rooms, as serious attempts at theoretical representations of learning changes". For example, the meaning of Hull's habit construct was "given by the mathematical function relating it to the antecedent experimental variables" and thus "any comparison of switchboards with map control rooms is entirely beside the point".

More relevant was the question of whether learning in spatial tasks was more "map-like" or "habit-like", that is, how much of the spatial information contained in those tasks was encoded in learning, and could be used to guide performance later, when, for example, the usual paths were blocked, or shortcuts opened. Interestingly, much of this debate was eventually distilled to the issue of place versus response, which

could just as easily phrase entirely in S-R terms as “approach cue X” versus “turn right”.

2. **Neurophysiological basis of learning: brain fields or receptor-effector connections**

   Whereas, cognitive theorists referred to reorganization of "electrical brain fields" and "neurophysiological trace systems", related habit formation to the establishment of neural "receptor-effector" connections. Spence (1950) noted that these differences had little or no significance for learning theory because these neurophysiological models were nothing more than analogies and played no role in the deductions or inferences of either camp. Properties of "brain fields" were inferred from introspection, rather than physiological investigation, and with few exceptions, knowledge or even speculation about the physiological basis of reflexes did not inform the construction of S-R theories. Indeed, Spence (1950, p.164) stated that "picturing neurophysiological processes without specifying the hypothetical relations that tie them up with the experimental variables and the response measure is almost a complete waste of time so far as furthering our understanding of learning phenomena is concerned." In section 3 of this article, I will relate examples of progress in relating brain and behavior which have been more useful in characterizing the nature of learning.

3. **Stimulus-stimulus (S-S) or stimulus-response (S-R) associations**

   Cognitive theorists of the time were clear that learning involved associations among, or reorganization of, sensory-perceptual processes. By contrast, Guthrie, Thorndike, Hull and others posited that learning involved S-R associations, between stimuli and “muscle contraction and glandular secretion” pointed out

however that Hull's emphasis on S-R associations followed from his neurophysiology, rather than from his mathematical definition of habit (in Demirezen, 1988). From Spence's perspective, there was nothing intrinsically S-R or S-S about habit, as defined within the Hullian system, although, like Hull, he clearly believed that most learning involved the formation of associations between stimuli and responses. *"I do not find it difficult to conceive of both types of organizations or associations being established in learning. Certainly, simple types of perceptual learning would appear possibly to involve intersensory associations. I seriously doubt, however, whether learning is exclusively of this type, or even that the majority of it is. Indeed, ……evidence would appear to support more strongly the S-R conception than the S-S"* (Spence, 1950, p. 164-165)

4. Contents vs conditions of learning

Spence noted that cognitive theorists tended to emphasize the "intrinsic" properties of their constructs, whereas S-R theorists tended to be concerned with the empirical relations among experimental variables that determine their constructs. In Rescorla's (1975) terminology, the cognitive theorists concentrated on the content of learning whereas S-R theorists focused on the conditions under which learning occurred. Although castigating cognitive theorists for relying too much on introspection to make inferences about the contents of learning, Spence recognized that such contents could still be rigorously defined in terms of environmental variables, lauding Tolman's sign-gestalt psychology. Thus, he concluded that these concerns reflected "a very real difference between the two theoretical camps, but… one of emphasis rather than of conflict" Spence, (1950, p. 166).

5. Stimulus variables: intrinsic vs. extrinsic

At the time of Spence's writing, investigators from the cognitive tradition tended to examine the effects of variables that influenced the receipt of stimuli (e.g., orienting and attention) and perceptual organization (e.g., figure-ground relations, part-whole relations, belongingness, set). By contrast, most studies of behavior from the S-R tradition focused on temporal variables and those that related to motivation, such as reward magnitude and deprivation state.

6. Responses without stimuli

Loucks (1935) examined learning when foreleg flexion in the presence of a buzzer was induced by electrical stimulation of the appropriate region of motor cortex. In this procedure, the electrical stimulation was presumed to produce a response without preceding stimulus input. Thus, S-S learning should be impossible and S-R learning unaffected in this preparation. Indeed, he found no evidence for acquisition of the leg flexion response, suggesting that contiguity of stimulus and response was insufficient for learning. found that leg flexion was acquired if the buzzer-motor cortex stimulation was also followed by food. Spence (1950) asserted that this pair of outcomes was easily interpretable within an S-R reward-based theory: Unlike leg shock, motor cortex stimulation produced a flexion response but no drive (pain) whose reduction could reinforce habit formation the addition of food added such a source of reward. Although others were to find successful limb flexion conditioning with motor cortex stimulation.

7. Stimuli without responses

By the same logic, blocking responses to USs or choosing USs with minimal responses should substantially impair learning, if

learning is S-R, but have little effect if learning is S-S. Early studies with peripheral blockade of responses during training typically revealed substantial responding after the blockade was removed. However, it is again easily argued that no one really expects S-R learning to be localized at the neuromuscular junction or sympathetic neuron. Such studies proved more useful in addressing claims that adventitious instrumental reinforcement of motor responses that were responsible for the emergence of putatively Pavlovian CRs. A more fruitful line of research was that of sensory preconditioning, in which relatively neutral

Chapter 6

ASPECTS OF LINGUISTIC NEUROLOGY

Linguistics neurology or it can be mentioned as Neurolinguistics. The study of the brain structure is particularly to do with language. Therefore, the brain's general structure must be considered first before considering the language-related areas of the brain.

A. Structure of the Brain (Neuroanatomy)

Baskaran (2005) widely describes that the human brain is like a large handkerchief folded into a mass of smaller folds and forming a shape with two halves. According to the anatomy of the brain, the entirety of the brain mass is referred to as the cerebral cortex, which comprises of ridges known as gyri (singular: gyrus) and grooves known as sulci (singular: sulcus). When the sulci are extensive and profound, they are referred to as fissures, with the most prominent one being the longitudinal fissure that divides the brain into two hemispheres. These hemispheres, the left and the right, are connected by a bundle of nerve fibers known as the corpus callosum (Standring, 2021).

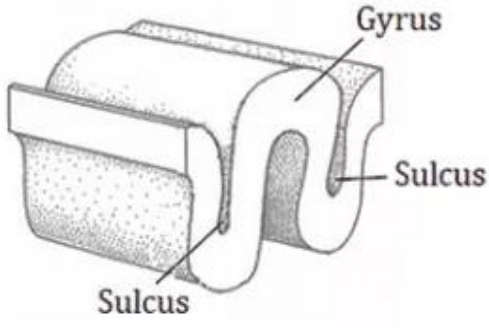


Figure 6.1. The cerebral folds, gyrus and sulcus
(Source: https://human-memory.net/central-sulcus/)

Overall, the entire cerebral cortex can be subdivided into four lobes, the frontal lobe, parietal lobe, temporal lobe and occipital lobe with their own functions. The *frontal lobe* is primarily involved

in higher-order cognitive functions, including decision-making, problem-solving, planning, and social behavior. It also plays a role in regulating movement, as well as controlling emotions and impulses. The *parietal lobe* is the fourth lobe of the cerebral cortex and is located at the top and back of the brain. It is involved in processing sensory information, including touch, temperature, and pain, as well as spatial awareness and perception. The parietal lobe also plays a role in integrating sensory information from multiple modalities, such as vision and hearing. The *temporal lobe* is involved in auditory processing, language comprehension, and memory formation. It contains the primary auditory cortex, which is responsible for processing sound, and the hippocampus, which is critical for the formation of new memories. The *occipital lobe* is primarily involved in visual processing and perception. It contains the primary visual cortex, which is responsible for processing visual information from the eyes and forming conscious visual perception (Carlson, 2014).

It's worth noting that these lobes often work together in complex cognitive processes, and their functions are not entirely localized to a single lobe. Each lobe of the cerebral cortex is associated with specific cognitive and behavioral functions, but these functions are not entirely localized to a single lobe. Instead, complex behaviors and cognitive processes involve interactions among multiple brain regions distributed throughout the cortex and other parts of the brain (Carlson, 2014).

At the base of the brain is the brain-stem which is connected to the brain center via the diencephalon, a mass of neurons, together with the basal ganglia, an area important for cognitive functioning. The brain stem is composed of the mid-brain, pons (the bridge) and the medulla oblongata (the marrow).

B. Neurophysiology (speech and language-based functioning of the brain)

Speech and language cannot be separated with the brain because the brain is center of the human control either psychologically and physically. Therefore, this will show the view of the main anatomy of the brain.

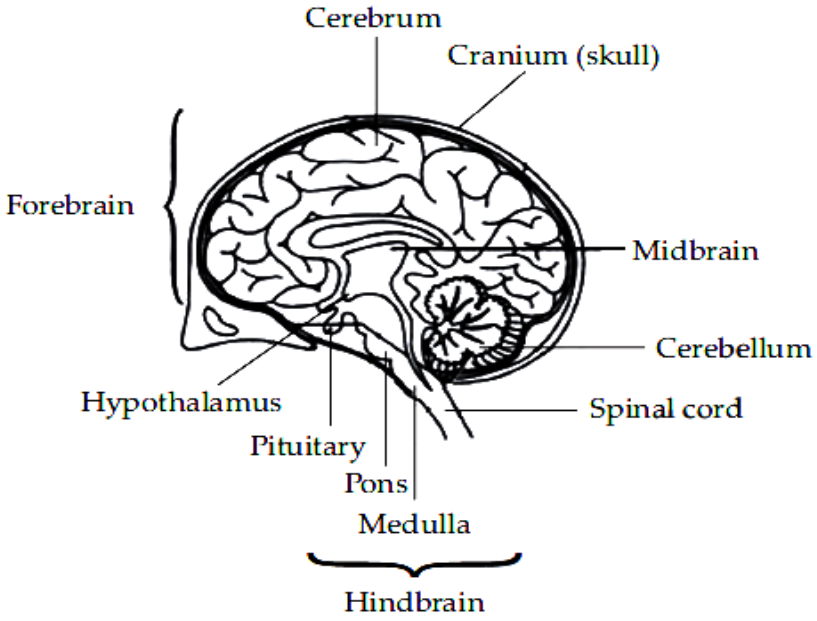


Figure 6.2. The lateral view of brain main anatomy
(Source: https://www.sarthaks.com/218853/)

The brain being a very complex organ, has a network of nerves and neurons (billions of them) that interact to produce the relevant signals to control all aspect of human activity. It controls the central and peripheral nervous systems. In considering the neuro-physiology of speech and language, the brain can be seen as a highly competent organ that supersedes any machine that man has ever tried to invent. However, through many tests and experiments over the centuries, scientists have managed to identify certain basic functions and mechanisms of this small (in mass terms-approximately 3-4 lbs. only) mass of grey matter that differentiates us human beings from the rest of the living world. Human brain has

certain basic functions and mechanisms of the brain, such as the processes involved in speech and language (Todd & Bohart, 2014).

The four lobes and certain areas of the brain have been identified for specific speech and language-related functions. Besides the four basic lobes, there are certain areas or points that also have to do with speech and language processing. They are the Broca's and Wernicke's areas named after famous scientists who identified these as significant language areas. The following basic functions of speech and language processing are associated with the following parts of the brain:

1. Frontal lobe-speech
2. Parietal lobe-reading
3. Temporal lobe-audition, memory processing
4. Occipital lobe-visual processing
5. Broca's area-speech (production)
6. Wernicke's area-speech (comprehension)
7. Specific cranial nerves-phonation, articulation (tongue movement)

Any disturbance or damage to any of the above parts of the brain, therefore, could mean a breakdown in communication in the relevant area (Neuropathology being the study of such break down). The normal term used for such speech, language and (communication) breakdown is aphasia. Aphasia is a neurological condition that results in the loss or impairment of language abilities, including speaking, understanding, reading, and writing. It can occur as a result of damage to various regions of the brain that are involved in language processing, including the left hemisphere of the brain, which is typically dominant for language in most people (Goodglass & Kaplan, 1998).

There are several types of aphasia, including Broca's aphasia, Wernicke's aphasia, and global aphasia, each of which is associated with damage to specific areas of the brain. Broca's aphasia, for

example, is typically associated with damage to the left frontal lobe. Wernicke's aphasia is associated with damage to the left temporal lobe (Goodglass & Kaplan, 1998). The study of the causes and effects of brain damage is called neuropathology. Neuropathologists study how brain damage can affect language and communication abilities, as well as other cognitive and behavioral functions. They use a variety of tools and techniques, including brain imaging, to identify and locate brain damage and to evaluate its impact on the individual's abilities (Goodglass & Kaplan, 1998).

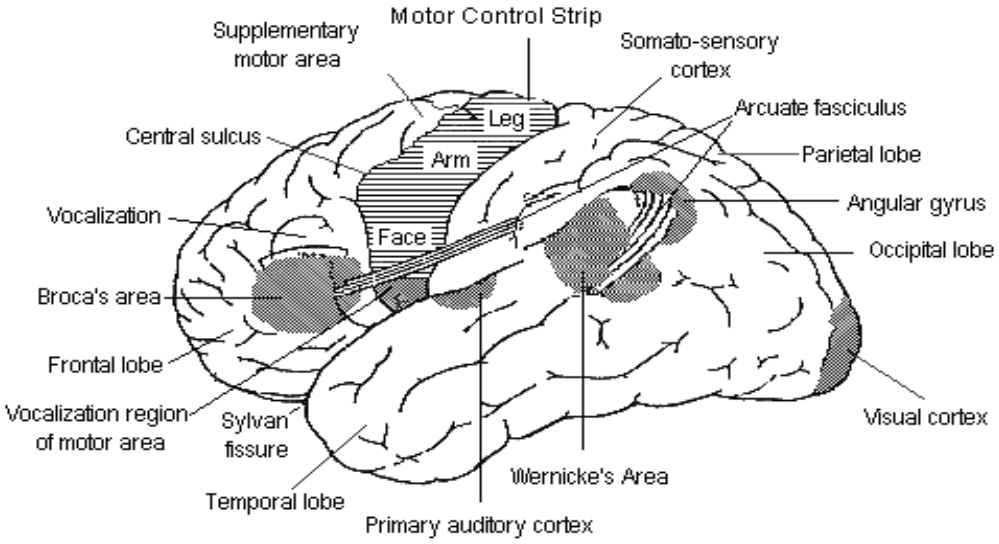


Figure 6.3. The left cerebral hemisphere (with its language-based functions) (Source: https://www.ling.upenn.edu/courses/Fall_1998/ling001/neurology.html)

Generally speaking, the left cerebral hemisphere is more involved in language processing than the right as shown in Figure 6.3. above. The speech and language processing mechanism of most humans (who are in the majority right-handers) lies in the left half of the brain, although for the left-handers, it is still the left hemisphere which is dominant. The correlation between the handedness of the average human being and the left–based functioning of the brain for speech and language processing, is a factor that becomes obvious especially when injury occurs to the

brain and the initial side of effect of such injury is the right side of the body. In general, it is the normal case that the two cerebral hemispheres are contra lateral in control of the body (they control their opposite sides of the body). The left hemisphere controls the functions of the right side of the body, whilst the right hemisphere controls the left (Gazzaniga, 2005).

The correlation between handedness and the dominance of the left hemisphere in speech and language processing has been extensively studied. It is estimated that approximately 90% of right-handed individuals have left-hemisphere dominance for language, while the remaining 10% may have right-hemisphere dominance or more equal distribution of language processing between the two hemispheres. Interestingly, even left-handed individuals, who may have a more variable distribution of language processing between the two hemispheres, still often have left-hemisphere dominance for language (Gazzaniga, 2005).

Studies of brain damage in individuals with left-hemisphere language dominance have shown that damage to this area of the brain can lead to various forms of aphasia, while damage to the right hemisphere is more likely to result in deficits in spatial processing and attention. However, the specific functions of each hemisphere are not entirely distinct and there is some overlap in their abilities (Gazzaniga, 2005).

Chapter 7

SPECIFIC LANGUAGE IMPAIRMENTS

Specific language impairment (SLI) is diagnosed when a child has delayed or disordered language development for no apparent reason. Usually, the first indication of SLI is that the child is later than usual in starting to speak and subsequently is delayed in putting words together to form sentences. In addition, spoken language may be immature. In many children with SLI, understanding of language, or *receptive* language, is also impaired, though this may only be obvious if the child is given a formal assessment. Although difficulties with using and understanding complex sentences are a common feature of SLI, the diagnostic criteria encompass a wide range of problems. For some children, other aspects of language could be more problematic (see below). In general, the term SLI is reserved for children whose language difficulties persist into school age, so it would not be applied to toddlers late to start talking, most of whom catch up with their peer group after a late start.

One of the studies on specific language impairment was conducted by Conti-Ramsden and Botting (2008) who reviewed the literature on SLI and its diagnostic criteria. They found that SLI is a complex disorder affecting various aspects of language development and that various diagnostic criteria have been proposed to identify children with SLI. The study suggests that delayed or disordered language development is the primary feature of SLI, and other aspects of language, such as comprehension and use of complex sentences, may also be impaired. The study also highlights the importance of early identification and intervention for children with SLI and the need for more research to understand the disorder better.

A. Terminology for children's language disorders

The terminology for children's language disorders is extremely wide-ranging and confusing, with many labels that have overlapping but not necessarily identical meanings. This confusion partially reflects uncertainty about the boundaries of SLI, and the existence of different subtypes. Historically, the terms ''developmental dysphasia'' or ''developmental aphasia'' were used to describe children with the clinical picture of SLI. These terms have, however, largely been abandoned, as they suggest parallels with adult acquired aphasia. This is misleading, as SLI is not caused by brain damage. In medical circles, terms such as *specific developmental language disorder* are often used, but this has the disadvantage of being wordy, and is also rejected by some people who think SLI should not be seen as a 'disorder'. In the UK Educational system, *speech, language and communication needs* (SLCN) is currently the term of choice. However, this is far broader than SLI and includes children with speech and language difficulties arising from various causes (Norbury et al., 2016).

Currently, there is yet to be a consensus on the terminology used for children's language disorders and that different terms are used in different countries and professional contexts. Norbury et al. (2016) suggest that the term SLI is still widely used, despite its limitations, and that it is important to distinguish between SLI and other language disorders. They also discuss the use of terms such as developmental language disorder and language learning impairment, and the need for further research to clarify the nature of these disorders. In addition, they also highlight the importance of distinguishing between SLI and other language disorders so that it requires follow up studies to explore the nature of these disorders.

B. Receptive/expressive developmental language disorder

Receptive/expressive phonologic/syntactic deficit syndrome is the most common form of SLI. The child's most obvious problems are a tendency to speak in short, simplified sentences, with omission of some grammatical features, such as past tense -ed. It is also common to see simplified speech production when the child is young. For instance, consonant clusters may be reduced, so 'string' is pronounced as 'ting'. In addition, vocabulary is often limited, with a tendency to use 'general all-purpose' terms, rather than more specific words. Finally, verbal auditory agnosia is a rare form of language impairment, in which the child cannot make sense of speech sounds (Norbury et al., 2008).

Not all language deficit syndrome in children is considered SLI, for instance in the symptom of Landau-Kleffner syndrome, in which case a diagnosis of SLI would not be appropriate, as there is a known neurological origin of the language difficulties. Landau-Kleffner syndrome is characterized by a loss of language skills, especially receptive language, in previously normal children (Mash & Barkley, 2014). The condition is rare, and its cause is not well understood, but it is thought to result from abnormal electrical activity in the brain that affects the language areas. Children with Landau-Kleffner syndrome may also experience seizures and behavioral problems. Because of the known neurological origin of the language difficulties in this condition, it is not considered a form of SLI.

Therefore, as the implication, diagnosing SLI requires careful and comprehensive evaluation of the child's language development. It should go along with a detailed medical history and examination to rule out any underlying neurological, developmental or medical conditions that may mimic or co-occur with SLI (American Speech-Language-Hearing Association, 2016). The American Speech-

Language-Hearing Association is a professional organization for speech-language pathologists, audiologists, and speech, language, and hearing scientists in the United States. ASHA provides resources, advocacy, continuing education opportunities for its members, and information for the public about communication and hearing disorders.

C. Expressive developmental language disorder syndromes

In a child with Developmental Verbal Dyspraxia (DVD), comprehension is adequate; the onset of speech is significantly delayed and extremely limited with impaired production of speech sounds and short utterances. Poor speech production cannot be explained in terms of structural or neurological damage to the articulators. There is much disagreement about diagnostic criteria, but the label most often used for children whose intelligibility declines markedly when they attempt complex utterances, compared to when producing individual sounds or syllables. Another key feature is the inconsistency of speech sound production from one occasion to another. Although the term 'dyspraxia' suggests a pure output disorder, many – perhaps all- of these children have difficulty in doing tasks that involve mentally manipulating speech sounds, such as phonological awareness tasks. Children with DVD also typically have major literacy problems, and receptive language levels may be poor on vocabulary and grammar tests (Bishop, 2014).

According to Bishop (2014), Developmental Verbal Dyspraxia (DVD) is a motor speech disorder that primarily affects the planning and coordination of movements required for speech production. Children with DVD typically have impaired production of speech sounds and short utterances, which cannot be explained by structural or neurological damage of the articulators. They may also have difficulty in mentally manipulating speech sounds, such

as in phonological awareness tasks. Another key feature of DVD is inconsistent speech sound production from one occasion to another. Despite intact comprehension, these children often have major literacy problems and poor receptive language levels on vocabulary and grammar tests. The diagnostic criteria for DVD are still a matter of debate. Still, the label is often used to describe children whose intelligibility declines markedly when they attempt complex utterances, compared to when producing individual sounds or syllables.

DVD to some extent is often related to phonologic programming deficit syndrome. Children with phonologic programming deficit syndrome speak in long but poorly intelligible utterances, producing what sounds like jargon. Phonologic programming deficit syndrome and DVD (Developmental Verbal Dyspraxia) are similar in involving impaired speech sounds and short utterances production. However, there are also some differences between the two conditions. Phonologic programming deficit syndrome is typically characterized by difficulty planning and coordinating the movements required for speech. In contrast, DVD is primarily a motor speech disorder that affects the ability to plan and execute the movements necessary for speech production. Additionally, while children with DVD may also have difficulty with phonological awareness tasks, this is not a defining feature of the condition (Bishop & Adams, 1990).

Regarding these symptoms, outside Rapin's group, more needs to be written about this subtype, which is not generally recognized in diagnostic frameworks. This team of researchers and clinicians led by Dr. Isabelle Rapin, is a renowned pediatric neurologist and researcher who has made significant contributions to the field of child neurology and developmental disorders, particularly in the area of language disorders. Rapin's group has conducted numerous studies and published many influential

papers on specific language impairment, developmental verbal dyspraxia, and autism spectrum disorders. The group has played an important role in advancing our understanding of these disorders and improving the diagnosis and treatment of affected children (Rice, 2016).

D. Pragmatic language impairment

The child with pragmatic language impairment can speak in fluent and well-formed utterances with adequate articulation, but the content of language is unusual, and comprehension may be over-literal. In addition, the language use could be better; the child may chatter incessantly, be poor at turn-taking in conversation and maintaining a topic. There has been a great deal of controversy about this category, which is termed *pragmatic language impairment (PLI)* in the UK. According to Bishop and Norbury (2005), pragmatic language impairment is characterized by difficulties in the social use of language, including nonverbal communication, social inference, and conversational discourse. Children with PLI may also have difficulty understanding and using figurative language and may not adjust their language appropriately to different social situations.

Debate has centered on whether it is a subtype of SLI, part of the autistic spectrum, or a separate condition. Some researchers argue that PLI is a subtype of SLI, as children with PLI often exhibit deficits in grammar and vocabulary, which are hallmark characteristics of SLI (Bishop & Norbury, 2008). Others have suggested that PLI is part of the broader autism spectrum, as individuals with autism also struggle with pragmatic language use and social communication. However, evidence suggests that PLI may be a separate condition, distinct from both SLI and autism (Norbury & Bishop, 2005). Regardless of its classification, pragmatic language impairment can significantly impact a child's

social interactions and academic performance, highlighting the importance of early identification and intervention.

In DSM-5, the American Psychiatric Association (APA) introduced the term *Social Communication Disorder* (SCD) which encompasses the symptoms previously associated with PLI (American Psychiatric Association, 2013). The criteria for SCD include persistent difficulties in the social use of verbal and nonverbal communication and deficits in social cognition that impact communication (Bishop & Norbury, 2021). The introduction of SCD reflects a growing recognition of the importance of social communication in developmental disorders. In addition, it aims to provide a more accurate and specific diagnosis for individuals who struggle with pragmatic language use.

Chapter 8

THEORY OF LANGAUGE ACQUISITION

Some theoretical models of language acquisition exist, particularly in second or foreign language acquisition/learning. They are; behaviorism, innatist, and interactionist. Behaviorism means learn through imitation, practice, feedback, and habit for formation following a stimulus response model. Recently it has been stated that people may study foreign language as like what native speakers says. In term of psychological aspects that human needs environment to use foreign language

A. Theory of First Language Acquisition

There have been many experiments and subsequent theories of child language acquisition put forward by scientists. Some prominent theories include the nativist theory, which suggests that language is innate and that humans are born with an inherent ability to learn language (Chomsky, 1965). In contrast, the behaviorist theory posits that language is a learned behavior taught to the child through reinforcement and conditioning (Skinner, 1957). Since the question of how children learn a language the way they do is a mystery that only the brain can explain, such experiments have been the only way to rationalize the point. However, due to the commonality of results of these many experiments, certain basic theories have been postulated prominent theories. The controversy ranges from the question of nature to nature, that is, that language has innate underlying principles with which the child is born.

On the other hand, language is a learned behavior taught to the child by the parents (or caregivers). In between this, there are also midway postulates such as imitation (social learning) theory and the interactionist theory. The basic types of theories, therefore,

are: innatist theory, cognitive theory, social learning theory (conditioning and imitation), and social interactionist theory

1. **Innatist theory**

   The words "innate" meaning "present at birth" is the crucial factor here. Linguistics (led by Noam Chomsky) believe that a special abstract mechanism (the language acquisition device – LAD) enables the child to perceive the language of its environment, and produce the necessary output according to the syntactic rules of the language. In other words, the human mind is endowed with this remarkable inborn capacity preprogrammed to perceive and produce language, without necessarily teaching the specifics and basics of the language. Thus, the preprogrammed endowment referred to here is what is commonly known as universal grammar. Chomsky (1975) defines Universal Grammar as “the system of principles, conditions and rules that are elements or properties of all human languages not merely by accident but by biological necessity”. The innatist theory, therefore (also known as “nativism”) attributes first language acquisition to inborn knowledge.

   The linguist, Lenneberg (1967) further endorses this by postulating that despite all the different types of backgrounds, conditions and individual differences that children across the world have, they still learn to talk in the same way, achieving the normal linguistic milestones in the exact time-frames and manner. Further, there is a possibility also that there is a certain more productive period during which language acquisition occurs most, this being the "critical period" (or sensitive period) which experimentally has been shown to be between three and about thirteen years of age. After this time

frame (once the child reaches puberty), the first language acquisition attainment level becomes less potential.

2. Cognitive theory

The word "cognitive" here refers to the mental abilities and skills of the human mind. Linguistics or psycholinguists believe that the mind has to cope with both linguistics as well as non-linguistic aspects of the world. Thus, children have to learn about the world and then use language to interlink the world with themselves. Thus, Piaget (1965) postulated that language acquisition determines or shapes our cognitive development. Whichever way we look at it, the fact that there is an interlinking relationship between cognition (our mental skills) and language (our linguistic skills) cannot be denied. Thus, when a child links the word “ma” to his mother, the interlinking relationship between the syllable /m^/ to the real-world entity that he recognizes as his emotionally bound caregiver comes forth due to the mental ability to recognize the two as belonging to one. The cognitive theory, therefore, links the linguistic and non-linguistic aspects in the process of first language acquisition.

The cognitive theory of language acquisition emphasizes the role of mental processes in language learning. According to this theory, language acquisition is not solely a matter of innate abilities, but rather a complex process that involves the interaction between innate mechanisms and cognitive skills. As children acquire language, they also develop cognitive abilities, such as memory, attention, and perception (Piaget, 1965). These cognitive processes help children make sense of the linguistic input they receive and allow them to construct an internal model of language.

Research has shown that children's cognitive abilities are closely linked to their language development. For example,

children with strong working memory skills tend to have larger vocabularies and can better process complex sentences (Gathercole & Baddeley, 1993). Similarly, children's ability to focus attention on language input has been linked to their ability to learn new words and grammatical structures (Conway et al., 1991).

In this case, the cognitive theory of language acquisition emphasizes the interplay between innate mechanisms and cognitive skills in the process of language learning. Children's mental abilities play a critical role in making sense of the linguistic input they receive and constructing an internal language model. As researchers continue to explore the relationship between cognition and language, our understanding of the complex process of language acquisition will continue to evolve.

3. Social Learning Theory

Learning theory postulates that language learning is acquired like any other behaviour, with the basic reinforcement and conditioning as well as imitation that the child is exposed to in its adult-based environment. Such behaviorists, like Skinner (1957), and Pavlov (1927 in Rescorla, 1975), believed that the two basic types of conditioning: classic conditioning and operant conditioning produced language that the child, if reinforced enough, would then acquire easily.

a. **Classical conditioning** is just giving a stimulus to activate the child's mental faculties and then getting the necessary response. So, for example, if the child was shown a sweet and told "sweet" or "choco", then it is bound to repeat the word (in response) in order to be rewarded with that stimulus.

b. **Operant conditioning** (instrumental learning) is the type of language learning that is rewarded or reinforced so that the child feels or sees a sense of attainment. This can be in the form of strengthening words from the parent or the caregiver or even some toy or the like, if the language involves such subjects.

c. **Social learning** also encompasses imitation when the child imitates the language item being produced after careful observation. The source of imitation is usually the closest people around the child. This is why a child's role model must be an important element. Thus, from the babbling stage right up to the third or fourth years of language acquisition, the imitation factor plays an imperative role in the language acquisition process. Therefore, the social learning theory posits the importance of conditioning and imitation in language acquisition.

4. Social Interactionist Theory

Interaction here is obtained in the child's language environment: where the mother or caregiver is the main person with whom interaction occurs. The speech of mothers (motherese) to their child is a special kind (baby-talk) which is marked by slow and exaggerated talk and a simple syntax and vocabulary. Social interactionists such as Bruner (1985) postulate that the language acquisition socialization system (also known as LASS) helps children to come to terms with the environment and interact with it accordingly – not by imitating or just the innate ability or by the cognitive skills. Children need special types of mediatory speech tailored to their needs. Thus, adults or older children in the child's environment must make an effort to produce the phonology, lexicon, and syntactic language items according to his ability and time to cope with it. Social

interactionists like Ratner (1993) believe that the more time and effort spent by the caregiver with the child, the bigger the language output or acquisition will be. Social interactionist theory, therefore, essentially advocates the close rapport between the child and the adults or others in his language environment.

In summary, the child's language acquisition process is a conglomerate effect of all of these theories. To what extent one is more prominent or significant than the other is begging the issue. Still, one thing is for sure: the brain has an innate capacity for language, which, as seen earlier on, is indeed a very complex and complicated one. Proof of this capacity lies in the many cases of patients of head injuries where the language capacity has been affected, as well as of children or newborn infants who suffer from congenital or later acquired diseases affecting the brain or cognitive skills.

B. Second Language Acquisition

According to Baskaran (2005), second language acquisition has been looked at by different people and in different ways. For example, some researchers have focused on the cognitive processes involved in second language acquisition, while others have studied the social and cultural factors that influence language learning. Additionally, there have been debates about the effectiveness of different language learning methods and the role of explicit grammar instruction in second language acquisition. Despite these varying perspectives, there is general agreement that second language acquisition is a complex and multifaceted process that involves a range of linguistic, cognitive, and social factors. Understanding these factors can help educators and learners develop effective language learning and teaching strategies. Yet,

before considering all of these factors, specific terminological issues need to be clarified.

Baskaran (2005) adds that the term "second" language is usually aligned with "adult" language, while it is not necessarily so. Second language refers to any language learnt after or even together with the first language. The first language is normally taken for granted to be the mother-tongue, but this again is not necessarily so. The first language is the main language that the individual is exposed to from the day he/she is born. For example, suppose a child is born into a Chinese upper-middle socio-economic family in urban Kuala Lumpur, and this family is an English-speaking family with no elder generation members around (grandparents). In that case, this child is bound to use English as his first language.

The same can be true of a child of an Indian or Malay born into the same socio-economic urban family. Then slowly, as the child grows older, say by the age of four, five or six, he might be spoken to in the mother tongue by some members of the family occasionally and/or perhaps sent for some religious cum language classes (or kindergarten) which are solely conducted in the mother-tongue (Cantonese, Tamil or Malay) which then becomes the influencing factor for the second language. Then by the age of seven, this child might be put into a school which is either a national school (with Malay as the medium of instruction) thus giving even a third language (for the Chinese/Indian child) to his repertoire or a Chinese/Tamil medium school to reinforce this "second language" element further.

Thus, the first or second language dichotomy is arbitrary where the second language can also be attained very much during childhood. Then again in times of order of attainment or proficiency, the first and second languages can be almost simultaneous and near identical.

C. The differences of the First and Second Language

The term "second" language is usually aligned with "adult" language, but it is not necessarily so. Second language is any language learnt after or even with the first language. Furthermore, the term "second" language can also refer to any additional language learned after the first language, regardless of the age of the learner. In fact, many children learn a second language at a young age through formal instruction or exposure to a different language in their community.

The first language is normally taken for granted to be the mother tongue, but this again is not necessarily so. The first language is the main language which the individual is exposed to from the day he/she is born. In bilingual communities, the individual may learn two or more languages as their first languages, depending on the linguistic environment they grow up in. Similarly, individuals may learn multiple languages as their first language in multilingual communities.

Thus, the first/second language dichotomy is arbitrary where the second language can also be attained very much during childhood. Then again, in terms of order of attainment or proficiency, the first and second languages can be almost simultaneous and nearly identical. According to Cummins (1981), the distinction between first and second language acquisition is only sometimes clear-cut, as children exposed to multiple languages from an early age may acquire them simultaneously and at similar proficiency levels. In such cases, the notion of a "second language" becomes arbitrary, and the languages are better viewed as part of a multilingual repertoire. This is particularly true in cases where the child's social and cultural context encourages the use of multiple languages, such as in bilingual or multilingual families or communities. Therefore, the order and proficiency of

language acquisition may vary depending on individual circumstances and exposure to language.

D. Foreign Language Learning

The child from a monolingual-speaking family in a monolingual population setting grows leader in a neighborhood of a different language base. Thus, the child is then exposed to this second language, which could also be a foreign language to him, if he has yet to be exposed to eat any earlier. Therefore, the third piece of terminology that comes to contend here is the "foreign" language. In this case, a foreign language is not in common use in the social setting in which the individual is placed.

1. Second and Foreign Language

According to language acquisition experts, the terms "second language" and "foreign language" are not always interchangeable. While a second language refers to any language learned after the first language, foreign language specifically refers to a language that is not commonly spoken in the social setting where the individual is located. Kramsch (2013) notes that "foreign languages are those that are learned outside the environments where they are spoken and valued"

Second and foreign language can also be considered in a monolingual situation where the child from a monolingual-speaking family in a monolingual population setting grows later in a neighborhood with a different language base. Here, the child is then exposed to this second language, which could also be a foreign language to him, if he has yet to be exposed to it earlier. Thus, the third piece of terminology that comes to contend here is "foreign" language. A foreign language, therefore, is one which is not in common use in the social setting in which the individual is placed. For example, French, Italian or Spanish will definitely be foreign languages in

Malaysia, as would Tagalog, Thai and Burmese. On the other hand, English is a common second language to many although, in some circumstances, (especially in the rural areas), it can be considered a foreign language. In the constitution, however, it is deemed a "strong second language" status.

2. Child Language and Adult Language Learners

There is also another dimension to consider in the realm of second language acquisition which is basically to do with the age and stage at which the second/third or foreign language is learnt. Taking the ages eleven or twelve as the normal expected age of puberty, the term “adult” could be taken to refer to anyone above that age (from age thirteen onwards). Thus, with the many theories postulated for child language acquisition, any sort of language learning, be it second or foreign, will be easier for the child than for the adult learner. However, this does not definitely deter the adult learner from attaining his second or foreign language competence either.

The relationship between age and second language acquisition is well-established in language learning research. As Krashen (1982) noted, a critical period for language acquisition extends from early childhood to puberty, after which language learning becomes more difficult. This means that children have a natural advantage when it comes to learning languages, particularly in terms of pronunciation and grammar. In other words, while age can be a factor in second language acquisition, it is not a determinant of success or failure in language learning. With dedication, effort, and the right strategies, learners of all ages can attain proficiency in a second or foreign language.

All in all, therefore, the variables of first, second and foreign language can be placed against the age/stage dimension diagrammatically thus:

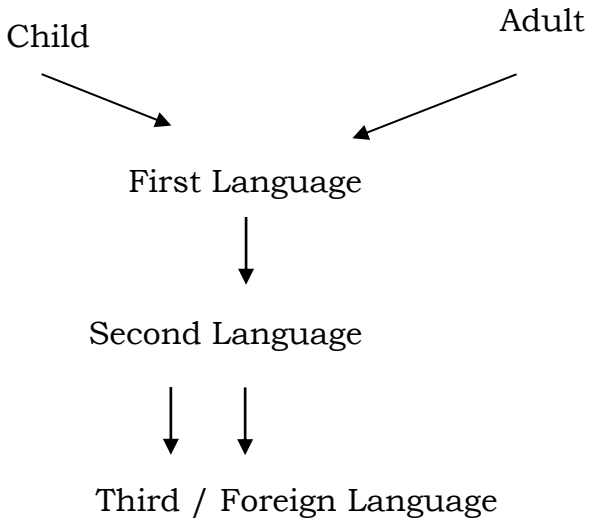


Figure 8.1. First/Second/Foreign Language Learning and Age Factor

E. Theories of Second or Foreign Language Learning

Many theories have been postulated where second-language acquisition concerns each type being forwarded by the specific group involved in this field and with its specific orientation. The range of people or specialists associated with this topic covers:

1. **Psycholinguists**

   Psycholinguists consider second language acquisition as processing information from the time it is passed into the system as a signal. Psycholinguists assert that understanding and learning a second language is similar to that of a first language other than the additional knowledge or information that the learner already has from his first language. Thus, the psycholinguistic processing that happens in the mind of both the first and second language learner can finally be seen in the performance and not just the competence of that language,

using relevant communicative strategies in the process. Generally, psycholinguists feel that learning a second language is basically a matter of experiencing it with little emphasis on differences within the individual or even the sociocultural dimensions that may affect the learning situation.

While psycholinguists have traditionally focused on the cognitive and linguistic processes involved in language acquisition, there is increasing recognition that social and cultural factors also play a significant role (Pavlenko & Blackledge, 2004). Psycholinguistic theories of second language acquisition typically posit that the processes involved in learning a second language are similar to those involved in learning a first language, with the added benefit of prior linguistic knowledge. However, more recent research has emphasized the importance of sociocultural factors such as language attitudes, identity, and power relations in shaping second language acquisition and use (Norton, 2013).

2. **Linguists**

Linguists consider the second-language acquisition language process influenced by the notion of universal Grammar where the interface between the first language grammar and second language grammar (the **interlanguage**) (Selinker, 1972) is a stage where some of the first language structures influence the second language structures. This is, however, a transition stage and can be diagrammatically represented below:

L1 ⟶ Interlanguage ⟵ Interlanguage

For children learning a second language, such an interlanguage can have two types of errors, **transfer errors** and **developmental errors,** where transfer errors are due to

transfer from the first to the second language, while developmental errors are those similar to those made while acquiring the first language.

3. **Sociolinguists**

The sociolinguists "concern with second language learning is to do with the notion of bilingualism and in particular the sociocultural context of bilingualism as well as multilingualism. They postulate that bilingualism is a common phenomenon worldwide and a very strong identify marker, indicative of a certain culture and nation or race. At the same time, while being bilingual is good, being too proficient in two languages together can also be slightly threatening to the first language, since the individual (who is good at both) may then subconsciously pay allegiance to the second language more.

Sociolinguists see second-language learning just as an extension of first language learning with more variability in the second. As Gumperz (1972) argues, "Language learning and use are shaped by the social contexts in which they occur, and therefore, sociolinguists are interested in understanding how social factors such as race, ethnicity, social class, gender, and culture influence second language acquisition and use" (p. 80). Sociolinguistic approaches to second language learning emphasize the role of sociocultural factors in shaping language acquisition and view bilingualism and multilingualism as complex and dynamic phenomena influenced by a wide range of individual, social, and cultural factors.

4. **Developmental Linguists**

Developmental linguists (child language researchers) believe that language acquisition is a developmental process where errors indicate progress. Just as errors are made in first

language acquisition, errors can be made in second language acquisition as well. They believe that the second language learner, whether a young child or an older child in a second language setting, displays a similar pattern of acquisition as that in first language acquisition, confirming that the same rules operate for both the first and second languages. As Pinker (1994) explains, "second language acquisition is remarkably similar to first language acquisition, and the same mechanisms and principles that underlie language acquisition in general also apply to second language acquisition" (p. 245). Developmental linguists view second language acquisition as a natural process of language development that occurs in much the same way as first language acquisition, with similar stages of development and patterns of error.

5. **Pedagogical Linguists (Foreign Language Educators)**

As stated earlier, foreign language teaching and second language teaching are not necessarily one and the same. However, the methodology of tutored or institutionalized teaching of a second or foreign language is what is referred to here. Pedagogical linguists or educationists "are most often concerned with the teaching methods and schools of thought that govern these various teaching methods. They feel that there are no definite best methods of second or foreign language teaching which range from grammar–translation to direct methods and more modernistic-suggestopedic ones.

One study by Brown (2000) supports the idea that there is no best second or foreign language teaching method. Brown argues that language teaching is a complex process that cannot be reduced to a single method or approach. Brown also states that teachers should be aware of different teaching methods and adapt their approach to the specific needs of their students. Furthermore, Brown suggests that teachers

should focus on creating a positive classroom atmosphere and building rapport with students in order to create a conducive learning environment.

As a conclusion of this chapter, it is obvious that second language acquisition is a conglomerate process with many factors as diverse as their proponents, ranging from psychology. Combined with these areas, other factors such as age, affective factors, the logistics of the second language classroom itself and sociocultural variables play a significant role in the process of second language acquisition.

Chapter
9

LEXICO SEMANTICS CHANGE

In developing of the language acquisition, the children gradually grow and then they will change their language ability, particularly in lexico-semantic change. This shows that mentally the children have grown normally.

A. Lexico-Semantic Change

Lexico-semantic change is the most productive area in which inter as well as intralingual adaptation occurs. Change here can occur lexically (with new or borrowed words) as well as semantically (with meaning changes). It is in the lexicon and semantic field that emotional, social, cultural and such notions are reflected most. The use of newly coined words by various types of people coupled with conspicuous as well as surreptitious borrowings or infiltrations from other languages result in a profusion of new words in language dictionaries every year, so that the lexicographer has to ensure that his dictionary has to be updated with new editions on a regular basis (Saeed, 2015).

1. Lexical Change. Among the many types of lexical change possible, word formation and borrowing are the main types or processes that have many sub-types.
2. Word-Formation. Many word-formation processes are used in languages, amongst which compounding is very productive. Compounding is combining two or more already available words to form a new word, as in Modern English, "lipstick, station-master, heaven-send, over-turn, black-listed, brown-eyed, ginger-haired" and "hit-and-run". Compounding was also an available process in Old English, as seen in examples such as "*middelniht*" (midnight) and "*boccraeft*" (bookcraft which referred to literature). In Malay, compounding is a very productive

morphological process giving examples such as "*budi bahasa* " (literate and educated) "*anak-angkat* " (adopted child) and " *sopan-santun*" (cultured/refined).

3. Derivation (Affixation) is yet another of very productive morphological process. It is the process of adding the various types of affixes to existing words. In English, affixation produces such examples as "selfless", "existence", "orderly " and "showmanship". At the same time, in Malay we have examples such as "*pengumuman*" (announcement – from *umum* – public, "*makanan*" food form *makan* - to eat) and "*seruling*" (flute form *suling* – to whistle).
4. Conversion (Zero-derivation) is also another important morphological process, where a word, in entirety, is converted from being one part of speech to another, as in the English examples such as "think " – from verb " I *think* " to noun " Give it a good *think* ", (similar conversions on analogy form " look " – " Have a drink ", - and " Have a read ", nouns formed from the original verbs " to look ", to drink " and " to read "). The similar process but on the reverse side is when the noun is used as a verb in English where we get examples today such as, " They're *partying* away ". From the noun "party " and "she's jet-*setting* this whole year", from the noun "jet-set". Malay, a morphologically productive language with a profusion of affixes, converts words by affixing them with the necessary inflections.

Other minor morphological processes are clipping, blending, back-formation and acronymy. *Clipping* occurs when a portion of a long word is maintained and the rest of it is dropped for convenience, as in the English examples "flu" (from influenza), "fax" (from facsimile), "phone" (from telephone) and "uni" (from university). *Blending* is another process where compounding and clipping occur together with bits of two words joined to give a new word, with examples such as "smog"

(smoke+fog), “brunch“ (breakfast+lunch) and “heliport“ (helicopter = airport) in English, while in Indonesian languge we have *tongseng* (Tong +Seng), *Tongdu* (tongkol + dua), and *Nasgor* (nasi+ goreng).

5. Back-formation (reanalysis) occurs when a new word is created by removing or reassigning an affix or part of the original word to produce a new word. English examples such as “ to baby-sit " (from " baby-sitter "), " to night-watch " (from " night-watchman "), and " to witch-hunt " (from " wicth-hunting "), verbs back-formed from the corresponding nouns, are very common nowadays. At the same time, the notorious " bikini " has been taken to have the " bi " derivation (meaning " two "), and, therefore, reanalyzed to produce the " monokini " (meaning only a one-piece bathing suit). Likewise, with the “ mini “ morpheme, which originally derived from Latin meaning “ very small “, and has now been applied to many other words to imply the same, from “ miniskirt “, to “ minimarket “.
6. Acronymy occurs when a name or a long phrase indicating a titular function is reduced to just the initials of the content words, as in "Interpol" (International Police), "CT Scan" or "Cat-Scan" (Computer-Assisted or Computer-Axiated Tomography Scan), radar (radio detection and ranging), DOS (Disk-Operating System), DJ (disk jockey) and UDA (Urban Development Authority). In Malay, acronimy does occur, giving examples such as ABRI (Angkatan Bersenjata Republik Indonesia), and ATM (Anjungan Tunai Mandiri).

Borrowing has always been a common and very productive process between and amongst languages. It has been made possible with the movement of people across the globe from centuries ago and with the advent of modern media covering the entire world these days. Borrowed words are also known **loan-words.** Sometimes

the borrowed word maintains the meaning or referent in entirety, whilst sometimes it may be borrowed to mean either a specific or, on the contrary, a generic term similar to the original word in the donor language. Borrowing occurs in all fields, from religion, culture, sports, entertainment, science, and any other area. There is no limitation or restriction regarding the field in which language borrowing occurs. It occurs most easily when there is most contact in that particular area or if there has been substantial international exchange in that field as seen in the field of sports or medicine/science, etc. however, a close scrutiny of borrowed words in any language will indicate superstratum, adstratum and substratum influences these referring to influence from the politically or socio-culturally (or sometimes even economically) more dominant, equally dominant or less dominant language respectively.

English has a plethora of borrowing from many languages in the world. It has swept the globe and has picked up borrowings voraciously from across the globe. Some examples are *medicine* (French), *prince* (French), *mutton* (French), *husband* (Scandinavian), cake (Scandinavian), *kindergarten* (German), *pretzel* (German), *noodle* (German), *mosquito* (Spanish), *yogurt* (Turkish), *tattoo* (Indian), *nirvana* (Indian), *curry* (Indian), *wigman* (Amerindian), *chipmunk* (Amerindian), kangaroo *(Australian), and cole-slaw* (Dutch).

In Malay, borrowing is also a very productive process since the Indonesian archipelago had an influx of traders, missionaries and voyagers who had stayed long enough to be acculturated into the society. Further, the Malayo-Polynesian peoples who themselves come from a vast dispersed area in South-East-Asia also moved from their island abodes to migrate to mainland areas such as the Indonesian and Malayan archipelagos, thus also being exposed to the many groups of people who traversed the seas in the same

manner that they did. Some such examples of borrowings in the Indonesian language are *almari, putera* (son or prince, Sanskrit), hadir (present, Arabic), *halal* (legal, Arabic), *haram* (illicit, Arabic), *halaman* (compound, Ducth), *telefon* (phone, English), *bas* (**bus,** English), *selipar* (slipper, English) and *komplikasi* (complication, English) to name just a few.

B. Semantic Change

Semantic change occurs when there is a change in the meaning of the word although not necessarily a total change but a shift in the quality of the meaning, ranging from semantic broadening or narrowing of meaning, amelioration or pejoration of meaning, and weakening of meaning, along with metaphor, metonymy and synecdoche (Saeed, 2015).

1. Semantic broadening (or generalization**)** happens when the meaning of a word becomes broader than its original referent, as in “dog " (originally meant a particular type only) which now refers to the entire species (generically) of dogs. Likewise, the words "kangaroo“(originally referred only to a particular black type) and " bird " (referred initially only to a particular small fowl). Semantic narrowing (or specialization**)** happens when the meaning of the word becomes narrower than its original referent as in " meat " (originally meant food of any sort), and " fowl " (originally meant any bird).
2. Semantic amelioration is the improvement of meaning when a word is used more favorably than its original meaning, as in "green“(originally meant any woman) and “pretty“ (originally meant tricky or cunning).
3. Semantic pejoration is the change of meaning from a more favorable to a less favorable or negative implication, as in "mistress" (originally a respectful term for addressing any woman) and "sily" (originally meant "happy").

d. Semantic weakening is the lightening or reducting the intensity of meaning in a word, as in the examples of “crucify” (originally meant killing by nailing to a cross) which now means “to cause someone to suffer” and “pulverize” (originally meant to make into pulp) which now means “to give a hard time”.

C. Metaphor, Metonymy and Synecdoche

These are also types of semantic change that are quite common across languages. Metaphor is non-literal use of words based on the factor of similarity or resemblance to the original meaning, as in the use of body-parts (foot, head, neck, face) to refer to anything non-anatomical but having similar functional or physiological characteristics, as in "foot" on the hill, "head" of the table, "neck" of a bottle, "face" of a clock and the like. The English languages abounds with metaphors which are not only used productively for nouns but other word-classes as well, as in the adjectives "cool", and “hot” or verbs, “ to branch out”, “to field”, and “to square off”.

Metonymy is the use of a word that stands for or represents the entity that is meant, as in the “Chair”, (meaning “Professor” or “chairman”), the “stage” (meaning the “theatre”) and the “the crown” (meaning “the King”). Synecdoche is the use of the whole term denoting a part or vice versa which is a part term denoting the whole, as in “e-mail”, meaning “electronic-mail”, and as in “Indonesia beat Korea by 3 goals”, meaning “The Indonesian football team beat the Korean football team”.

Chapter
10

LANGUAGE CHANGE

Language change is due to historical or psychological aspects of change. Accordingly, language change may reform linguistic characteristics. Adopted from Baskaran (2005), language change occurs over a long period of time so that in most cases, the change is only sometimes noticeable, especially changes in sound (phonological changes) compared to lexical and semantic changes. Morphological and syntactic changes also are often slow to be perceived.

A. Phonological Change

Baskaran (2005) states that changes in the certain kind of sound and sound combinations and phonetic features (e.g. velarization, nasalization and glottalization) very often occur due to phonological conditions and articulatory ease. Most phonological changes, however, tend to be in the segmental phonemes more than the suprasegmentals, although these are not totally absent. Therefore, the occur of change may happen in segmental phonemes.

1. **Lenitions (weakening) or fortitions (strengthening)**

   In addition, Baskaran (2005) a change of lenition or fortition implies in the strength of a sound particularly applicable only to consonant sounds either weakening (involving less articulatory effort) or strengthening (involving more articulatory effort) the consonants, normally in intervocalic positions. Some examples in English as well as Indonesian language. due to this book is aimed to Indonesian students, so the Indonesian language is used to make it more easily understood.

   As one type of phonological change, lenitions occur when consonants become weaker or more lenient in pronunciation, often due to their position within a word or in connected speech. This can involve changes in voicing, aspiration, or fricativization of consonants. For example, the /t/ sound in the

word "water" might become voiced and pronounced as a /d/ sound in the phrase "a bottle of water" due to the influence of the voiced /b/ sound that follows it. The example of lenition is “t-tappin” in American English, where words such as “pity”/piti/ and “ready”/redi/ are realized as [pifi] and [re§I] respectively. Glottalization in Scottish and Cockney English where intervocalic /t/ becomes glottalic [?] as in examples such as “butter/ bʌtə/ and “little/ litl/, productions [ba?ə.

Fortitions are sound changes that occur when consonants become more strongly articulated, harder, or more tense in some way. This can happen through various processes such as affrication, glottalization, and stop reinforcement. An example of fortition is the change from the Old English word "sēon" (to see) to the Modern English word "see", where the initial /s/ sound was fortified into a voiceless fricative. On fortition, another example is deaffrication in Indonesian language, where word-initial fricative /f/ tends to become plosive /p/, as in faham/ fʌhʌm / → /pʌham/ and (fasal) / fʌsʌl/ → /pʌsal/. Devoicing in word-final positions as in Indonesian language example of /biadap/ → / biadap/ and /lembab → /lembʌp.

2. Assimilation or dissimilation

Baskaran (2005) explains that assimilation occurs when two sounds that occur close together become either more alike or are put apart further due to nasalization or place of articulation factors. Some examples are:

a. Assimilation

The negative prefix (in) English which undergoes assimilation producing the allomorphs, labial, /im/ before bilabials /p/b/m/ as in “impervious”, “imbalanced” and “immobile” and velar /ŋ/ before velar /k/g/, as in

"incorrigible" and "ingratitude". The agent/instrument morpheme [pe(N)] in Indonesian language which undergoes assimilation producing the allomorphs: velar /paŋ/- before velars /k/g/ as in "*pengail*" (root: *kail*) , "*pengawal"* (root: *kawal*), "*penyapu"* (root: *sapu*), "penyelamat" (root: *selamat*).

b. Dissimilation

Frequently, two similar placed phonemes occur next to each other and are then changed as in bottle /botl/ , which often becomes / batal/ or mutton / mʌtən. which is often pronounced / mʌtən/, particularly in the new English's.

3. Deletion and insertion

Baskaran (2005) explains that deletion and additional or insertion of a phonemes in another common type of change which has, over the years, occurred in many languages. There are various types of deletions and insertion depending on the type of phonemes and place occurred of the phonemes involved. Some examples of these are:

a. Deletion

in word – initial position, as in English "k" for example "knave"/netv, "knowledge"/ naled/, - also known as aphesis (or aphaeresis). In word – medical position, as in English /e/a/ for example "camera"/ karma/ "tolerant"/talrnt/ - also known as syncope. In word-final position, as in French /ng/n/ for example "bon" /ban/ (good), "pain"/paen/(bread)- also known as apocopate,

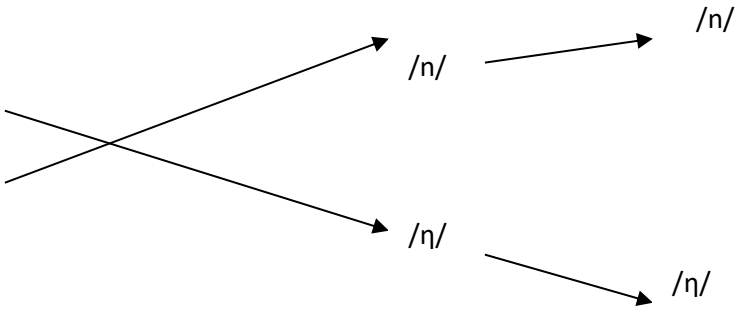
b. Insertion

in word- initial position, as in Spanish/e/ from Latin "scala"/escala/(ladder),a slo known as protheis. In word-medial position, as in Malay /e/ from English lian-word, "filem"/filem, "sekolah"/sakolah/ (from English film and

school). Also known as epenthesis. In word-final position, as in "naifu" and "rekoda' in Japan from English "knife"/naïf/ and "record"/ rekaid/ also known as paragogues

B. Splitting and Merger

Baskaran (2005) explains that splitting occurs when one phoneme becomes split into another phoneme due to phonological conditioning, as in the /n/ phoneme of modern English, which was originally the /n/ allophone which appeared before the velars /k/ or /g/ (as in singing and sinking) but, today it occurs as /n/ to differentiate it from the /n/ that occurs in pairs such as sin – sink, and run – rung. Such a split is represented diagrammatically below:



1. Phonological splitting

Baskaran (2005) explains that phonological splitting is a process in which a single phoneme in the original language is divided into two separate phonemes in the borrowed language. This often occurs when the borrowed language does not have an exact equivalent to the original language's phoneme. For example, Tamil has a retroflex consonant, which is not present in English. Therefore, when Tamil words containing this consonant are borrowed into English, the retroflex consonant is often split into two separate phonemes, such as "tr" or "dr".

2. Phonological merger

Merger occurs when two phonemes become one, also due to phonological ease condition, as in cockney /θ/ and /f/ (as well as / δ/ and /v/, producing “thunder’ (θands /as/ fands/ and “them” / δ em / as / ve. Further, Baskaran (2005) explains that phonological merger is a process in which "two distinct sounds merge into one sound, usually due to the influence of one sound on the other, resulting in the loss of the contrastive distinction between them" (p. 75). This process often occurs when two distinct phonemes come into contact with each other, such as in the case of dialect or language contact. For example, in some dialects of English, the phonemes /æ/ and /ɛ/ are merged, so that words like "trap" and "dress" are pronounced the same. This can also occur in situations where a speaker of one language is learning a second language and carries over phonological patterns from their first language, causing a merger between phonemes in the second language.

C. Shifting

Baskaran (2005) explains that shifting occurs when a group of sequential phonemes move in certain direction thus undergoing modification accordingly. Shifting is not a very common process and occurs mostly as a result of articulatory modification over centuries. An example of a well-known shift is the English great vowel shift (GVS) which occurred between the middle English period and the eighteenth century. The GVS Shifted all seven long vowels (the only ones prevalent then) upwards causing the closest front and back ones (/i/ and /u/) to become diphthongs and changing the other accordingly.

Some linguists suggest that shifting is not only phonetically motivated but also influenced by sociolinguistic factors such as social status, education level, and regional dialects (Labov, 2011).

For instance, the Northern Cities Shift in American English is attributed to the influence of working-class communities in the northern cities of the United States. The shift is characterized by a series of vowel changes that move several vowels in the mouth and are most noticeable in words like "cot" and "caught" (Labov, 2011).

D. Metathesis

Baskaran (2005) explains that metathesis occurs when there is a change in the positioning or ordering of phonemes (an alternation of phonemes). This change is often seen as a result of ease of pronunciation or due to the influence of surrounding phonemes. An example of metathesis in English is the pronunciation of "comfortable" as "comfortable." Another example is the pronunciation of "ask" as "aks". Such phonemes can be non-adjacent or adjacent (next to each other) ones, as in Spanish "*milegro*", (miracle) from Latin "*miraculu*".

E. Morpho Syntactic Change

Baskaran (2005) explains that changes in the morphological structures as well as syntactic ordering occur quite extensively across languages. Amongst the many types of morphosyntactic changes that are or were apparent are:

1. Affixation

Addition or borrowing/ellipsis or dropping off affixes are regular features of morphological change where new morphomes are added or borrowed into the language from other languages, as in original French "ment" and "able" used now in English "embarrassment" and "imaginable". Other such examples are Sanskrit "wati" "man" and 'wan" in Indonesian language "wartawati" (journalist lady) , sasterwan (literary scholar) and budiman (cultured person). English "ist" and "logy' in malay (becoming "is" and "logi" /lagi/ as in "telefonis" and "kadiologi".

Affixes have also been ellipted or faded out from use in some languages sometimes being replaced by more modern ones, as in the "age" suffix in English being replaced, in some words, by "ment" (equipage → equipment) or being totally dropped off from use ('freightage → freight)

2. Reanalysis

Reanalysis occurs when a compound or root and affix structure is given to a word that originally was not an affixed words, as in the English word "consent" (meaning to agree) . which than was reanalyzed to become "con+ sent" and further producing "dissent" (meaning to not agree) , giving the impression that "sent" was the affix to mean "agree" likewise/ with other examples such as "improve"→ approve

3. Analogy

Analogy occurs when new forms are created on the basis of similarities with an already existing form. Copious examples of which exist in English such as from china → Chinese giving "journalease", motherese, legalese, headlines and from read → readable, giving microwaveable, biodegradable and translatable.

4. Morphologization

Morphologization is the phenomenon when a word is reduced to a bound morpheme (an affix) and then forms a very productive affix, as in the old English word "lie" (body) which then become "ly"-"like" meaning "resembling" or having the characteristics of – which then has been used in modern English, giving examples such as "motherly", 'patronly" and "manly"

5. Word-order change

Change in word-order is syntactic change which involves S, V and O element being given different syntactic ordering over time,

as obtained, for example, between old and modern English. For example: “he wrote the book” in modern English which has an SVO ordering would have been “he the book” (SOV) or “wrote the book” VSO in old English

6. Markedness shift. In grammar, the marked form is the special form while the unmarked form is the ordinary form. Syntactic change can occur in the form when what used to be the marked form slowly becomes the unmarked one (becomes marked). For the example, the interrogative sentence involving a wh-word and preposition “To whom did you give it?" is the marked version of another possible unmarked form, "Who did you give it to?" Today, however, this unmarked form seems to be the marked form while the marked form used more than. Another similar common example in Modern English is “Who did you see yesterday?” compared to “Whom did you see yesterday?”

Chapter
11

CHILDREN LANGUAGE DEVELOPMENT

From considering the basic brain structure and its associations with speech and language, we now look at the child's acquisition process and milestones of the first language. The specialty of human beings is that there is this extra special endowment that we have that enables language acquisition to occur in the normal circumstances that we are born into. Once an individual is born, seemingly with no overtly obvious language, he slowly grows to perceive and produce language (via speech initially) slowly but surely. From just a babble of sounds to combinations of sounds and later on words and complex grammatical formations. The list goes on till he attains full mastery of his first language. This is the expected developmental achievement of any normal child in any society. The questions of what children learn and how and why they learn language are the concerns of the field of psycholinguistics called developmental psycholinguistics.

A. Developmental Milestone (what children learn)

The acquisition of language in children, it is theorized, really starts with the umbilical endowment that the child is placed with its "inviro" endowment that goes on when it is in the mother's womb. From the second it is born, it already produces the first sound of communication by crying, to say," Hi, I'm here, all's normal with me then". This is the normal expected response when a new born baby is delivered in any hospital or maternity home. Thus, if there are no signs of crying or any sound at all, this spells trouble ahead. It means that the newborn is suffering from some difficulty, disorder of deficit, which thus needs serious looking into. In normal circumstances, however, the baby is then exposed to its caregiver and others in the immediate social setting that he is born into. This

is the stage where the baby produces sounds and perceives sounds as well.

1. **Cooing/Babbling**

   From as early as six to eight weeks old,the preparation of articulation already is under way with the "cooling" stage,producing sounds like "ga-ga" and "gu-gu". Babbling is the next stage when,say, by four to six months of age,the baby can produce sounds that seem to frequent the environment. He perceives sounds uch as the plosives /p,t,k,b,d,g/nasals/m,n/and the simpler fricatives /s and h/perhaps. The other fricatives take slightly longer to achieve but /f/ and /θ/ sometimes do occur in the later babbling stage. By the ninth to twelfth month,the child is thus able to perceive as well as produce the basic common sounds that he is surrounded by. By the beginning of the thirteenth month,the child's babbling is replaced (overlappingly though) by simple,mono or disyllabic word recognition and production. Most words that children at this stage recognize are concrete noun words, besides the universal,"num/mummy/amma/ma/mama/mi"/and"dad/daddy/dada/da/di/appa/pa/papa"/.

   From the universal parent pair of words, other words naming objects that the child is familiar with are the next to be recognized and produced. Besides examples such as "dog, car, cat, ball" we have even verb monosyllables such as "run", "come", "go", "eat" and "take" or "walk" and "sit". There is slowly then the progression to even some adjectival mono or disyllabic words such as "big", "dirty", "nice", "good" and "small" as in sentences that the adults around will often use such as "good girl", "nice boy", "big ball" and "small toy" etc.

   During this holophrastic stage, while perceiving and producing simple mono or disyllabic words, the child

sometimes will generalize or extend the meaning of one item to others of similar (to the child) referent. For example, if the word “dog” is already perceived and produced, it may be that even a cat or a toy cat may be referred to as “dog” for some time (until he learn to realize later that the dog barks and is more active than the cat, who seems less active and quitter). Likewise, the word "ball “may recognize and signify a balloon, or any round object around the house. The tendency to overextend is more common, however, than to underextend, (referring to only one particular "dog" when using the term as applied to the pet dog in the house).

2. Basic Syntax Production

The next stage of language acquisition is from about eighteen to about tweeny-four months, when two-word utterances begin to be produced. Thus, when the mother says, “Good girl”, the baby may be able to repeat "Goo-gir" / gu gə /where the semantic loading is just about enough. The normal phrases such as "come here”, “sit down”, “run there”, “go there" and "no car" or "dada gone" are the next type of linguistic achievement markers that the child can handle, all of which have marked absence of non-lexical morphemes. Function words are absent such as the articles (a, an, the) or any sort of tense and person markers (ing, ed, s) – thus the effect of telegraphic speech is common here.

3. Question/Negation Markers and Lexical Growth

By the second year, the child’s vocabulary should normally have a common and or competence factor of about a good 200 words, which by the age of three should also then have the grammatical input of negation (with the words “no” or “not”) and the plural marker (“s” with simple words such as cat/cats; dog/dogs). The element of questions may be perceived and

produced by the third year as well. The production of question of question-markers by the child will be by intonation only, initially," Baby can go?" (with rising final intonation),whilst subject-auxiliary inversion will only surface later, say by the fourth year or so (before which it will still be, "I can go?" or "What I can do?"etc.).

Thus by the end of the fourth year, the first grammatical morphemes as well as the recognition and production of question and negation markers should have been mastered ,and progressed to some of the other grammatical morphemes, possessive morpheme {s} and the definite/indefinite articles (a, an, the). Semantically, the use of spatial and dimensional words now comes on quite easily with words such as "behind"," under", "on top of", "big", "small", "high", "low" and "deep","narrow",etc. By the age of four, the child is expected to have a substantial basic language repertoire with a vocabulary command of a good 1,500-2,000 words and an MLU (mean length of utterance), which is the average number of words per utterance) of about four or five. (At age three, the normal MLU is three).

4. Further Milestones

From after four or five years, the child is exposed to more and more language and can produce as much as he can perceive – all depending now on the environment and all the institutionalized exposure that he/she gets. This is shown in Table 7.1.

Table 11.1 Linguistic milestones in First Language Acquisition

ACTION	AGE	MILESTONES	EXAMPLES
Cooing and babbling	6-8 weeks 4-6 weeks	"cooing" stage "babbling" stage	/ga-ga/,/ba-ba/ etc /p,t,k/,/b,d,g/ /m,n/n/s,h/f,θ/
holophrastic	9-12 months 13-18 months	Monosyllabic stage further monosyllabic disyllabic concrete nouns verbs (monosyllabic) simple adjectives	/ka:/,/kaet/,/bol/ /dog/ /ma:/,/pa/ /mami/,/papa/, /buk/,/ka:/,/bo:l/ /boks/, /kam/ran/,/geu/,/i:t/, /sit/,/wo:k/,/to:k/. /nais/./gud/ /big/.
Telegraphic	18-24 months	Two-word utterances	/gud ge:l/,/sit daun/, /dadi geu/,/neu ka:/.
Question/ Negation Markers ; Basic Morphemes	24-36 months	Negation/direction question (with intonation) morpheme markers	Baby no go there. Baby want milk? Two dogs
Further Question/ Negation Morphemes Articles	36-48 months	Question (with no subject-verb inversion) past tense morpheme present tense morpheme articles	I can go? He talked Mummy talking The boy gave a book
Spatial/ Dimensional Words	After 48 months	Spatial and dimensional words	Small, high, deep etc

The achievement of these basic milestones in a child's first language is universal and has been proven by many psycholinguists experimenting with various languages over the years. Therefore, the explanation of how children develop their speech comprehension is the next concern.

B. Development of Speech Comprehension

The development of speech comprehension in children is a complex process that begins in the early stages of life and continues throughout childhood. The ability to understand speech is essential for communication and language development, and it is

an important precursor to the development of expressive language. In this essay, we will explore the developmental trajectory of speech comprehension in children, examining its emergence in infancy, the role of environmental factors in its development, and the relationship between speech comprehension and other aspects of language development.

The development of speech comprehension begins in the womb, where fetuses are able to recognize their mother's voice and distinguish it from other voices (DeCasper & Fifer, 1980). This ability is due to prenatal exposure to the mother's voice, which helps establish a neural representation of her speech sounds. After birth, infants continue to develop their ability to comprehend speech, initially by attending to the prosodic cues of speech, such as stress and intonation. In addition, infants can differentiate between speech and non-speech sounds and recognize the rhythms and melodies of their native language (Nazzi et al., 1998).

As infants grow, their speech comprehension abilities become more sophisticated. They learn to recognize individual words and their meanings, and can begin to understand simple sentences. The ability to comprehend speech develops in a hierarchical manner, with basic phonological skills serving as the foundation for more advanced skills such as understanding syntax and discourse. By around 6 months of age, infants can recognize their own name, and by 12 months, they can understand simple requests, such as "Come here" (Fenson et al., 1994).

Environmental factors play an important role in children's speech comprehension development. Infants and young children require exposure to a rich and varied language environment to fully develop their speech comprehension skills. For example, children raised in language-poor environments, such as those with less verbally responsive parents, have been found to have delays in speech comprehension and other language skills (Hart & Risley,

1995). In contrast, children who are raised in language-rich environments, such as those with parents who engage in frequent conversation and reading activities, tend to have stronger speech comprehension and other language skills (Hoff, 2003).

The relationship between speech comprehension and other aspects of language development is complex. Although speech comprehension serves as the foundation for the development of expressive language, the relationship between the two is separate. Children with strong speech comprehension abilities may still struggle to produce expressive language, and vice versa. For example, a child may have difficulty understanding complex syntax even if they have a rich vocabulary and good phonological skills (Montgomery, 2004).

In conclusion, the development of speech comprehension in children is a complex and ongoing process that begins in infancy and continues throughout childhood. Comprehending speech is essential for communication and language development and is influenced by genetic and environmental factors. Children who are raised in language-rich environments tend to have stronger speech comprehension and other language skills, and the relationship between speech comprehension and other aspects of language development is complex. Therefore, understanding the development of speech comprehension in children is crucial for developing effective interventions for children with speech and language disorders and for promoting optimal language development in all children.

Chapter
12

CLOSING

As we know Psycholinguistics is the study of psychology and linguistics. Because those fields have similarities. Psychology is the science of behavior and mental processes. According to Zimbardo et al. (2012) the term psychology comes from psyche, the ancient Greek word for “mind,” and the suffix *-ology*, meaning "a field of study." Then, *psychology* means “the study of the mind.” While linguistics means the study of using a language as an object of the study. In addition, Wardhaugh (2006:1) explains that a language is what the members of a particular society speak. The definite of language includes in it a reference to society. Language is a communal possession, although admittedly an abstract one. Knowing a language also means knowing how to use that language since speakers know not only how to form sentences, but also how to use them appropriately.

Etymologically psycholinguistics formed from two different fields namely, psychology and linguistics. The fields can stand by its own. Furthermore, those fields combine linguistics and psychology, which can be mentioned as "psychology of language". Chaer (2002) adds that psycholinguistics describes the process of psychology which is followed if people communicate by saying sentences.

historical studies of psychology and linguistics of language change enable postulates on inter-language relationship and pre-historical contact among psychology and languages, which will also give us some insight on the language groups or families the various languages belong to.

Pioneers of the psychologist who concern of psycholinguistics. They are Ferdinand Mongin de Saussure was born in Geneva in 1857. Second, Leonard Bloomfield (April 1, 1887 – April 18, 1949) was an American linguist who led the development of structural linguistics in the United States during the 1930s and the 1940s. Finally, Avram

Noam Chomsky (born December 7, 1928) is an American linguist philosopher, cognitive scientist, logician, political commentator, social justice, activist, and anarcho-syndicalist advocate.

Theories of language acquisition. The theories are Cognitive and Stimulus and Response. a stimulus is an energy change (such as light or sound) which is registered by the senses. In behaviorism and related stimulus-response theories, a stimulus constitutes the basis for behavior, whereas it constitutes the basis for perception in perceptual psychology. In this context, a distinction is made between the *distal stimulus* (the external, perceived object) and the *proximal stimulus* (the stimulation of sensory organs). cognitive development was a progressive reorganization of mental processes resulting from biological maturation and environmental experience. He believed that children construct an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, then adjust their ideas accordingly.

BIBLIOGRAPHY

American Psychiatric Association, D., & American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (Vol. 5, No. 5). Washington, DC: American psychiatric association.

American Speech-Language-Hearing Association. (2016). Scope of practice in speech-language pathology [Scope of practice]. Available from http://www.asha.org/policy/

Aoyama, K., Peters, A. M., & Winchester, K. S. (2010). Phonological changes during the transition from one-word to productive word combination. *Journal of Child Language, 37*(1), 145-157. https://doi.org/10.1017/S0305000909009465

Barsky, R. F. (1998). *Noam Chomsky: A life of dissent*. MIT Press.

Baskaran, L. (2005). *A Linguistics Primer for Malaysians*. Kuala Lumpur: University of Malaya Press.

Beebe, B., Alson, D., Jaffe, J., Feldstein, S., & Crown, C. (1988). Vocal congruence in mother-infant play. *Journal of psycholinguistic research, 17*, 245-259. https://doi.org/10.1007/BF01686358

Bishop, D. V. (2014). *Uncommon Understanding (Classic Edition): Development and disorders of language comprehension in children*. Psychology Press.

Bishop, D. V., & Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders and reading retardation. *Journal of child psychology and psychiatry, 31*(7), 1027-1050. https://doi.org/10.1111/j.1469-7610.1990.tb00844.x

Bishop, D. V., & Norbury, C. F. (2005). Executive functions in children with communication impairments, in relation to autistic symptomatology: I: Generativity. *Autism, 9*(1), 7-27. https://doi.org/10.1177/1362361305049027

Bishop, D. V., & Norbury, C. F. (2021). Exploring the diagnostic criteria for social communication disorder (SCD): a comparison with DSM-5 criteria for autism spectrum disorder. *Journal of Child Psychology and Psychiatry, 62*(2), 161-168.

Brown, H. D. (2000). *Principles of language learning and teaching* (Vol. 4). New York: Longman.

Bruner. (1985). *Child's Talk: Learning to Use Language.* Yogyakarta: Norton.

Buder, E. H., Warlaumont, A. S., Oller, D. K., Peter, B., & MacLeod, A. (2013). An acoustic phonetic catalog of pre-speech vocalizations from a developmental perspective. *Comprehensive perspectives on child speech development and disorders: Pathways from linguistic theory to clinical practice, 4*, 103-34.

Carlson, N. R. (2014). *Physiology of behavior.* Pearson.

Chaer, A. (2002). *Psikologi: Kajian teoretik.* Jakarta: Rineka Cipta.

Chomsky, N. (1957). *Syntactic Structures.* The Hauq: Mouton.

Clark, H. (1977). *Psychology and Language.* New York: Harcourt Brace Jovanovich.

Conti-Ramsden, G., & Botting, N. (1999). Classification of children with specific language impairment: Longitudinal considerations. *Journal of Speech, Language, and Hearing Research, 42*(5), 1195-1204. https://doi.org/10.1044/jslhr.4205.1195

Conway, M. A., Cohen, G., & Stanhope, N. (1991). On the very long-term retention of knowledge acquired through formal education: Twelve years of cognitive psychology. *Journal of Experimental Psychology: General, 120*(4), 395. https://psycnet.apa.org/doi/10.1037/0096-3445.120.4.395

Culler, J. D. (1986). *Ferdinand de Saussure.* Cornell University Press.

Cummins, J. (1981). Empirical and theoretical underpinnings of bilingual education. *Journal of education, 163*(1), 16-29. https://doi.org/10.1177/002205748116300104

DeCasper, A. J., & Fifer, W. P. (1980). Of human bonding: Newborns prefer their mothers' voices. *Science, 208*(4448), 1174-1176. https://doi.org/10.1126/science.7375928

Demirezen, M. (1988). Behaviorist theory and language learning. *Hacettepe Vniversitesi Eðitim Fakültesi Dergisi, 3*, 135-40.

Ellis, R. (1986). *Understanding Second Language Acquistion.* New York: Oxford University Press.

Fenson, L., Dale, P. S., Reznick, J. S., Bates, E., Thal, D. J., Pethick, S. J., ... & Stiles, J. (1994). Variability in early communicative

development. *Monographs of the society for research in child development*, i-185. https://doi.org/10.2307/1166093

Fernald, A., & Marchman, V. A. (2012). Individual differences in lexical processing at 18 months predict vocabulary growth in typically developing and late-talking toddlers. *Child development, 83*(1), 203-222. https://doi.org/10.1111/j.1467-8624.2011.01692.x

Ganger, J., & Brent, M. R. (2004). Reexamining the vocabulary spurt. *Developmental psychology, 40*(4), 621. https://psycnet.apa.org/doi/10.1037/0012-1649.40.4.621

Gathercole, S. E., & Baddeley, A. D. (1993). Phonological working memory: A critical building block for reading development and vocabulary acquisition? *European Journal of Psychology of Education, 8*(3), 259. https://doi.org/10.1007/BF03174081

Gazzaniga, M. S. (2005). Forty-five years of split-brain research and still going strong. *Nature Reviews Neuroscience, 6*(8), 653-659. https://doi.org/10.1038/nrn1723

Goldstein, M. H., & Schwade, J. A. (2008). Social feedback to infants' babbling facilitates rapid phonological learning. *Psychological science, 19*(5), 515-523. https://doi.org/10.1111/j.1467-8624.2009.01287.x

Goodglass, H., & Kaplan, E. (1983). The Assessment of Aphasia and Related Disorders (2nd ed) Lea & Febiger. *Dictionary of Biological Psychology, 230*.

Grumwell, P. (1987). *Clinical Phonology*.London: Croom Helm.

Gumperz, J. J. (1972). The communicative competence of bilinguals: Some hypotheses and suggestions for research. *Language in society, 1*(1), 143-154. https://doi.org/10.1017/S0047404500006606

Hall Jr, R. A. (Ed.). (1987). *Leonard Bloomfield: Essays on his life & work* (Vol. 47). John Benjamins Publishing.

Hollan, P. C. (2008). Cognitive versus stimulus-response theories of learning. *Learning & behavior, 36*(3), 227-241. https://doi.org/10.3758%2Flb.36.3.227

Hoff, E. (2003). The specificity of environmental influence: Socio-economic status affects early vocabulary development via maternal speech. *Child development, 74*(5), 1368-1378.

Keren-Portnoy, T., Majorano, M., & Vihman, M. M. (2009). From phonetics to phonology: The emergence of first words in Italian. *Journal of child language, 36*(2), 235-267. https://doi.org/10.1017/S0305000908008933

Kramsch, C. (2013). Culture in foreign language teaching and learning. *Encyclopedia of Applied Linguistics*, 1-6. https://doi.org/10.1002/9781405198431.wbeal0221

Krashen, S. D. (1982). *Second Language Acquisition: Method, description, and Speech Analysis: The Distinctive Features and Their Correlates.* Cambridge: Pergamon Press.

Labov, W. (2011). *Principles of linguistic change*, volume 3: Cognitive and cultural factors (Vol. 3). John Wiley & Sons.

Lenneberg, E. H. (1967). The biological foundations of language. *Hospital Practice, 2*(12), 59-67. https://doi.org/10.1080/21548331.1967.11707799

Loucks, R. B. (1935). The experimental delimitation of neural structures essential for learning: the attempt to condition striped muscle responses with faradization of the sigmoid gyri. *The Journal of Psychology, 1*(1), 5-44. https://doi.org/10.1080/00223980.1935.9917239

Lourenço, O., & Machado, A. (1996). In defense of Piaget's theory: A reply to 10 common criticisms. *Psychological review, 103*(1), 143. https://psycnet.apa.org/doi/10.1037/0033-295X.103.1.143

Mampe, B., Friederici, A. D., Christophe, A., & Wermke, K. (2009). Newborns' cry melody is shaped by their native language. *Current biology, 19*(23), 1994-1997. https://doi.org/10.1016/j.cub.2009.09.064

Mash, E. J., & Barkley, R. A. (Eds.). (2014). *Child psychopathology*. Guilford Publications.

McGregor, K. K., Friedman, R. M., Reilly, R. M., & Newman, R. M. (2002). Semantic representation and naming in young children. *Journal of speech, language, and hearing research: JSLHR, 45*(2), 332-46

McIntosh, B., & Dodd, B. J. 2008. Two-year-olds' phonological acquisition: Normative data. *International journal of speech-language pathology, 10*(6), 460-9. https://doi.org/10.1080/17549500802149683

Montgomery, J. W. (2004). Sentence comprehension in children with specific language impairment: Effects of input rate and phonological working memory. *International Journal of Language & Communication Disorders, 39*(1), 115-133. https://doi.org/10.1080/13682820310001616985

Nathani, S., Ertmer, D. J., & Stark, R. E. (2006). Assessing vocal development in infants and toddlers. *Clinical linguistics & phonetics, 20*(5), 351-369. https://doi.org/10.1080/02699200500211451

Nazzi, T., Bertoncini, J., & Mehler, J. (1998). Language discrimination by newborns: toward an understanding of the role of rhythm. *Journal of Experimental Psychology: Human perception and performance, 24*(3), 756.

Newton, C., & Ridgway, S. (2016). Novel accent perception in typically-developing school-aged children. *Child Language Teaching and Therapy, 32*(1), 111-123. https://doi.org/10.1177/0265659015578464

Nicolaidis, K. (2004). Articulatory variability during consonant production by Greek speakers with hearing impairment: An electropalatographic study. *Clinical linguistics & phonetics, 18*(6-8), 419-432. https://doi.org/10.1080/02699200410001703574

Norbury, C. F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., ... & Pickles, A. (2016). The impact of nonverbal ability on prevalence and clinical presentation of language disorder: Evidence from a population study. *Journal of child psychology and psychiatry, 57*(11), 1247-1257. https://doi.org/10.1111/jcpp.12573

Norbury, C. F., Tomblin, J. B., & Bishop, D. V. (2008). *Understanding developmental language disorders: From theory to practice*. Psychology press. https://doi.org/10.4324/9780203882580

Norton, B. (2013). Identity and language learning. In *Identity and Language Learning*. Multilingual matters. https://doi.org/10.21832/9781783090563

Papaeliou, C. F., & Trevarthen, C. (2006). Prelinguistic pitch patterns expressing 'communication'and 'apprehension'. *Journal of child language, 33*(1), 163-178. https://doi.org/10.1017/S0305000905007300

Pavlenko, A., & Blackledge, A. (Eds.). (2004). *Negotiation of identities in multilingual contexts* (Vol. 45). Multilingual Matters.

Pearce, J. M. (1987). A model for stimulus generalization in Pavlovian conditioning. *Psychological review, 94*(1), 61.

Piaget, J. 1965. *The Langauge and Thought of the Child.* New York: Humanities Press.

Pinker, S. (1994). On language. *Journal of Cognitive Neuroscience, 6*(1), 92-98. https://doi.org/10.1162/jocn.1994.6.1.92

Rabagliati, H., Marcus, G. F., & Pylkkänen, L. (2011). Rules, radical pragmatics and restrictions on regular polysemy. *Journal of Semantics, 28*(4), 485-512. https://doi.org/10.1093/jos/ffr005

Ratner, N. B. (1993). The Child's Path to Spoken Language. *Science, 262*(5131), 260-261.

Rescorla, R. A. (1975). Pavlovian excitatory and inhibitory conditioning. *Handbook of learning and cognitive processes, 2,* 7-35.

Rice, M. L. (2016). Tribute to Isabelle Rapin. *Journal of Neurodevelopmental Disorders, 8*, 1. https://doi.org/10.1186/s11689-016-9137-7

Saeed, J. I. (2015). *Semantic*s. John Wiley & Sons.

Saussure, F. (1966). *Course in General Linguistics.* New York: Hill Book.

Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics in Language Teaching, 10*(1-4), 209-232. https://doi.org/10.1515/iral.1972.10.1-4.209

Skinner, B. F. (1957). *Verbal Behaviour.* New York: Appletor-Century.

Slobin, D. I. (1979). *Psycholinguistics*. Glenview: Scott. Foresman and Co.

Smits-Bandstra, S. (2006). The Role of Segmentation in Lexical Acquisition in Children Rôle de la Segmentation Dans l'Acquisition du Lexique chez les Enfants. *Audiology, 30*(3), 182-191.

Spence, K. W. (1950). Cognitive versus stimulus-response theories of learning. *Psychological review, 57*(3), 159. https://psycnet.apa.org/doi/10.1037/h0058250

Standring, S. (Ed.). (2021). *Gray's anatomy e-book: the anatomical basis of clinical practice*. Elsevier Health Sciences.

Todd, J., & Bohart, A. C. (2014). Neuroscience and behavior. In *Foundations of clinical and counseling psychology* (4th ed., pp. 45-68). Wiley.

Vetter, H. J., & Howell, R. W. (1971). Theories of language acquisition. *Journal of psycholinguistic research, 1,* 31-64. https://doi.org/10.1007/BF01066935

Wardhaugh, R. (1998). *An Introduction to Sociolinguistics*. Oxford: Blackwell Publishers.

Wyllie-Smith, L., McLeod, S., & Ball, M. J. (2006). Typically developing and speech-impaired children's adherence to the sonority hypothesis. *Clinical Linguistics & Phonetics, 20*(4), 271-291. https://doi.org/10.1080/02699200400016497

Zimbardo, P., Sword, R., & Sword, R. (2012). *The time cure: Overcoming PTSD with the new psychology of time perspective therapy.* John Wiley & Sons.

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