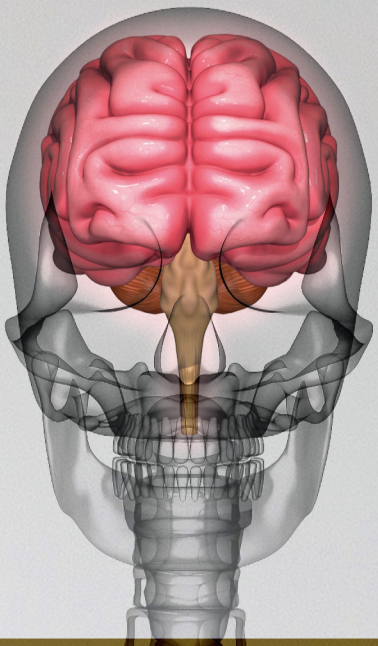

Psycholinguistics

FOR STUDENTS OF LANGUAGE EDUCATION

SUSILO

Psycholinguistics

FOR STUDENTS OF LANGUAGE EDUCATION

Pasal 113 Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta:

(1) Setiap Orang yang dengan tanpa hak melakukan pelanggaran hak ekonomi sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf i untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 1 (satu) tahun dan/atau pidana denda paling banyak Rp100.000.000 (seratus juta rupiah).

(2) Setiap Orang yang dengan tanpa hak dan/atau tanpa izin Pencipta atau pemegang Hak Cipta melakukan pelanggaran hak ekonomi Pencipta sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf c, huruf d, huruf f, dan/atau huruf h untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 3 (tiga) tahun dan/atau pidana denda paling banyak Rp500.000.000,00 (lima ratus juta rupiah).

(3) Setiap Orang yang dengan tanpa hak dan/atau tanpa izin Pencipta atau pemegang Hak Cipta melakukan pelanggaran hak ekonomi Pencipta sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf a, huruf b, huruf e, dan/atau huruf g untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 4 (empat) tahun dan/atau pidana denda paling banyak Rp1.000.000.000,00 (satu miliar rupiah).

(4) Setiap Orang yang memenuhi unsur sebagaimana dimaksud pada ayat (3) yang dilakukan dalam bentuk pembajakan, dipidana dengan pidana penjara paling lama 10 (sepuluh) tahun dan/atau pidana denda paling banyak Rp4.000.000.000,00 (empat miliar rupiah).

Psycholinguistics

FOR STUDENTS OF LANGUAGE EDUCATION

Prof. Dr. Susilo, M.Pd.

Airlangga University Press

PSYCHOLINGUISTICS FOR STUDENTS OF LANGUAGE EDUCATION
Susilo

ISBN 978-602-473-753-5 (PDF)

Anggota IKAPI dan APPTI Jawa Timur
Kampus C Unair, Mulyorejo Surabaya 60115
Telp. (031) 5992246, 5992247 Fax. (031) 5992248
E-mail: adm@aup.unair.ac.id

Redaktur (Zadina Abadi)
Layout (Bagus Firmansah)
Cover (Erie Febrianto)
Digitalisasi (Tim Ebook AUP)
AUP (1110/09.21)

Preface

This book tells about the introductory elaborations in the field of Psycholinguistics, specifically more focusing on its relation to language learning or acquisition. Using simple language and giving after-reading activities, this book is supposed to be advantageous for students of language education. In addition, it is expected that the students can easily digest the contents of this book. This book is divided into five chapters, each containing two parts: one part is addressing the concepts given in the chapter and the other one is providing the exercises for reinforcing the chapter.

The first chapter, *Introduction*, brings initial remarks to give a glance look at the definition, scope and a brief history of psycholinguistics.

The second chapter addresses the concept of first language acquisition and second language acquisition as a process of psycholinguistic phenomena within human beings. Earlier and later theories in this concept are elaborated.

The third chapter, *language production and comprehension*, is the one which identifies processes occurring in human beings' brain in regard with how an individual is understanding and producing language for communication.

The fourth chapter is the one in which the brain physically and mentally related to language processing is explained. In this chapter, it is also given an

explanation of how the brain damage is influencing the process of language production and comprehension.

The last chapter contains the concept of the relationship amongst language, thought and culture. It is also discussed how rhetoric of certain language influences the writers/speakers' thought in producing the language.

2021
Samarinda, Indonesia

Author

Table of Contents

Chapter 1 Introduction

Chapter 2 Language Acquisition

Chapter 3 Language Production and Comprehension

Chapter 4 Language and the Brain: Language Dissolusion

Chapter 5 Language, Thought, and Culture

Chapter 1
Introduction

Learning outcomes:
- to identify the definition of psycholinguistic study
- to identify the scope of psycholinguistic study
- to identify a brief historical records of psycholinguistics

Psycholinguistics which will be discussed in this book is centred on topics in relation to the process of English as Foreign Language (EFL) learning. Therefore, the topics of the book will not cover all topics in the field of psycholinguistics as a whole. The topics are discussed to follow the spectrum of the development of how children acquire language, how adults learn second language, how language is processed in the brain, and finally the author will relate all those things into the psychological aspect of learning foreign language.

1.1 DEFINITION OF PSYCOLINGUISTICS

At glance, everyone can predict easily form its name implied in the word *psycholinguistics*, that it is a combination of two big sciences, i.e., linguistics and psychology. This exactly means the psychological aspect of language study. This

understanding scientifically is not really incorrect or not quite correct either, but it is still unclear. To digest the concept of psycholinguistics in such a simple understanding is indeed very hard in terms of science, and it is what the most common understanding was when this word is given. As an introductory remark, this paragraph will bring you to the explanation of what people really learn in linguistics before defining the concept of psycholinguistics.

In linguistics, components of language are studied deeper, which resulted in separated subfields of linguistics; phonetics (a study of speech sound), phonology (a study of sound system of a particular language), morphology (a study of word formation), syntax (a study of sentence construction), semantics (a study of meaning) and pragmatics (a study of meaning and context). These subfields are areas of scientific investigations which are under the field of linguistic study. These are called a core of linguistics. However, language can also be studied in a number of ways which are beyond the linguistic study. Other disciplines like sociology, anthropology, medical study, psychology and so on can be used as angles in looking at the language, which is usually known as the interdisciplinary investigations in linguistic areas. Language which is seen from the viewpoint of society, for instance, would be called sociolinguistics; language that is viewed from the angle of anthropology would be called anthropology linguistics; medical study can also be used for studying language, which is known as neurolinguistics, and the field of psychology is one which underlies the study of language in related to the mental process within an individual. It is clear now that psycholinguistics is a subfield of linguistics which focused on the subtle process of producing and understanding language in human brain, including the possibility of damage disturbing the process (Menn (2017). distinguished what linguistics is about and psycholinguistics is about by describing the purposes of both fields. Linguistics describes language in details (i.e., speech, dialect, formal vs informal, etc.), while psycholinguistics is more about discovering how speaking, understanding, reading, and writing are managed in human brain. In addition, the goal of psycholinguistics includes how language is acquired, how language is produced and understood, and how language is processed in the brain (Fernández & Cairns (2011).

1.2 SCOPE OF PSYCOLINGUISTICS

In this point, understanding psycholinguistics as a sub-field of language study is correct, this is to say that the basic concern is the investigation of psychological phenomena within individuals in relation to language development. In other word, the field of psycholinguistics then attempts to answer questions of how language is produced and comprehended, how language is processed in the brain and what areas of the brain are used for language processes.

Thus, psycholinguistics covers not only all under the discussions of the two fields— linguistics as well as psychology—but also all disciplines under the cognitive sciences, like biology, neuroscience, medical science, artificial intelligence, and others. That is why, this field is quite complex, providing with a fuzzy boundary domains of analysis. There has been some disagreement among linguists to talk about the coverage of psycholinguistics. In any cases, this discipline might embrace five big topics, i.e., 1) language processing, 2) lexical storage and retrieval, 3) language acquisition, 4) special circumstances, and 5) the brain and language. However, whatever complex this field is, this book restricts the explanation on the substance which is centred on four things, i.e., how language is acquired, produced, comprehended and dissolved in relation to English as a Foreign Language (EFL) learning and teaching. The restriction is taken because this book aims at putting psycholinguistics as the basic foundation in EFL courses. Therefore, language acquisition, production, comprehension, and dissolution in this perspective will be viewed from many different angles, and those angles are the other disciplines which make the psycholinguistics become wide and complex.

Language acquisition tells us a story of the beginning of human being's speech of new or subsequent language. This is a process where human being starts to get in touch with the new language until he/she is proficient in the language. For an individual who firstly gets the language, this process is called First Language Acquisition (L1 acquisition), and for the individual who has already mastered the first language—then the new language becomes the subsequent language which is secondly gained—then this phenomenon is called Second Language Acquisition (L2 acquisition). L1 and L2 acquisition have been becoming parts of the main topics in psycholinguistics. L1 acquisition basically

talks about how infants start to get their speech, while L2 acquisition principally discussed the process of how individuals with their first languages start to get their speeches of the subsequent languages. The process of acquisition is not a short-time happening but it is running in a long time during the human's life. There are so many aspects to talk about in connection with this appearance of the human being's speech, which can be viewed from many different angles.

Language production is discussing the internal process of how human being creates speech. Creating speech, in this case, means putting words into mouth, which is identical with articulating speech. Thus, it needs individual's talent to synthesize ingredients of language, and then cook them together into a new bowl of ready ingredients called *speech*. In a nutshell, it really talks about the way human brain is operating until it results in driving nerves to move on speech organs which finally produce sounds, which happens neurologically and psychologically. On the contrary, language comprehension is the internal process of how human being understands speech. Understanding needs individuals' analytical skills which would break down the speech into its components. Indeed, it is a process of human brain to optimize the auditory and visual capacity in order that all messages coming in the brain can be transferred into the thought that finally proceed to do them.

Language dissolution is a story of the end of human being's speech of any language that has been mastered before. Overtime, speech that an individual master can disappear due to some factors, for instance, brain damage, the result of operation, inherited disorder, etc. That is why, the phenomenon of losing the language they previously mastered because of those factors is called *language dissolution*. In terms of the process, language dissolution needs a relatively long time to happen similar to the process of acquiring the language. That is why, these two phenomena, i.e., acquisition and dissolution, happen at a period of time (diachronically). Meanwhile there are similar phenomena that happen at any one point of time (synchronically), namely: language production and comprehension.

In short, basically psycholinguistics which this book incorporates four different issues, i.e., production, comprehension, acquisition and dissolution, which can easily be understood by asking these four questions: 1) how are speech and language acquired? 2) how are speech and language produced? 3) how are speech and language comprehended? and 3) how are speech and

language lost? All those questions will be explained in details in chapters and will be added by the discussion of language, thought and culture as the concluding chapter.

1.3 THE EMERGENCE OF PSYCHOLINGUISTICS AND THE IMPORTANT FIGURES

To trace the history of psycholinguistics, it is important to mention several figures in relation to the embryonic ideas of psycholinguistics. First, it is historically stated that one of the most influential figures who initiated the idea that language could be explained on the basis of psychological principles was Wilhelm Wundt (Brown, 2002). He was born August 16, 1832 and died on August 31, 1920. He opened the *Institute for Experimental Psychology at the University of Leipzig* in Germany in 1879. Until now, this opening is thought of as the beginning of modern psychology. The institute was his first laboratory dedicated to the field of psychology. Wilhelm Wundt got a degree in medicine from the University of Heidelberg. Then, he went on to study briefly with two important physicists, namely Johannes Muller and Hermann von Helmholtz, whose ideas then gave heavy influence to the Wundt's later works in experimental psychology.

Wundt was popular as the father of experimental psychology. He used objective methods and experimental science to study the inner phenomenon (mind) in psychology, which was not used before. He used language as a means of investigating the human mind. As a consequence of this investigation, he wrote many things about language acquisition, production, sign language, and reading.

The second figure was Karl Wernicke (Brown, 2002), an influential neuropsychiatrist who discovered significant findings in brain anatomy and pathology. His name is used as the name of a part in the brain called *Wernicke area,* the region that plays a vital role in speech comprehension of human being. He is the one who firstly initiated an idea that brain is not functioned as a single organ but it has many regions in which different functions are made to contribute their own sensory-motor activities. This idea appeared after he examined a patient who suffered a stroke. From this examination he found that the patient could speak and his hearing was working perfectly fine, but

he could not understand anything of what was being said to him, or written words. Unfortunately, the patient later died. However, once he died, Wernicke examined the patient's brain, and found that there was a lesion in the rear parietal/temporal region of his left hemisphere. Wernicke concluded that this region played a vital role in speech comprehension, and that region of the brain is now called Wernicke's area. Wernicke called the syndrome that the patient had sensory aphasia, however it is now known as *Wernicke's aphasia*.

The third figure was Paul Broca (Brown, 2002) a French physician, anatomist as well as anthropologist. He name is very popular among psycholinguists because his name is used as the name of a part in the brain called '*Broca area'*, a region of the brain responsible for language production. The naming happened after his examination to a patient referred by another doctor. This patient cannot say a single word except the word 'tan' when the patient was brought to Paul Broca that is why later he called this patient as Mr. Tan. Mr. Tan who was close to death actually suffered from gangrene (*a decay that occurs in a part of a person's body if the blood stops flowing to it because of certain illnesses*). To examine that patient, Broca invited another doctor (his colleague) to examine this patient, and after the examination that doctor concluded that this patient should have a lesion or *softening of the anterior lobes*. Mr. Tan shortly died after and the following day Broca said that his colleague's conclusion was correct, and since then that part of the brain was known as the 'Broca area'. Nowadays, a person with Tan's symptoms is deemed to have Broca's aphasia. Essentially, patients suffering from Broca's aphasia know what they want to say but can't say it.

Jean Piaget who was a French developmental psychologist is another figure (Brown, 2002), He was an extremely important figure in children cognitive development. He introduced four famous stages of children development, namely: sensorimotor stage, preoperational stage, concrete operational stage, formal operational stage. The sensorimotor stage happens to children in the ages of 0-2 years old. In this stage, infants make a construction of how to understand the world by coordinating sensory experiences with physical, motoric actions. The preoperational stage happens to children from the age of 2–7 years old. The children, in this stage, learn how to use and represent ideas by words, drawings and images. The third stage is concrete operational stage, which occurs to 7–11 years old children. Within this stage, children learn the concepts of seriation, reversibility, and eliminate the egocentric thinking that

had previously been dominant. The final stage is formal operational stage, which occurs to 11 years old children. Those children learn how to think abstractly and use hypothetical and deductive reasoning.

1.4 SUMMARY

Psycholinguistics is a subfield of linguistics in which the main focus is on the explanation of subtle process occurring in human brain in relation to language. This field is quite complex though, covering a number of topics such as, language processing, lexical storage and retrieval, language acquisition, special circumstances, and the brain and language. Even though, there have been debating straggles in scoping then topics in psycholinguistics, in this regard, psycholinguistics embraced four big topics, i.e. language acquisition, language production, language comprehension and language dissolution.

1.5 AFTER-READING ACTIVITIES

1.5.1 Questions for self-study

1. Match the following terms to their definitions!

Paul Broca	a. phonetics, phonology, morphology, syntax, semantics and pragmatics
Karl Wernicke	b. discovering how speaking, understanding, reading, and writing are managed in human brain
Psycholinguistics	c. a phenomenon of losing the language they previously mastered because of some factors
Language dissolution	d. founder of a brain region that plays a vital role in speech comprehension of human being
Core of linguistics	e. founder of a brain region of the brain responsible for language production

1.5.2 Independent learning

a.	List figures who wrote initial concepts which was the embryonic ideas of psycholinguistics!
b.	Mention cases of language phenomena which can be included into psycholinguistic cases!

Chapter 2
Language Acquisition

Learning Outcomes:

- to identify the first language acquisition in relation to psychological phenomena in human beings
- to identify the second language acquisition in relation to psychological phenomena in human beings

The term *language acquisition* refers to a process of getting to the skill of having languages that individuals take to master naturally. In this understanding, it means the individuals' experience to learn the languages unconsciously until they get to the complete mastery of the languages. This process must happen to the individuals who are in the process of getting acquired of both their first languages (L1) and second and the subsequent languages (L2). Therefore, a couple of terms emerged in the context of discussing language acquisition, i.e., first language acquisition (FLA) and second language acquisition (SLA). The FLA and SLA are two areas of subfields in psycholinguistics which will be the main topics in this chapter. The discussion of the first language acquisition brings the readers to understanding the process of language development of infants. It is important to notice this process because all theories of the first language acquisition will be helpful to understand the second language acquisition. This

chapter will present a glance look at the first language acquisition after that the discussion of the second language acquisition will be elaborated in a bit detailed.

2.1 FIRST LANGUAGE ACQUISITION

If language is perceived as simply a matter of knowing stretches of words, then language acquisition would be just a process of figuring out the words and how to memorize them. But for linguists, language is not such simple thing, thus has been perceived by human beings in a very complex way. Therefore, to comprehend the language acquisition is not just as such simple. For instance, children must acquire a grammar with all its components and rules. How do children learn these rules? How do they learn to make the plural of some nouns by adding (-s) as in *cats*, others by adding (-z) as in *dogs*, and still other by adding (-ez) as in *houses*? How do they learn that the morpheme *un-* (meaning not) attaches to adjectives to form other adjectives having the opposite meaning? How do they learn to compose a sentence from a noun phrase and a verb phrase? Rules, unlike words, are never explicitly stated, so the child cannot just memorize them. They must somehow figure them out on their own – a remarkable intellectual feat. That is to say, discussing language acquisition needs more complex analysis.

First language, or native language, or mother tongue (L1) is the language that human beings firstly acquire from child, the language that is learned when an individual is growing up. Krashen (2004) said that the way of second language acquisition is similar, if not identical, to the way of the first language acquisition. Krashen argued that acquisition is gained subconsciously so that the result of what language acquirers do also subconscious. Since the way of FLA is the same with that of SLA, then theories of FLA are similar to SLA theories. Some modern linguists raised the process of getting to master the language as a process of acquisition and learning, while some others viewed that there is no significant difference between language learning and language acquisition, even the recent terms emerged to represent the later idea, i.e., instructed language acquisition.

2.1.1 First Language Acquisition of Early Age

As it was told earlier that first language acquisition has things similar to second language acquisition, it will be relevant to talk about how children acquired their languages, in other word, the process of first language acquisition. There were various theories which attempted to account for how children acquire language. At least in this chapter, four theories will be elaborated, i.e., *the Imitation Theory* (Brown, 2002)*, the Reinforcement Theory* (Brown, 2002)*, the Active Construction of a Grammar Theory* (Brown, 2002)*,* and *connectionist theory* (Brown, 2002).

One of the theories of the first language acquisition is the imitation theory. This theory was the consequences of the B.F. Skinner's and Ivan Pavlov's works on conditioning theory in psychology. It is said in this theory that all children learn language by listening to the speeches around them. In this case, acquisition happens by memorizing words or sentences they listened. When the children get more listening activities, they will be able to reproduce more words/sentences because they heard all speeches and imitated them. That is why, parents, caretakers, or other people who are often with them every day will be an influential guidance in the development of the children's first language.

The next is reinforcement theory, in which it is argued that every time children learn the language, like adults, they need praises, rewards or have to be reinforced when they make incorrect use of language. When children interacted with their parents in terms of acquiring their first languages, they often get corrected of making grammatical mistakes. For instance, the sentence *Faris goes to school today* may receive the response *Yes, he did if Faris did go to school that day.* This theory is in fact contradicted by the fact that even on the rare occasions when adults do try to correct a child's grammar, the attempts usually fail entirely. Consider the following conversation, cited by McNeill (1966) cited in Steinberg et al., (2001):

Child	*: Nobody don't like me*
Mother	*: No, say "nobody likes me"*
Child	*: Nobody don't like me (repeated 8 times)*
Mother (in desperation)	*: Now listen carefully! Say, "Nobody likes me"*
Child	*: Oh! Nobody don't like me.*

In that example of conversation, although the child does not form negative sentences in the same way the adult does, the child's utterances follow a pattern just as the adult's do. The child's way of forming negative sentences involving *nobody* is completely regular; every such sentence contains *nobody* + a negative auxiliary verb, for example, *nobody can't spell that* or *nobody won't listen*. The child must possess a rule that defines a pattern, but the rule is not the same as that in the grammar of an adult. Therefore, though in the last repetition the child imitates the adult correctly by saying *likes* instead of *like*, the reinforcement theory cannot explain where the child's rule came from or why the child seems impervious to correction. This is one of the weaknesses of this theory.

Thirdly, the active construction of a grammar theory (Brown, 2002) holds that children actually construct by themselves the rules of grammar after they practice more examples of correct sentences. This construction indicates how the children gradually infer the rules from the speech they hear around them. Children listen to the language around them and analyse it to determine the existing patterns. When they think they have discovered a pattern, they hypothesize a rule to account for it. They add this rule to their growing grammars and use them in constructing utterances. For example, in a child's early inference about how to make the past tense verbs, she/he will add */ed/* in all verbs. All past tense verbs will comply with this rule, such as *cutted* and *bringed* alongside *needed* and *walked*. When children find that there are language forms that do not matched those produced by this rule, they modify the rule and add another one to produce the additional forms. Eventually the child has created and edited his/her own grammar to the point where it matches that of an adult's. At this point, there are no significant discrepancies between the forms produced by the child and those produced by the adults around him/her. However, the child has a complete working grammar to produce utterances; when those utterances differ from adults' speeches, they reflecting the differences in the grammars underlying them.

The fourth, the connectionist theory (Brown, 2002) assumes that the individual components of human cognition are quite interactive and language knowledge is represented in the cognitive system. In the context of how children learn language, this theory said that children learn through neural connections in the brain by being exposed to language as well as using it. In addition, it is the brain information process which takes place via a large interaction, as a result,

the L2 learning is happening through strengthening and weakening particular network connections in response to examples.

2.1.2 How Adults Talk to Young Children

How adults talk to children is influenced by three things (Steinberg, Nagata and Aline, 2001). First, adults have to make sure children realize an utterance is being addressed to them and not to someone else. To do this, adults can use a name, speak in a special tone of voice, or even get their attention by touching them. Second, once they have a child's attention, they must choose the right words and the right sentence so the child is likely to understand what is said. For example, they are unlikely to discuss philosophy but very likely to talk about what the child is doing, looking at, or playing with at that moment. Third, they can say what they have to say in many different ways. They can talk quickly or slowly, use short sentences or long ones, and so on. How adults talk also has certain incidental consequences: children are presented with a specially tailored model of language use, adjusted to fit, as far as possible, what they appear to understand.

Speakers depend on their listeners who are cooperative and listening when they are spoken to. However, when the listeners are children, adult speakers normally have to work a bit harder. Moreover, the adult speakers should use attention getters to tell children which utterances are addressed to them and which ones ought to be listened to. In addition, attention holders should also be used whenever adult speakers have more than one thing to say, for example, when telling a story. *Attention getters* and *attention holders* (Steinberg, Nagata and Aline, 2001) fall into two broad classes. The first consists of names and exclamations. For example, adults often use the child's name at the beginning of an utterance. Or, instead of the child's name, adults use exclamation such as *wow!* or *huh!* as a preface to each utterance. The second class of attention getters consists of modulation that adults use to distinguish utterances addressed to young children from utterances addressed to other listeners. One of the most noticeable is the high-pitched voice adults' use for talking to small children. Another modulation adult's use is whispering. If the children are sitting on their laps or standing right next to them, adults will speak directly into their ears so it is clear they are intended to listen.

In addition, adults both observe and impose the cooperative principle when they talk to young children. They make what they say relevant, talking about the "here and now" of the child's world. They encourage children to take their turns, make their contributions to the convention, and make sure that children make their contributions truthful by correcting them. Furthermore, adults also make running commentaries on what children do, either anticipating their actions—for example, *build me a tower now*, said just a child picks up a box of building box—or describing what has just happened: *that's right, pick up the blocks*, said just after a child has done so. Adults talk about the object children show interest in. In conclusion, just as adults select what they say to young children by restricting it to the "here and now", then they alter the way they say, what they say, when talking to children. They do this in four ways: they slow down, they use short, simple sentences; they use a high pitch of voice; and they repeat themselves frequently.

2.1.3 Language Development in the Early Years

Children learn language together with adults and peers because they have to use the language in the interaction of their daily lives. Children learn how to use language to convey messages, express feelings, or to socially interact with peers or their caretakers. This is in line with the Vygotsky's concept of ZPD (zone of proximal development), which argued that in the learning interaction there are expert-members whose capabilities are needed and novice members who will be guided by the expert-members (Brown, 2002). By such composition, meaningful interaction will happen meaningfully. The ZPD is also applicable to the interaction of children when they acquired their first languages. In this case, parents or caretakers might function as expert-members, while children do as novice members; as a result, the child language development occurs as quite effective acquisition in the interaction with parents or caretakers. In the interaction, a culturalization and ideology infiltration of the parents' or caretakers' social values happens to the children. Various intimate experiences between them also generate communicative exchanges which are very beneficial for the children's language development (Muspratt et al., 1997; Fernald & Mazzie, 1991; Bukatko & Daehler, 1995).

The four theories mentioned earlier, i.e., the imitation theory, the reinforcement theory, the active construction of a grammar theory, and connectionist theory all are applicable for children in these phases of language development. Children learn language through listen all speech sounds surrounding, infer and finally imitate them. Children also get corrections and are reinforced when they make mistakes during the process of acquiring language. At the same time, children construct rules after getting more daily language practices by making inferences from their experiences. It is the result of connecting information by information in response to examples of producing languages from real practical experience of speeches. This suggests that during their early age of acquiring language, children are able to have automatic acquisitions of their first language in natural contexts. In addition, natural process is done easily by the children since they have the so called *language acquisition devices* (LAD)—Chomsky' concept (Brown, 2002).

2.1.4 The First Year

Infants experience the very early phase of vocalizing sound of language, i.e., crying. When the infants face with the uncomfortable situation, feel unhappy, or expect something that they cannot reach, they articulate the messages by crying. Usually, adults know this and quickly give responses to cope with this situation. This is the first language of infant. After several weeks, the infant is getting the higher level of vocalization, i.e., '*cooing*'. *Cooing* is repeating vowel-like sound such as *ooh, uuh, aah*, etc., to address messages to adults. In this level, the infant is communicating with adults (i.e., mother, father, or other caretakers) by saying such vowel-like sounds.

Next after several months (i.e., usually at three or six months), infants start to reach the higher level of vocalization. Infants begin to add consonants to vowels. In other words, they begin to combine consonants and vowels to be syllable-like words, such as *mamama, dadada, kakaka*. This phase is called '*babbling*'. All messages in this phase will be articulated by using such syllable-like words to address communication with adults (Shaffer, 1999; Berk, 2000; Glover & Bruning, 1987; Steinberg et al., 2001).

2.1.5 The Second and Third Year

A first word vocabulary that children begin to say is a single word to represent any kinds of messages under any conditions which they want to address. For instance, children say *mama* to mean mother's dress, mother's hand phone, or mothers' hair. Even, the word *mama* might refer to mother who is walking to the kitchen. It all depends on the children's intention of their speeches at the time they utter the speeches. They cannot create any detail words yet, therefore they use a single word which is easier for them to say. This phase is called '*holophrastic*' (Bukatko and Daehler, 1995; Barrett, 2007; Shaffer, 1999; Steinberg et al., 2001). Entering to their third year, children begin to make sentences but the sentences they make usually are not good-grammar sentences. They are commonly two-word sentences which omit the function words. In other words, they produce only content words, they cannot produce words of articles, auxiliary, preposition etc. This phase is called '*telegraphic*'. The examples of sentences created in this phase are such as, *more walk, more doggie, open door*, etc (Bukatko and Daehler, 1995; Barrett, 2007; Shaffer, 1999; Braine and Bowerman, 1976; Steinberg et al., 2001; Glover and Bruning, 1987). The two-word sentences uttered by children in this age are quite child-like speeches since in this phase children are developing their language abilities. However, this two-word sentence is not only functioned to refer to a single object, but is also to express a complex thought. As seen in table 1, some examples are given form research results of the two-word sentences and their meanings.

Table 1.1 Examples of two-word sentences

Children utterances	*Mature speaker utterances*	*Purposes*
Want cookie	I want a cookie	Request
Joe see	I (Joe) see you	Informing
Mommy chair	Mommy is sitting in the chair	Answer to questions
That car	That is a car	Naming
Give candy	Give me the candy	Request

(Steinberg et al., 2001: 9)

2.1.6 The Preschool Years

After 3–4 years of age, children have already acquired any subtle skills in language. They are not only being able to distinguish content words, but have already known function words. The sentence they create shows more advanced process of language acquisition if not too more complex. In this phase, children start to get morpheme acquisition, questions formation acquisition, negation acquisition, simple syntax, semantics, or pragmatics acquisition. They gradually strengthen their language developments as they are growing up. Feedback, exposure, or reinforcement from the adults continues to happen, resulting in the process of testing hypotheses for more observation and learning (Beals and Tabors, 1995; Bukatko & Daehler, 1995; Glover & Bruning, 1987).

Moreover, children are also getting active in social interactions with adults, resulting in learning to negotiate and contribute to make any meanings. Getting advantages from this process as it is stated by Vygotsky's ZPD theory, children are more creative and innovative with their sentences to respond peers' requests. When they learn in elementary schools, their speeches are getting quite the same with the adults' languages (Glover & Bruning, 1987; Shaffer, 1999; Schichedanz, Forsyth and Forsyth, 1998; Peterson and McCabe, 1992; Schichedanz, Forsyth and Forsyth, 1998). In other words, language learning relies on both social and development process. To acquire language, children are compelled to interact with other language users who can be more competent and explore various aspects of the linguistic system. During the early years of language learning, children also create, test, and revise their hypotheses regarding the use of language. Parents and early childhood educators should provide these young learners with developmentally appropriate language activities, offer opportunities for them to experiment with different aspects of language learning, and honor their creativity.

2.2 SECOND LANGUAGE ACQUISITION

Second language (L2) is a subsequent language that an individual is able master after she/he is competent in her/his first language. The subsequent language refers the third, the fourth, or the fifth language of an individual. This L2 definition is still broad. More specifically, there have been other names for L2,

i.e., second language, or a foreign language, or a library language, or an auxiliary language (Saville-troike, 2010). Whatever its name is, in principle our scope of discussion in this subchapter will be about second and foreign language. The second language means L2 that speakers used for more actual practice in life, e.g., daily conversation, official events in public conversation. In the meantime, foreign language refers to L2 that speakers used in limited events of conversation, e.g., in the classroom, or reading for educational purposes. In this subchapter, the discussion of L2 will be in the context of explaining theories of second language acquisition which has more similarities with theories of foreign language acquisition, therefore it will be relevant if those two terminologies will be interchangeably used. In other words, SLA means all second language acquisition and foreign language acquisition.

2.2.1 The nature of learner language

Early method of investigating SLA told us that L2 learners' errors were quite important because error patterns can be predicted by the samples of L2 learners' errors. The investigation of L2 learners' errors was common and by having such method, developmental patterns of language learners can be analysed, resulting in some theories of error patterns, such as overgeneralization, article omission, transfer errors, etc. Similarly, by having such analysis, order of acquisition was identified and language teaching methods can use it as underlying theories (Saville-troike, 2010; Ellis, 2015). The learners' errors theories which were quite popular in early development of SLA were error analysis and contrastive analysis.

Error analysis is an SLA approach which pays more attention to learners' abilities to construct languages through their creativities from error patterns. This is the first approach in SLA. Error analysis was then replaced by contrastive analysis in 1970s. Contrastive analysis is an SLA approach where L1 and L2 learners' problems are compared in order to have similarities and differences which will then be explained as generic patterns. The proponent of this approach was Robert Lado, the Behaviourist and Structuralist from USA in 1940s and 1950s (Ellis, 2015).

Moreover, interlanguage (IL) is another SLA concept which was introduced by Selinker (1072 as cited in Saville-troike, 2010). This concept explains an

intermediate circumstance possessed by L2 learners as they move from L1 immediate mastery to the target language (L2). IL describes learners' states of competence in their language developments, explaining that position of the L2 learners' competences are at somewhere close to complete masteries of the target languages. Selinker mentioned such condition as some cognitive processes in the L2 acquisition and L1 acquisition, e.g. language transfer, overgeneralization, fossilization, etc.

The other old theories in relation to the language learning nature are five Krashen's hypotheses (Saville-troike, 2010). Krashen proposes five theories in SLA. The first is the so called *monitoring hypothesis*. This hypothesis says that when a learner is learning language, what she/he has already learned will function as a monitoring system in her/his mind. The monitoring system consists of knowledge accumulation about grammar or rules of the language. When that learner is producing language, the monitoring system can edit or change the language that she/he produces. Chomsky considers the monitoring system as *competence* and the learner's overt language as *performance*. In other word, language performance of the learner will be controlled or monitored by her/his competence. The concept was actually the adoption of Chomsky's theory of LAD. The second is natural order hypothesis. It is proposed that a learner acquires language in a predictable order. Certain linguistic parts that the learner gets when learning language are ahead the others. For instance, getting to know tenses precedes knowing about singular and plural rules. The third is input hypothesis, which gave a key word of comprehensible input. When a learner can digest enough input of learning, she/he can provide necessary grammars by her/himself to understand. The fourth is affective filter hypothesis. This hypothesis says that an individual who is learning language cannot be optimum if she/he has psychological burdens in the process of learning. The psychological burdens can be nervousness, bad learning mode, in correct learning strategies etc. On the contrary, the learning can increase quickly when there is a psychological catalyst, such as motivation, correct learning strategy, good learning mode, etc. The fifth is acquisition-learning hypothesis. This last hypothesis is in debatable position. Krashen proposed a notion that learning is different from acquisition in that learning takes place in more conscious way than acquisition. This difference is, however, criticized by other experts. The contra-opinions wonder the definition of the terms *conscious* and unconscious which, according to them, are not clear enough to define.

2.2.2 Instructed second language acquisition (ISLA)

The term *Instructed Second Language* (ISLA) has been flourishing as the sub-field within the disciplines of SLA. The highlighted concern of this sub discipline is the practicality of the learning and acquisition in SLA (Loewen and Sato, 2017). This means that accepting the concept of ISLA is denying Krashen's concept of learning-acquisition hypothesis. ISLA does not differentiate acquisition from learning anymore since it acknowledges both learning and acquisition in the process of SLA. There are several notions that are related to ISLA, i.e., 1) ISLA is an academic endeavour, 2) in ISLA perspective, L2 learners need no systematic efforts except exposure to target language to help their development in the process of getting L2 mastery, 3) language classroom in ISLA should be attributed to exposure to L2, 4) mental process in L2 learning is not too accommodative in ISLA since the main concern is how input which L2 learners' gained affects learning process, and 5) L2 instruction has some sort of more positive influence of L2 learning rather than L2 acquisition. It is clear now that ISLA is an approach which views language acquisition with more perspective of learning process. It is an answer to the proponents of ideas that the process of acquisition alone, without learning, is not everything in the context of L2 development. Learning L2 needs L2 acquisition or vice versa. In other words, ISLA is a hybrid area which accommodates the party of learning and the party of acquisition in the context of L2 development. By having such approach, the chasm between learning and acquisition in L2 development can be tolerably revisited.

More scientifically ISLA refers to the SLA subfield that aims at describing modes of gaining L2 (i.e. both from learning and acquisition process) as a consequence of the classroom instructional activities. The old fashion of idea about L2 learners which was stressed in the learning alone or acquisition alone is now revisited to have a new perspective of understanding two mutual doors of maturing L2 learners' development in language instructional learning. This also answers the question of *can L2 acquisition happen in the classroom?*

2.3 SUMMARY

Language acquisition is a process of getting individual's language mastered. When an individual is getting her/his first language, it is called 'first language acquisition

(L1 acquisition)'; when it is for the subsequent language, it is the 'second language acquisition (L2 acquisition)'. Theories of language acquisition were in fact depicted from what was happening in the process of L1 acquisition, i.e. to understand the process of language development of infants until they become adults. The theory is then used to underly what is happening when someone is getting her/his subsequent language because the process is relatively similar. The theories in general are called second language acquisition theories (SLA theories). There has been a development of those theories, going from the very early times to the recent ones. For instance, error analysis, contrastive analysis, interlanguage, Krashen hypothesis, Chomskyan concepts, and instructed SLA.

2.4 AFTER-READING ACTIVITIES

2.4.1 Questions for self-study

1. Match the following terms to their definitions!

Language acquisition	a. a process of getting to the skill of having subsequent languages among individual learners
Second Language Acquisition	b. a process of coming to the skill of having language among the individual learners
First Language Acquisition	c. a process of getting to the skill of having first languages among individual learners
Instructed Second Language Acquisition	d. a phase of repeating vowel-like sound
Cooing	e. sub field of SLA which views that both learning and acquisition can happen in class
Babbling	f. a phase of commonly using two-word sentence which omits function words
Telegraphic	g. a phase of combining consonants and vowels to be syllable-like words
Monitoring hypothesis	h. an SLA approach which pay more attention to learners' ability to construct language through their creativity from error patterns
Error analysis	i. an SLA approach where L1 and L2 learners' problems are compared in order to have similarities and differences
Contrastive analysis	j. when a learner is learning language, what she/he has already learned will function as a monitoring system in her/his mind.

2.4.2 Independent learning

1	Mention what is being paid attention in ISLA!
2	Mention the language developments in early years of individuals!

Chapter 3
Language Production and Comprehension

Learning outcomes:

- to identify the process of understanding utterances in the language of human being
- to identify the process of producing utterances in the language of human being

Utterance in this discussion refers to any signal-based implementation of the abstract language system. Therefore it provides for written as well as spoken utterances. This chapter will describe the processing linguistic utterances, especially understanding and producing utterances.

3.1 UNDERSTANDING UTTERANCES

To discuss the term of understanding, it seems that, first of all, two subchapters should be figured out: *the nature of understanding* and *the nature of input*. Next, the explanations of the so-called *parsing* which is fundamental to the processing of word-word relationships in structured utterances should also be discussed.

3.1.1 The Nature of Understanding

There are four assumptions as points to notice about the processing toward understanding of utterance (Garman, 1990), i.e.:

1. the understanding of individual parts of the linguistic message takes place in the context of the understanding of other parts,
2. understanding also takes place in the context of our general knowledge about the events and objects being talked about,
3. as a result, one individual understanding may incorporate elements that were not especially specified in the linguistic message,
4. this in turn may lead to certain differences between individual concerning the exact nature of the understanding of the same discourse.

Having digested the four points, it is obvious that in the process of understanding, it is involved not only linguistic understanding, but also the non-linguistic. For instance, words, phrases, or clauses are recognized by speakers, which lead to the perception of utterance via stored memory of linguistic forms. At the same time, speakers need to perceive the world around us (context or situation—which is non-linguistics) to interpret the utterance.

Next, there is a set of terms about what happens during input processing, i.e. *perception, understanding, recognition, interpretation*, and *comprehension*. *Perception* is defined as the initial processing of the input. *Understanding* refers to the end product, at the other end of the peripheral/low-level or central/high level dimension. *Recognition* is used where the assumptions of processing via stored forms of memory are strong. *Interpretation* more usually carries with it the implication of creative processing going beyond the strict properties of the signal. *Comprehension* is frequently used term, which appear to act as a cover for both interpretation and understanding (Garman, 1990; Fernández and Cairns, 2011; Lane, Howard and Hapke, 2019).

3.1.2 The Nature of Input

Within the psycholinguistic process, utterances can be understood through the use of not just the linguistic structure of the message, but all other available information; available both simultaneously, on other channels (e.g. facial

expression, gesture, and so on), and also from preceding information from the same channels (the context of prior linguistic message), and the other channels (the context of prior, relevant, non-linguistic speaker behaviour). This process can be illustrated in the Figure 3.1.

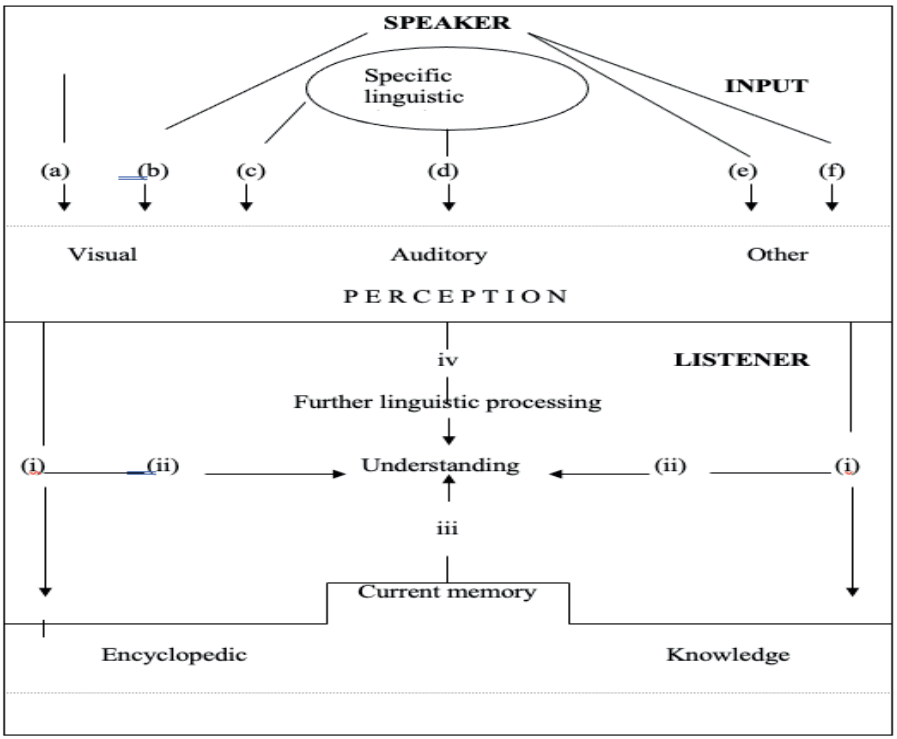

Figure 3.1 Input processing (Garman, 1990)

First of all, there are various of inputs as the further explanations of Figure 3.1, i.e., a) up to f) as follows: a) *visual input* which is independent of speaker and listener, containing information about objects and events in the situation of utterances; not all of it will be relevant, at least not all the time, but it may be necessary to monitor this channel for potential referents of linguistic expressions, for example; b) *speaker visual input* which is independent of the linguistic message; gestures, facial expressions, popsture, etc.; it may carry information that is relevant to the linguistic message, indicating irritation, amusement, and so on, and the speaker may actually rely on this channel in

determining the form that the linguistic message takes (e.g. to signal ironic intent); c) *speaker visual input* that is dependent on the form of the linguistic expression; lip, jaw, tongue and associated facial movements accompany the articulatorily executed auditory signal, and may modulate auditory perception; the so-called "lip reading" by hearing-impaired involves all these facial features, and not just lip moving alone; d) *speaker auditory input* that is formulated specifically as constituting the linguistic siganl; e) *speaker auditory input* which is not dependent on the articulation of the specific linguistic signal; it includes voice quality and rate as well as precision of aticulation, and the speaker is at library to control information on this channel; f) *speaker other sensory information* which provides things like a light tap on the arm, or some conventional contact like a handshake.

Secondly, the route number (i) takes information from outside the domain of the specifically linguistic signal to memory, which are broken down into two general areas, or *current memory* and *encyclopedic knowledge*. Then, route number (ii) links the information into the understanding of utterance (where it is relevant). Next, route (iii) allows informtion from recent experience to play a role in understanding. The route number (iv) represents the result of processing the specific linguistic signal itself, noting that the information available from this route embodies the results of processing interactions from more than one input channel. Finally, the location of understanding is not in box as it is in the case of memory box, or the perception box, but rather in a merging of arrows; it is not a place to be reached, or as a set of processes, but the result of a number of interaction, in a dynamic balance (Garman, 1990; Fernández and Cairns, 2011; Lane, Howard and Hapke, 2019).

3.1.3 Parsing

The definition of parsing is to analyse and describe the grammatical structure of a sentence. In other words, parsing is taking account of the relations holding between individual words when interlocutors access those individual words in the process of understanding utterances. In understanding utterances, interlocutors are not accessing the words, but also processing or computing the relationships between them. What sort of relationships are parsed in human understanding of utterances? It depends on the the types of parsers.

In other words, it is essentially syntactic or essentially semantic, essentially phonological or a mixture of them. This means that either syntactic or semantic parsings, or phonological, or the mixture of them can be used to understand certain utterances. The word *a red house*, for instance, can be understood using syntactic, semantic parsing or combination of the two, as follows. By syntactic parsing, this utterance consists of an article, an adjective, and a noun; while using semantic parsing, this utterance can be understood as several propositions, i.e. *a house, the house is red*. Further detals about parsing is explained in semantic, syntax or phonology (Garman, 1990; Fernández and Cairns, 2011; Lane, Howard and Hapke, 2019).

3.2 PRODUCING UTTERANCES

Utterance production refers to how individuals are making efforts to perform their languages from the mental processes which are too abstract to the more concrete utterances in the forms of both spoken and written languages. To make a clear understanding of this process, it is better to look at glance at the Chomsky's idea of formal universal (Garman, 1990; Wahab, 1995) that proposed three levels of areas, i.e., the area of semantics, the area of syntax, and the area of phonology/phonetics.

The area of semantics is represented by two properties: semantic representation and semantic component. In the area of syntax, there are three properties: deep structure, transformational rule, and surface structure. Meanwhile, phonological area presents what is the so-called phonological component and phonological representation. As seen in Figure 3.2, it is obvious that the three levels of areas go through the whole processes of language productions. The phonological area is the most concrete area where an individual should step into producing utterances. In this area, speakers of languages start to operate their speech organs in order that utterances can be produced. Prior to the actualization of the language production, the syntactic area is somewhere speakers of languages should drop in to have their processes of understanding rules of languages. This area is more abstract than phonological area. At the top of most, abstract is a semantic area where speakers of languages should make codes of messages into meaningful chunks of concepts before they are codified and transformed.

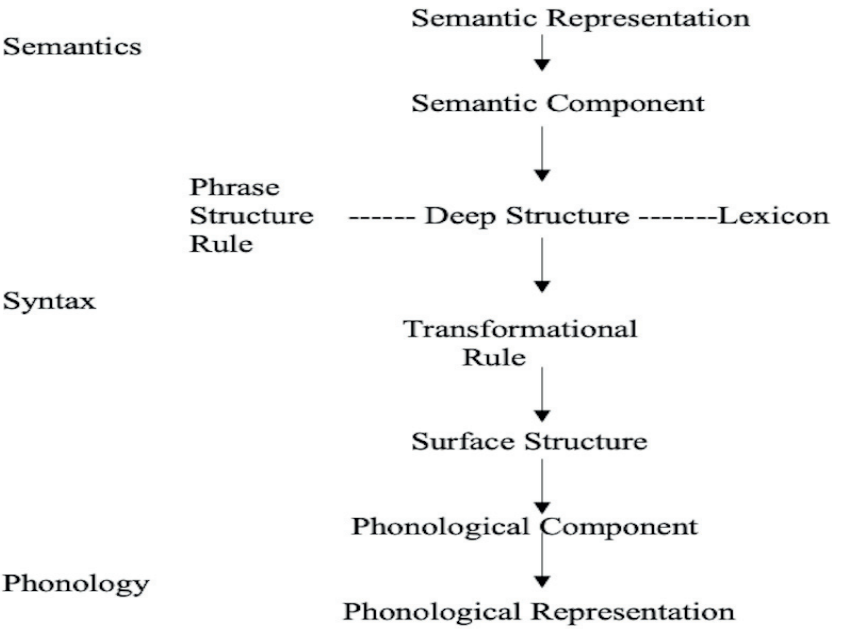

Figure 3.2 The process of producing utterances (Garman, 1990)

This process, as it is seen in Figure 3.2, suggested a number of assumptions as a basis for further discussions of these two levels in this process. The assumptions are:

1. Computational decomposition reflects the grammatical decomposition of the language faculty;
2. The processes of speech production are independent of, and may interact with, general cognitive and motor-control factors;
3. Speech errors may be revealing of levels of processing;
4. Speech production is subject to real-time constraints.

From the four assumptions, it can be concluded that in the process of utterance production, basically there are two areas of discussions to touch with, i.e. the *abstract form*, in which it lies the message, topic, intention of the speaker, and the *concrete expression*, where performance of the speaker is considerable as the real output of the language production. Related to the capacity of the memory, for these two areas, it is very different. Memory for the abstract form is relatively long, while for the concrete area the memory is much shorter. As a

result, a point can be encountered in the output where the individual's choice of how to continue an utterance may be in doubt because memory for the initial form has been lost. This doubt can be seen clearly in one of the speech models drawn from the real examples of the observable language behaviour called *hesitation phenomena*.

3.2.1 Hesitation phenomenon in producing language

Hesitation is a speech production phenomenon where speakers do not produce utterances in a exactly normal speed, as a result they tend to make fillers when they speak. In this case, hints of psychological process happen at work of producing utterances. It occurs because relatively non-informative elements in ordinary speech; therefore it is presumably interrupting acoustic effects during the production of language signals

Here are a number of phenomena which can be taken into consideration under the hesitation phenomena. Firstly, it is called *pause fillers*. When individuals speak, they frequently do not speak in an exactly normal condition, but they often make pauses and tend to fill them with *well.., you see.., you know…, erm.., uh.., er.., I mean..*, etc. The second is what the so-called *repetition*, where they often involve restatement of utterances from the beginning e.g. *he's he's watched football, it probably – it probably is the money*. Thirdly, the use of *pause word or phrase* occurs at the beginning or at the ends of the utterances, e.g. *well what's the…and…for what you get you know*. At last, the so-called *constructional switches* occurs when they produce utterances which ends in some formulation e.g. *condition have if anything are not if deteriorated, it was it in Madrid, I don't really see I mean it* (Gibson, 1966; Garman, 1990).

Pausing in some ways is different from hesitation. Filed (2002) called it as speech dysfluency which consists of unfilled pause, filled pause, and other dysfluencies (see Figure 3.3).

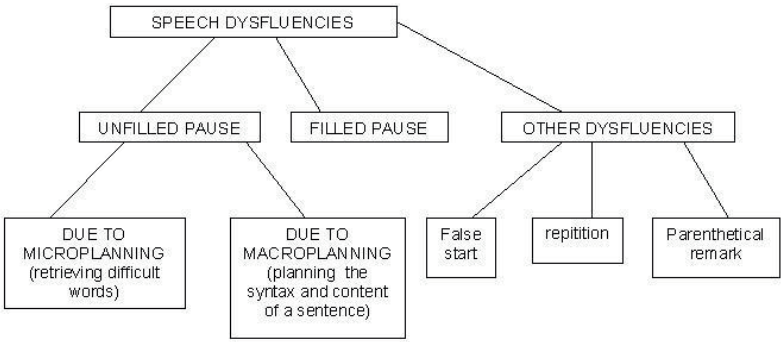

Figure 3.3 Speech Dysfluencies (Field, 2004)

Filled pause refers to sound like uh, umm, which is a repetition or false start. This happens when speakers begin their utterances and they realize they have already made great efforts to produce such utterances and repeat the start by such words. Meanwhile, unfilled pause is divided into pause occurring because of macroplanning and microplanning. Macroplanning is when pause happens if speakers make additional planning of the content of the messages when they speak. Microplanning occurs if the speakers get difficulties in lexical access (Harley, 2001).

3.2.2 Tip-of-the-tongue

Tip-of-the-tongue (TOT) is one of the speech errors that speakers of language often do when they are producing utterances. TOT occurs when speakers are in the efforts of word retrieval but temporarily cannot recall and pronounce the word. Contemporary production theories says that TOT occurs when an individual can access the correct forms of words in dictionary but she/he is not able to activate the phonological information that goes along that form of words (Dell, 1986), (Levelt, Roelofs and Meyer, 1999), (Roelofs, Ozdemir and Levelts, 2007).

Furthermore, people who experience TOT may reflect the strength of the connection of conceptual, word forms, and phonological representation. Usually TOT happens to a group of words which are not too often used in a daily conversation. For instance, the words such as *oar, stern, a roofing of mats, intestine* are not too often used in daily talking. These words are likely

encountered as the words which are sometimes hard to use since they are rarely used. The potential of TOT experience occurs in speakers to address these word is bigger (Traxler, 2012).

3.3 SUMMARY

To produce dan comprehend languages, human beings need to proceed to do several steps in their brains. First, in terms of understanding, two steps are identified, i.e. *the nature of understanding* and *the nature of input*. In terms of utterance production, it is proposed three levels of areas, i.e., the area of semantics, the area of syntax, and the area of phonology/phonetics. In those processes of both understanding and producing languages, troubles can occur, resulting in some hindering. For instance, in the process of understanding, there is the so called 'parsing', while in the process of producing language, there is 'hesitation'.

3.4 AFTER-READING ACTIVITIES

3.4.1 Questions for self-study

1. Match the following terms to their definitions!

Parsing	a. a speech production phenomenon where speakers do not produce utterances in a exactly normal speed, as a result they tend to make fillers when they speak
Hesitation	b. to analyse and describe the grammatical structure of a sentence
Pausing	c. when speakers are in the efforts of a word retrieval but temporarily cannot recall and pronounce the word
Tip-of-the-tongue	d. sound like uh, umm, which is a repetition or false start

3.4.2 Independent learning

1	Mention more examples of unfilled pause due to microplanning!
2	Mention more examples of unfilled pause due to macroplanning!
3	Mention more examples of filled pause!

Chapter 4

Language and the Brain: Language Dissolusion

Learning outcomes:

- to identify the content of human brain in relation to the language processing.
- to identify the damage in the brain causing the damage in the language processing

Obviously, the discussion of brain in relation to language study has been covered by the neurolinguistics, a subfield of psycholinguistic study. Neurolinguistics incorporates more detailed explanations of how brain is working for language in human beings. This chapter will talk about the process of how both physical and psychological human devices in relation to language are working in brain. In addition, it will elaborate brain damages in regard with language loss.

4.1 PROCESS OF HOW LANGUAGE WORKS IN THE BRAIN

There are three layers of levels in the process when someone is producing or understanding language, i.e., *linguistic, physiological*, and *acoustic* levels.

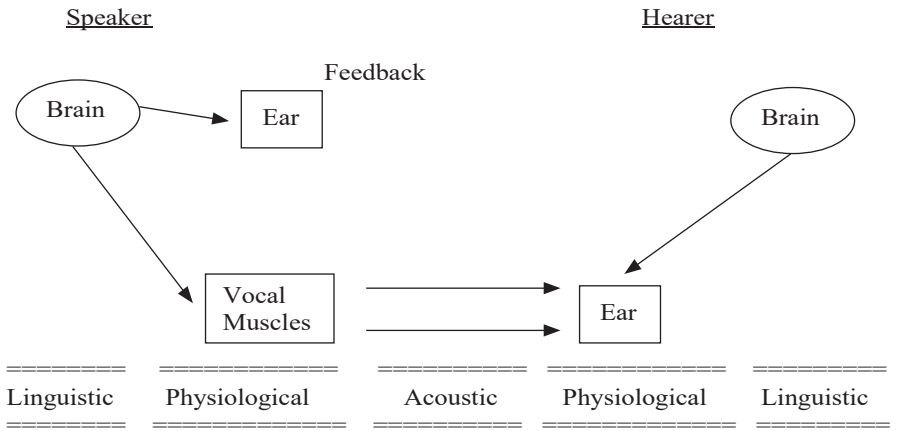

Figure 4.1 Speech Chain (Denes and Pinson, 2007)

As seen in Figure 4.1, this is called speech chain in which there are two heads, one talking to the other, i.e., the *speaker* and the *hearer* (Denes and Pinson, 2007). As information flows, the message that the speaker wants to convey to the hearer is coming through three levels: *linguistic, physiological*, and *acoustic* levels. Firstly, the *linguistic* level is concerned with the formulation of the message. This level is an area where semantic and syntactic aspects are represented. In this area, the speaker formulates the message which is in the form of semantic representation into syntactic rules of language she/he uses to speak. After getting input from the speaker, the hearer is processing the semantic and syntactic rules to respond the speaker. Secondly, in the *physiological* level resides the expression/perception of the language signal carrying the message. In this level, phonological aspect is prominent. To the speaker, this level covers the optimal uses of speech organs in which all about phonetics and phonology are concerned. To the hearer, this level is more focused on the ability of ear (auditory process). Thirdly, it is the *acoustic* level which works outside the two heads. That is to say the air gap which is called sound waves. Things that are concerned with in these levels are, among others, frequency, intensity, or timing of the sound.

In this process of language chain, the talking hear is listening to (monitoring) its own speech output via feedback link which is important for maintaining good control of articulatory target. All described in Figure 4.1 are the language processing in terms of the two interlocutors. Next, it is the turn to talk about the description of language process individually viewed, namely, the speaker only, as described in Figure 4.2.

Figure 4.2 describes one schematic head which is busy acting as a central language processor, both receiving and sending signal through two channels: *articulatory-auditory* (speech) and *manual-visual* (writing). At the central of these input-output events is the brain, capable of reconciling the considerable physical and physiological differences between these events so that it can recognize and generate the same message in different forms (see Figure 4.2).

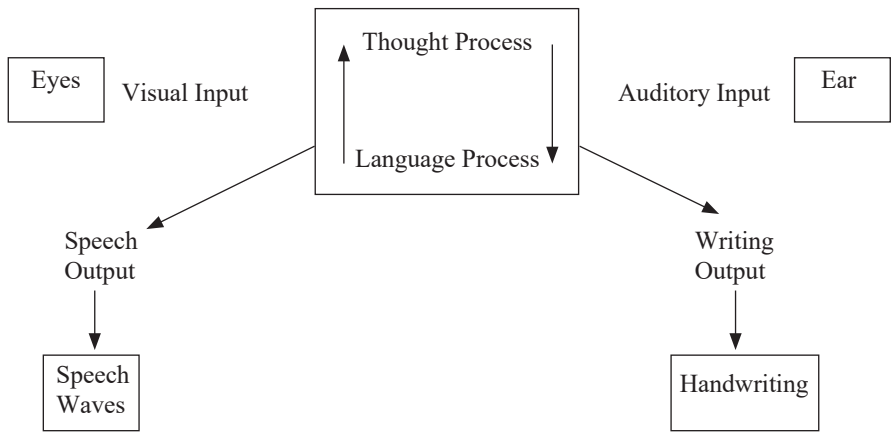

Figure 4.2 Language Switchboard (Denes and Pinson, 2007)

As it is seen the Figure 4.2, the language processing in fact steps through both abstract and concrete entity, since language is being viewed as an entity. For that reason, it is necessary to know, first of all, that observable language behaviour comprises of three different levels: *language signal, neurophysiological activity*, and *language system*. The first two levels are physical entities, while the third one is an abstract entity. The following sub heading will elaborate these three levels, in addition to the chasm of competence and performance.

4.1.1 Language signal

In this context, what is meant by language signal is nothing but the written or spoken forms of language. The characters of written and spoken forms of language are quite different. The most dominant distinction is that in spoken language, it is representable as the dynamic three-dimensional acoustic entity,

while for the written language it is generated by hand-arm system. Therefore, there are several features which characterize the spoken and written language as follows.

The features of the spoken language are:

1. much less syntax structure
2. many incomplete sentence
3. little subordination
4. active declarative forms
5. infrequent occurrence of passive construction
6. organized chunk which are related by *and, but, then,* etc.
7. quite common to find "topic-comment structure"
8. generalized vocabulary, such as *a lot of, things like that*, etc.
9. repeating the same syntactic forms several time
10. prefabricated filler, such as *well, erm. I think, you know,* etc.

Features of the written language are:

1. more syntactic structure
2. many complex sentences
3. many subordinations
4. set of metalingual markers (i.e. *when, while, besides, in spite of,* etc.)
5. commonly found pre-modified noun phrase
6. rhetorical organizer of large stretched of discourse (i.e. *first, second, in conclusion,* etc.).
7. structured in subject-predicate forms (opposite to topic-comment structured).

These features are common to differentiate the spoken and written forms of language in the process of production. However, in nowadays language, it is commonly understood that people posted their statuses in social media drives to the *in-between* characteristics of language signals. This brings about changes in perceiving differences between written and spoken since there is a new characteristic that might emerge in the social media language, i.e., semi-written or semi-spoken.

The possible features of social media language (semi-written/semi-spoken) are:

1. set of metalingual markers (i.e. *when, while, besides, in spite of,* etc.)
2. many incomplete sentence
3. little subordination
4. prefabricated filler, such as *well, erm. I think, you know,* etc.
5. rhetorical organizer of large stretched of discourse (i.e. *first, second, in conclusion,* etc.).

4.1.2 Neurolinguistic activity

In carrying the messages, the speakers and the hearers use their speech organs in processing (i.e., understanding as well as producing) the language signal. What is meant neurolinguistic activity is the language processing activity which involves the work of all speech organs. The use of speech organs in the processing of language signal can be viewed from speech signal as well as written system of language.

As Figure 4.2 describes, the nature of speech signal is discussed in the context of how it is generated (articulatory factors), how it is transmitted (physical properties), and how it is perceived (perceptual factors).

Firstly, as the *articulatory factors,* it follows the following explanation. There are three basic components of human physiology important from the production of speech. One is larynx, which contains the vocal folds and the glottis; another is the vocal tract above larynx, which is composed of oral and nasal cavities. The third is the subglottal system, which is the part of the respiratory system located below the larynx. When air is inhaled, it is channelled through the nasal or oral cavity, or both, through the larynx into the lungs. Moving the stream of air out of the lungs and through the larynx and the vocal tract produces English speech sounds. The air passing through the larynx and glottis is the source of sound waves. These sound waves take on their characteristic shapes as they are channelled through various possible vocal tract configurations in the oral or nasal cavities.

Secondly, as the *physical properties*, it is explained as follows. Air is the crucial medium for the transmission of speech; it is the link in the speech chain between the speaker and hearer, being present in the speaker's lungs and oral

tract, in the air between speaker and hearer and in the hearer's ear canal; When the speaker's articulatory organs move–the lungs, the glottis, the tongue, the velum, the lip etc.–air moves. They then disturb the neighbouring air particles, which in turn transmit the motion to others, while other articulatory gestures modify and control the nature of the particle movement that results. Eventually, the acoustic signal generates acts directly on the tympanic membrane of the hearer's ear. At this stage, the airborne phase of the signal ends.

Thirdly, as the *perceptual factors*, it follows this explanation. To talk how the speech signal is perceived means discussing the so-called acoustic level of language processing. Acoustic level is the level where air gap between the speaker and hearer after they produce language. This feature has three dimensions, i.e., 1) dimension of time, 2) dimension of frequency and dimension of intensity. In the time dimension, the timing of the positioning of the phonetic symbols (speech sound) is measured, whether it can be in relatively long duration or short. For the dimension of frequency, some sounds are measured to be in a high or low frequency. In the dimension of intensity, it refers to the changing resonance characteristics of the vocal tract. These three dimensions represent a good deal of the acoustic aspect of the speech signal.

In addition, the nature of written language is elaborated by explaining the orthographic system of the language itself. This has something to do with manual system and visual system as patterns different shades of grey (e.g. typewriting or print on the page). Orthographic system of language refers to a writing system consisting of scripts, the ones related to visible forms or structures in linguistic system.

4.1.3 Language system

Language system means the abstract rules in the system called language, for example, the phonological rules, syntactical rules, semantic components, etc. Information about these abstract features in this language system can be drawn from the data elicited from two approaches: naturalistic data and experimentally elicited data. For a long time under the influence of Chomsky's idea of universal grammar, linguists have been interested in this hidden knowledge which is called *competence*. The competence which is not concrete at all would be recognized when a speaker's language performance emerged. Performance refers to the

concrete skills of someone's language (his/her speech). Therefore, it is clear that performance is the skill and competence is the knowledge of language. In other words, linguistic competence is an individual's potential to speak a language, while linguistic performance is the realization of that potential (Denes and Pinson, 2007; Fernández and Cairns, 2011).

In the early 1960s, that is to say the era under the influence of Noam Chomsky, experimental investigations as sources of language system were carried out quite intensively on specific aspects of language behaviour that was suggested by the current theories of the language system. By using this framework, psycholinguistic researchers were thought possible to permit performance data to be interpreted in such a way as to shed light on the operations of the competence system which theory attempted to model. This is called *experimentally elicitation* of data in the development of psycholinguistic theory. The focus of this approach is on comprehension processing and syntax, particularly, the nature of linguistic units and their phrase structure configurations and the role of transformational operations. However, in the recent history of psycholinguistics, the approach has changed. In the recent approach, naturalistic data gathering is used for psycholinguistic research as the valuable sources of evidence in the theory of language system. This is called *naturalistic approach* of data elicitation in the development of psycholinguistic research. This approach covers a range of situations that represent the natural, every day, contextually embedded and communicatively informative information uses of language (Denes and Pinson, 2007; Fernández and Cairns, 2011; Steinberg, Nagata and Aline, 2001).

4.2 LANGUAGE AND THE BRAIN

The brain, according to neurolinguistics, has two nearly symmetrical halves, namely: *the right* and *the left* hemispheres. Each hemisphere represents certain responsibility for processing kinds of information from the world. These two hemispheres are connected one another by a bundles of fibres (i.e., corpus collosum). The central nervous system operated in human body is the brain itself. Motor cortex is the thing that protected the brain form outside layers. The duty of corpus collosum is not only functioned to connect the hemispheres but it is also responsible for coordinating and integrating the mental process that is operated in the two hemispheres (Steinberg & Sciarini, 2006).

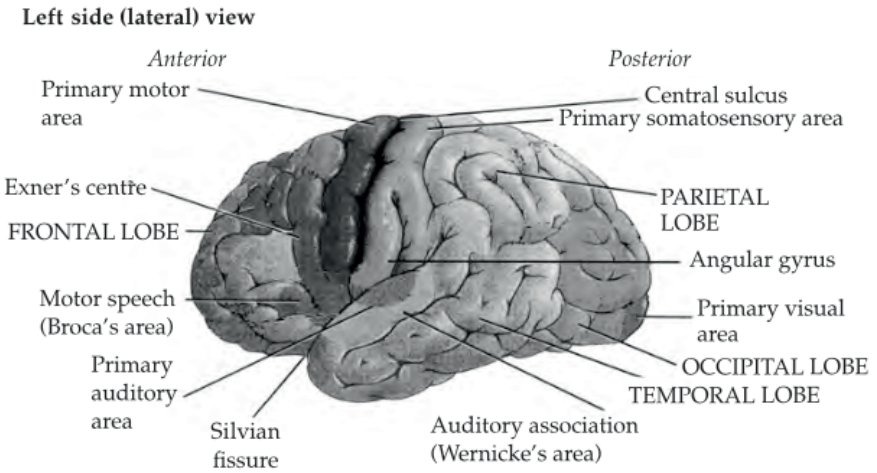

Figure 4.3 Brain and its parts (Steinberg & Sciarini, 2006)

Someone who discovered the brain area which functioned as a place for producing speech was Pierre Paul Broca. He was a French pathologist and neurosurgeon (1824–80). The brain area he found was called 'cortex area; which later all psycholinguistists name it under his name, Broca area. He further found that the speech area is adjacent to the region of the *motor* cortex which controls the movement of the muscles of the articulators of speech: the tongue, lips, jaw, soft palate, vocal cords, etc. He posited that speech is formulated in Broca's area and then articulated via the motor area as seen in figure 4.3. Another popular proponent in this area was Carl Wernicke, a German neurologist (1848–1905), who considered Broca's speech as an area close to the brain part that controls the articulators of speech. That area was warnick area which was functioned as a part that is responsible for speech *comprehension* (Steinberg & Sciarini, 2006).

4.3 LANGUAGE DISORDERS

Language disorder refers to a disease concerning with language dysfunction because of damages on the specific sites of the brain. This disease is called aphasia. When a person suffers aphasia, she/he has problems in both producing and comprehending languages. There are several types of aphasia, i.e., among others are Broca's aphasia, Wernick's aphasia, conduction aphasia, and dyslexia.

As the readers might guess, linguistic skills that are affected as a result of aphasia depend on where the brain damage is suffered.

First, individuals with Broca's aphasia, i.e., damage to Broca area, suffer from inabilities to plan the motor sequences used in speech or sign. When they attempt to produce languages, they speak haltingly and have a hard time forming complete words. Broca's aphasia seems to result in primarily expressive disorders. Accordingly, comprehension of the speech of others is not too much of a problem for Broca'a aphasics, although they may have some difficulties matching the correct semantic interpretation to the syntactic order of the sentence. For instance, comprehension is likely to break down when the sequence of words is extremely important to the understanding of their message, as in reversible passive such as *the lion was killed by the tiger.* A Broca's aphasic is quite likely to understand this as identical to active sentence *the lion killed the tiger.*

An example of Broca Aphasia explained by Steinberg and Sciarini (2006), Denes and Pinson (2007), Fernández and Cairns (2011), and Steinberg, Nagata and Aline, 2001) below:

Examiners:	Tell m, what did you do before retired?
Aphasic:	Uh, uh, uh, pub, par, partender, no.
Examiner:	Carpenter?
Aphasic:	(shaking head yes) carpenter, tuh, tuh, tenty year.

Second, Wernick's aphasia is aphasia with primarily receptive disorders. When individuals suffer Wernick's aphasia, they have inabilities to receive the speech from others. This often results in the Wernick's aphasic misinterpreting what other say and responding in an unexpected way. Moreover, because the patient of Wernick aphasia has a trouble in interpreting words from his/her mental dictionary, she/he has a tendency to produce semantically incoherent speech. This patient also often speaks in circumlocutions, or expression that people use when they are unable to name the word they want. For example, the patient may say *what you drink for water* and *what we smell with for nose*. The syntactic order of words is also altered. *I know I can say.* The patients with Wernick's aphasia are unable to comprehend the speech of others is demonstrated by the fact they often cannot follow simple constructions, such as *stand up, turn to your right*, and so on.

An example of Broca Aphasia explained by Steinberg and Sciarini (2006), Denes and Pinson (2007), Fernández and Cairns (2011), and Steinberg, Nagata and Aline, 2001) below:

Examiner:	Do you like it here in Kansas City?
Aphasic:	Yes, I am
Examiner :	I'd like to have you tell me something about your problem.
Aphasic:	Yes, I, ugh, can't hill all of may way. I can't talk all of the things I do, and part of the part I can go alright, but I can't tell from the other people. I usually lost of my things. I know what can I talk and know what they are, but I can't always come back even though I know they should be in, and I know should something eely I should know what I am doing.

A third type of language disorder is called conduction aphasia, a language impairment which was resulted from damage in the arcuate fasciculus. The arcuate fasciculus is a bundle of nerve fibres which connects Wernicke's and Broca's areas. This aphasia makes the sufferers unable to repeat words or phrases. A patient suffering from conduction aphasia is relatively fluent in producing utterance but gets impaired speech repetition. Like Broca's aphasic, the patient will be able to understand utterances but will not be able to repeat them (Steinberg and Sciarini, 2006).

The fourth is dyslexia, a language disorder which covers people's difficulties because of reading problem and a problem of relating words (i.e., writing). Persons who suffer dyslexia have normal intelligence and vision. Dyslexia which relates to reading disorders is called alexia, while the one which involves writing disorders is labelled as agraphia. Someone can suffer from the two dyslexia at the same time (Steinberg and Sciarini, 2006).

4.4 SUMMARY

In the brains of human beings, there are three layers of levels where individuals should proceed if they want to produce or understand language, i.e., *linguistic, physiological*, and *acoustic* levels. This process is called 'speech chain', which is applicable to both listeners and hearers (or interlocutors as a whole). Since

language can be in the form of written, spoken or semi-spoken or semi-written (this refers to recent mode of social media language), then there are characteristics of those forms which needs more recognitions by language students. Moreover, in carrying the messages, the speakers and the hearers use their speech organs in processing (i.e., understanding as well as producing) the language signals. The speech organs are controlled by the work of brain. When there is a trouble in the work of brain, then it will hinder the work of those speech organs; consequently, producing and understanding language can also get troubles. This occurs to individuals who suffer language disorders.

4.5 AFTER-READING ACTIVITIES

4.5.1 Questions for self-study

1. Match the following terms to their definitions!

Physiological level	a. the air gap which is called sound wave
Acoustic level	b. the expression/perception of the language signal carrying the message
Competence	c. concrete skills of language learners
Performance	d. hidden knowledge of language learners
Brain hemisphere	e. a place in brain responsible for producing utterances
Wernicke area of brain	f. nearly symmetrical halves of brain
Broca area of brain	g. a place in brain responsible for understanding utterances
Aphasia	h. one kind of aphasia
Dyslexia	i. a disease concerning with language disfunction because of brain impairment

4.5.2 Independent learning

1	Mention kinds of aphasia!
2	Mention parts of the brain related to language production!

Chapter 5
Language, Thought, and Culture

Learning outcomes:

- to describe the relationship between language, thought and culture.
- to describe how rhetoric works, especially concerning with language, thought and culture.
- to describe the Sapir-Whorf Hypothesis

Language, culture, and thought serve three different concepts, however, in those concepts reside more similarities in terms of the concrete implementation of the concepts. These similarities are closely related to the real connection among language, thought and culture. Is language necessary for thought? Or are thought and culture necessary for language? Can people think without language? Does language influence culture or does culture influence language? Does language affect people's world view? All these questions are central to this chapter. There are also debating areas at some points in talking about this topic. This chapter discuss notions of the relationship between language and thought, language and culture in an independent explanation, and then debating points will be elaborated to have one particular point in which the author takes his position.

5.1 EARLY IDEAS OF THE RELATIONSHIP AMONG LANGUAGE, THOUGHT, AND CULTURE

People's thought to some extent can be indicated by what and how they think or view the world. How people see the objects surrounding them brings the people to they think about such objects. Commonly the concrete things that people use as symbols of what think are language. Therefore, behaviourists believed thought is speech which is not spoken aloud. Watson (1924) and Blount (1974) said that thought is nothing but talking to themselves and that the *talking to themselves* originates from speaking aloud. That is why, ordinary speaking is an internal monologue where in order for individuals to talk to themselves (or to think), they should have previously learned to talk intelligently aloud and have learned and understood other people doing so. Chomsky (1972) put a notion that the true relationship between language and thought is that language is able to fulfil its primary role as an instrument for the expression or communication of thought. In addition, Kenneth Burke in (Warnick and Inch, 1994) proposed the term *terministic screen* to describe the role of language in human perception. This *terministic screen* is in fact a linguistic filter through which human beings perceive their worlds. Thus, linguistic filter is the language itself.

Another idea on language and thought is the most popular view proposed by Edward Sapir and Benjamin L. Whorf. Sapir. The two persons were teacher and student. They made experiments to test whether language is necessary for someone's thought. The experiment put two persons before the fire. There were two drums, one was written *full petrol drum* on it and the other was written *empty petrol drum*. The two persons were supposed to pass through the drums. It was found that people behave cautiously near what they categorized as *full petrol drums* but carelessly near the *empty petrol*-written drums. As a matter of fact, the source of the fire was coming from the *empty petrol*-written drums containing patrol vapour. As a result, the fire happens. From this experiment Whorf learned that language influences the world-views of the speakers (Sampson, 1977). The great idea from the two scholars has come to be known as the *Sapir-Whorf Hypothesis*, which have incorporated two important theories: the theory of linguistic relativity and the theory of linguistic determinism (Blount, 1974; Thomas and Wareing, 1999).

The theory of linguistic relativity asserts that different ways of interpreting the same world is caused by different cultural backgrounds of the interpreters and that language encode these differences. For instance, Javanese people perceive a coconut tree differently from what other people in the world do because of their different cultural backgrounds. The difference in perception will be apparent in the dictions of language they use - such as the various Javanese terms of parts of the coconut tree: *pondoh, plapah, janur, sada, manggar, mandha, bluluk, cengkir, degan, kerambil, glugu,* etc (Wahab, 1995). Another example is that while English people recognize one word: *snow*, Eskimo people have separate basic roots of snow falling-*qana*, snow on the ground-*aput,* drifting snow-*piqsirpoq,* and a snowdrift-*qimuqsug* (Blount, 1974). It is apparent that people's perception of their surroundings is to a great extent influenced by the conceptual categories their languages happen to provide. Meanwhile, the theory of linguistic determinism states that not only does the worldviews of speakers of certain language influence their languages, but also that the languages they use profoundly affect how they think. In this sense, language is metaphorized as a tyrant both reflecting the speakers' experiences and imposing upon their particulars and ideas about the worlds. In this sense, individuals who were at the mercy of their languages put forth *tyrannical hold* over their mind. Language is, thus, the shaper of ideas rather than merely the reproducing instrument for voicing them (Blount, 1974). Language can be said to provide a framework for speakers' thought and according to this theory, it is very difficult for them to think outside that framework. Once a linguistic system is in place, it influences the way in which members of speech community talk about and interpret their worlds.

5.2 CULTURE AS A SYSTEM IN RELATION TO LANGUAGE

The way people see their worlds collectively constructs a system in society which is called culture. Indeed, culture is a system of shared meanings that are expressed through different symbolic forms such as symbols, rituals, stories, and myths that hold a group of people together. In anthropological perspectives, culture is either the adaptive system, the system reflecting processes of adapting a social organization that is controlling population, contributing to a sub-system, and maintaining the ecosystem; or the ideational system, the system considering

culture as a system of ideas, i.e., cognitive, structural, and symbolic systems (Casson, 1981). In the adaptive system, there are four assumptions that most scholars agree to follow, i.e.: 1) culture comprises systems (of socially transmitted behaviour patterns) that serve to relate human communities to their ecological settings; 2) the change of culture is essentially a process of adaptation and is to be equal to natural selection; 3) technology, subsistence economy, and elements of social organization directly tied to production are the most adaptively central realm of culture; 4) the ideational components of cultural systems may have adaptive consequences such as controlling population, contributing subsistence, and maintaining the ecosystem. According to the ideational system, the culture is approached as a system of idea in three different ways, i.e. cognitive, structural and symbolic systems.

First, culture as a cognitive system is believed to be the system of knowledge, which epistemologically has been in the same realm as language (Casson, 1981). Language used as a means of communication is understood as a matter of individual behaviour, individual thought processes, and bioneural functioning, which is usually beyond the individual's awareness and control (Littlejohn, 1992). In this sense, culture is analogues to the Saussurian concept of *langue* and the Chomskian idea of *competence*. Therefore, according to this view, language is the subsystem of culture.

Second, culture perceived as a structural system is in line with the view proposed by Levi-Strauss (Blount, 1974) who mentioned that culture is a cumulative creation of mind. In this case, what has been becoming an important thing is the structuring of cultural domains. The stress of the structural system is the organization of language and social systems (Littlejohn, 1992). Consequently, myth, art, kinship and language are the principles of mind that generate this cultural elaboration.

Third, culture viewed as a symbolic system is derived from the concepts stated by Clifford Geertz and David Schneider (Casson, 1981). In Geertz' view, culture is a semiotic which means that studying culture is studying shared codes of meaning. While Schneider believed that culture is a system of symbols and meanings consisting of categories, or units and rules about relationships and modes of behaviour. The ideas of the two scholars are in line with the interaction theory of communication, stating that language is used to enact or create social structures, and language and other symbols are reproduced, maintained, and

changed through use. Meaning is not something subjective to be transferred but emerges from and is created by communication. Therefore, interaction leads to or reinforces shared meaning and establishes conventions like rules, roles, and norms enabling further interaction to occur (Littlejohn, 1992).

Still related to language and the society, common premises about communication and society are also mentioned in the theory of *Symbolic Interactionism*. In this theory seven basic propositions are stated, implying that meaning is created through and sustained by interaction in the social group or culture. The seven propositions are: 1) that human behaviour and interaction are carried on through the medium symbols and the meanings, 2) that the individual becomes humanized through interaction from which meanings arise, 3) that human society is most usefully conceived as consisting of people in the interaction, 4) that through interaction individuals re-create social reality, 5) that mind is nothing more than an internal conversation, which mirrors interaction one has had with others, 6) that human beings construct their behaviour in the course of its execution, and 7) that an understanding of human conduct requires a study of the actors' covert behaviour (Littlejohn, 1992).

Further, according to the theory of S*ocial and Cultural Reality*, meanings and understandings of the individuals arise from the communication with others. There are four basic assumptions as the bases of this theory, i.e.1) the world does not present itself objectively to the observer, but is known through human experience, which is largely influenced by language, 2) the categories in language used to classify things emerge from the social interaction within a group of people at a particular time and in a particular place, 3) how reality is understood at a given moment is determined by the conventions of communication in force at that time, and 4) reality is socially constructed by interconnected patterns of communication behaviour (Littlejohn, 1992).

In addition, the theory of *Social and Cultural Reality* looks at three aspects of social construction, i.e. *the self, emotions and accounts*. One's private notion of his/her own unity as a person is called *self*. It is stated that there is a difference between the concept of personhood and that of selfhood. The former is public whereas the latter is ultimately private. What is governed by the group's theory of personhood is the character of persons, while the self is governed by the individual's theory of her/his own being as one member of the culture. Therefore, personal beings are thus two-sided, consisting of a social

being (person), and a personal being (self). *Emotions*, constructing concepts, are determined by the local language and moral orders of the culture or social group. That is why our ability to make sense of emotions is socially constructed. *Account* is explaining and justifying the behaviour, for example, if we forgot our mother's birthday, we would have some explaining to do (Littlejohn, 1992).

In summary, the two theories, i.e. theory of S*ymbolic Interactionism* and the theory of S*ocial and Cultural Reality* also give strong supports on the nature of the relationship among language, thought and culture.

5.2.1 Culture and Rhetoric

Defining rhetoric serves us to go along with the historical development of rhetoric from ancient time where rhetoric was studied in classic ways up to the modern era in which contemporary rhetoric theory has come up.

Since rhetoric is culture-bound, studying ancient rhetoric requires us to understand the classical civilization, which cannot be separated from examining Greek and Roman culture. Greek society was oriented to the spoken word. The Homer's epic poems, *Illiad* and *Odyssey,* which constituted the poetic cornerstone of the Greek culture, are works resulted from society. This condition leads to the fact that many great orators were born from Greek. The history of Roman, furthermore, cannot be separated from the Greek civilization. What happened in Greek gives great impact in Roman. As a matter of fact, many Roman youth were taught by Greek tutors, thus insuring the preservation of much of earlier Greek civilization. It is apparent that the historical and cultural relations between Greek and Roman are very close.

From Roman, there appear dominant rhetoricians saying about a definition of the ancient rhetoric: Cicero and Quintillion (Golden, Berquist and Goleman, 1984). They perceived rhetoric as one great art consisting of five smaller parts, i.e. 1) *inventio* (investigation function), 2) *dispotio* (disposing and adapting of materials), 3) *elocutio* (use of language control), 4) *memoria* (recalling the discovered materials), and 5) *pronuntiatio* (delivering the message).

First, to compose an effective speech requires the speaker to firstly choose an appropriate topic. The next step is identifying the whole range of relevant ideas and providing available supporting evidence. These two initial

processes are labelled as *inventio*. Second, from the whole spectrum of ideas available to the speaker, it is necessary that he/she selects those which best meet the need of purpose, audience, and occasion. Further, he/she must arrange them in a sequence both clear and memorable. The determining of the amount of detail needed for the proofs the speaker intends to employ is the next step, which is called *dispositio,* the one that is usually labelled as speech organization in modern speech communication. Third, to clothe his/her ideas, the speaker uses styles, words, or rhetorical devices. This concept is called *elocutio*. Fourth, it is what the so-called *memoria* referring to the memory embracing the mental process of recall. The last is labelled as *pronunciatio*, which refers to the speaker's voice and physical action or manner of presentation.

Of the Greek scholars, Aristotle was the famous rhetorician who defined rhetoric as properly an art of persuasion because when a speaker persuades, it is possible to find out why he succeed or fail in doing so. Therefore, the technical study of rhetoric, in Aristotle's definition, is concerned with the modes of persuasion that go with three major components in the communication: the speaker, the audience, and the content of argument (Golden, Berquist and Goleman, 1984). In this sense, rhetoric is, in fact, the proper branch of logic in which the idea may be presented in three steps: a major premise, a minor premise, and a conclusion.

In the era that follows, i.e. according to contemporary theories, rhetoric is a human discipline grounded in choice and designed primarily to persuade. This means that the communicators' function is to influence choice by developing meaningful possibilities in support of a proposition that is being contested (Golden, Berquist and Goleman, 1984). Theories of rhetoric in the contemporary period present four themes: *rhetoric as meaning, rhetoric as value, rhetoric as motive,* and *rhetoric as a way of knowing*.

The scholars who propose the idea of *rhetoric as meaning* are I.A. Richards and Marshall McLuhan. According to Richards in his book *The Meaning of Meaning*, there are two functions of language, i.e. symbolic and emotive functions. The symbolic use of words is statement, while the emotive use is to express or excite feelings and attitudes. McLuhan proposed the idea that the medium is the message. In his idea, the meaning that we experience is more dependent upon the medium than upon content. The implication of this idea is that: 1) there is an influence of a medium on the message and its reception, 2)

it is important that speakers either choose the medium most suitable to their natural style or modify the style so as to make it appropriate to the medium, 3) the resurgence of the oral mode of communication is due to the influence of the electronic media, and 4) meaning concerns with the structure of public oral discourse (Golden, Berquist and Goleman, 1984).

Rhetoric as value cannot be separated from the name of Richard Weaver, the value-oriented rhetorician. He asserted that individual's ethics give influences on his/her construction of messages as well as the perception of incoming communiqués. So, in his perception, rhetoric is a process grounded in 'choice' which is dependent upon the values of those engaged in the communicative act. Ethics of communication, according to him, must meet the criteria that: 1) the communicator must be thoroughly informed on his/her topic, 2) the speaker must select and present fact and opinion fairly, 3) the speaker should reveal his/her source of fact and opinion, 4) the speaker must tolerate other viewpoints and acknowledge or respect diversity of argument and opinion (Golden, Berquist and Goleman, 1984).

Kenneth Burke in (Golden, Berquist and Goleman, 1984) treated language primarily as modes of action. Further, he said that philosophy must think of human motivation dramatically in terms of action and its end. In this case, language is essentially human, and it is necessary to view human relations in terms of the linguistic instrument. What Burke argued is what the so-called *rhetoric as motive*.

Rhetoric as a way of knowing is popularized by two scholars: Stephen Toulmin with the concept of *the nature of argument* and Chaim Perelman with his *practical reasoning*. In the rhetorical theory, Toulmin proposed the model of argument consisting of several elements, i.e. *claim, warrant, data, qualifier, rebuttal, and backing*. *Claim* is a conclusion, which is the final proposition in an argument, or it is an intermediate statement which serves as data for a subsequence inference. *Warrant* refers to a part of argument authorizing the mental "leap" involved in advancing from data to claim. What Toulmin meant by data is the materials of fact or opinion which we usually called evidence. *Qualifier* which is usually expressed by such terms as "*possibly, probably"* serves to register the degree of force that the maker believes in his claim to possess. *Rebuttal* performs the function of a safety valve or escape hatch, and is appended to a claim statement. Finally, what is meant by *Backing* is credentials designed to

certify the assumption expressed in the warrant (Golden, Berquist and Goleman, 1984). These elements can be seen in Figure 5.1 as follows.

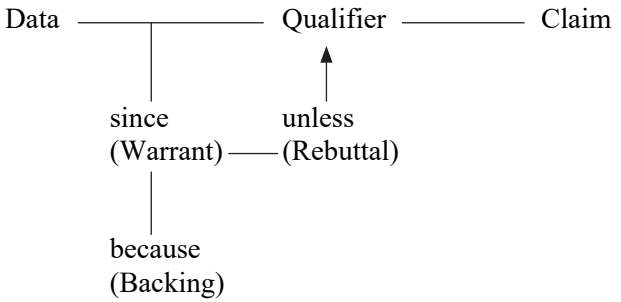

Figure 5.1 Toulmin Model of Argument

Perelman proposed practical reasoning by stating two different important terms: *rationality and reasonableness*. Reasonableness means a fundamental requirement of practical arguments while rationality meets the test of formal validity, logical coherence, purposefulness and predictability. With the theory of practical reasoning, Perelman taught us to view argumentative process as practical and realistic endeavour which not only seeks to gain an adherence of minds but seeks to expand our knowledge as well (Golden, Berquist and Goleman, 1984).

It is precisely at this decision point that rhetoric in the contemporary period shades a little bit different light compared to the classical theories of rhetoric. However, basically they have the same concepts. It is not quite an illusion to point out that accumulated from the above ideas; rhetoric is 'the art of using language in such a way to produce a desired impression upon the hearer or reader' (Encyclopedia, 1956). This view is supported by Kaplan (Croft, 1980) who defined rhetoric as a mode of thinking or a mode of finding all available means for achieving a designated end. Accordingly, rhetoric basically concerns with what goes in mind rather than what comes out of the mouth. In other words, rhetoric is concerned with factors of analysis, data gathering, interpretation, and synthesis (Croft, 1980).

5.2.2 Rhetoric and Logic

The contemporary study of logic as it is expressed in inference is rooted to two traditions. The first is formal logic, which studies the relationship between events or groups in certain formally prescribed way. In formal logic, arguments are reduced to their basic element and expressed in standardized forms for purposes of comparison and analysis. The second tradition is informal logic, which studies naturally occurring arguments relying on principles and rules particular to certain fields of argument (Warnick and Inch, 1994).

The study of logic emphasizes the study of formal types of reasoning such as syllogism. Syllogism is a set of highly structured statements about common nouns and their characteristics leading to a conclusion. Syllogism is defined by its forms; it is made up of three statements, including three terms associated impairs throughout the statements, and drawing a conclusion from a major premise and a minor premise (Warnick and Inch, 1994).

Aristotle described a rhetoric form of syllogism to be used in speeches and public discourse. He called this form enthymeme. The enthymeme is rhetoric syllogism calling upon the audience's existing belief for one or both of its premises. Aristotle said that in most forms of public speaking, one would not want explicitly to state all of one's premises, for that would be labour the point and bore the audience (Warnick and Inch, 1994).

There are two forms of syllogism that are often used by the arguers seeking to draw probable and not necessary conclusions from premises (Warnick and Inch, 1994). First, categorical syllogism draws a necessary conclusion from two premises stated as simple propositions. In this syllogism objects or persons are put into the group. Then, the characteristics of the group are explained. Based on those characteristics, one is able to make a conclusion, for example:

All students at this institution must pay tuition.

Mary is a student at this institution.

So, she must pay tuition.

The second form of syllogism is disjunctive syllogism, which uses a process of exclusion or elimination. So, this form of syllogism sets forth two alternatives in the major premise, denies one of them in the minor premise and affirms the other in the conclusion. The following is the example.

That long-haired figure over there is either a man or a woman.

It is not a woman.

Therefore, it is a man

5.2.3 Rhetoric and Diction

A word has meaning not only in the context of other words, but also in the context of who is using it, and it is addressed to whom. In other words, various sets of words are appropriate if they suit the audience and the purpose of writing, that is to say depending on the context in which the speakers are speaking or writing (Jordan, 1965; Fowler, 1983). Therefore, in a professional communication words should meet three ways in which they are said or uttered: accuracy, comprehensibility, and tone. First, words should be accurate when they are used in communication in that they should depict what it is the speakers are talking about. Second, they should be comprehensible to the readers or listeners. In other words, if the speakers are talking but cannot be understood well by the listeners, the communication does not occur. Third, the words should be conveyed in the right tone. This, for example, is concerned with an enthusiasm or expectation in conveying the application letters, or anger or displeasure in conveying the complaint (Huckin and Olsen, 1991).

In addition, there are five terms with which the process of the written communication occurs, i.e. a writer, an idea (concept), a thing (referent), a name (word), and a reader. Since the name or word is what the writer has to present to the reader, it serves as a starting point in the communication. In choosing the most appropriate and accurate word, what a writer must understand is the terms "denotation and connotation" (Jordan, 1965; Memering and O'hare, 1980). The explicit dictionary meaning of a word is called denotation, while connotation is the ideas implied in a word. In fact, many words are rich of connotation (Gordon and Troyke, 1987). That is why the writer's job is to choose just words in which context carry the proper denotation and connotation to induce in the reader she/he is addressing exactly the concept she/he intends. Rhetoric is ultimately the art concerned with the choice of the right words in the right places (Jordan, 1965).

5.2.4 Rhetoric and Grammar

By knowing grammar, a speaker or writer could understand how language works (Gordon & Troyke, 1987). What grammar also describes are the components of language and standard rules for using language. Furthermore, at one end of its range rhetoric is concerned with ordering of ideas (Jordan, 1965). At the other end it is concerned with presentation of ideas in language. Since rhetoric is concerned with the best use of language, it has connections with grammar. The use of language is controlled by three factors, i.e. grammar, rhetoric, and usage. Grammar is the science of what is permissible in the language; rhetoric is the art of what is effective. Grammar concerns itself with the possible ways of saying something, rhetoric with the best way. That is why a writer in choosing the best way must necessarily select from among the possible ways—thus she/he must know grammar.

5.2.5 Rhetoric and the Reader

In the process of writing, these tree elements separated and distinct elements: the writer, the reader (audience), and the subject matter, have to be involved together and the relationship between and among them should be established (Lorch, 1984). She further said that the most important part of the communication triangle is the reader or audience. A writer, to be convincing, in order to achieve the purpose of his/her writing she/he should always know the audience. Knowing who the readers are is important in order to decide the best means to achieve this end. This is because not all audiences have the same abilities to understand the subjects; they have different interests, and attitudes toward those subjects.

So, when a writer has her/his clearly focused subject, she/he knows in general terms what she/he is going to say; but when she/he might not be ready to say the subject, she/he needs a clear target for his/her rhetoric. When the writer virtually ignores the existence of her/his readers she/he creates a lot of troubles for him/herself. Many sentences, for example, can get marked 'not clear' simply because their authors did not realize the necessity of making sense to someone who might not be able to fill in the context (Jordan, 1965).

In addition, there are two kinds of audiences: *direct* audiences and *indirect* one (Lorch, 1984). *Direct* audience is the one to whom a writing is purposely presented. For example, the person to whom a letter is addressed constitutes its direct audience. *Indirect* audience refers to a person who read a work but whom the writer did not necessarily intend the work to reach. For instance, a ten-year-old may read his older brother's love letters.

5.3 DEPENDENCE OF THOUGHT AND CULTURE ON LANGUAGE

This sub-heading might presumably reside the strong claim of the connection among language, thought and culture, for instance; the terministic screen of Kenneth Burke which shows the role of language in human perception; Sapir-Whorf hypothesis that clarified language and thought are mutually connected; and Chomsky's idea on competence and performance indicating how close is the relationship between language and thought. Furthermore, there were many experts' elaborative descriptions on how culture needs the existence of culture in it. However, talking about this connection is not finished yet. Even though in some cases it is overlapping, there were at least four theories which experts along centuries discussed in regard with the dependence of thought and culture on language. The followings will be explained in detailed how these theories clarify such dependence.

The first theory is that speech is essential for thought. As it was mentioned earlier that it was clear for the behaviourists to claim speech as a mental process which cannot be a part from the process of thinking in human mind. However, there were language phenomena which made this claim undoubtful. First, there are infants who are born mute. In this case, the infants do not have abilities to utter speeches, but in fact these kinds of infants still can think normally as other people do. Second, normal children first comprehend speeches before they are able to produce speeches. In the process of comprehending speeches, they need thought. It means that thought is presence in the process of comprehending not in producing speeches. Therefore speech production is not anymore necessary for thought. Third, in the case of telling a lie, a person who tells a lie is actually think one thing but say quite different things. If speech is necessary for thought, telling a lie cannot happen (Steinberg and Sciarini, 2006).

The second theory says that language is essential for thought. The linguists like Edward Sapir, Benjamin L. Whorf and Noam Chomsky asserted this theory. This theory is a bit broader than the first one in that language incorporates linguistic rules, grammars, vocabularies, and both speech production and comprehension. The same as the first theory, it also leaves some problems of inadequacy. The fact that deaf children who cannot acquire languages up to the late very age can still think is an example of the problem. If language is necessary for thought, why are the children still able to think properly in such condition? In addition, in the case of an individual who is proficient in more than one language, one system of thought is operating in such a person. If different language creates different systems of thought, then such person who masters more languages will not operate a single system of thought. In fact such person uses one system of thought (Steinberg and Sciarini, 2006).

Next, it is the fact that language determines or shapes human being's perception of nature. This notion is a part of the Sapir-Whorf hypothesis. It is a view saying that an individual's knowledge of language gives an influence to her/his perception of nature. However, this theory shows inadequate arguments as well. Perception of colour can be various among many different cultures. Dani language of New Guinea has only two words for describing colours. Eskimo persons perceive snow differently from other people. Amazon ethnic has different perception on saying numbers. All these examples indicate no foundation of claim that vocabulary affects human being's perception of nature (Steinberg and Sciarini, 2006).

Finally, it is said that language determines or shapes human being's cultural world view. This theory was under the influence of Wilhelm von Humboldt's idea on language. He argued that language embodies the spirits of national character of people. This idea was also asserted by other linguists, saying that language provides medium for social interaction. Therefore, according to Sapir, language system serves a view of culture and society and world outlook (Blount, 1974). However, this theory provides in adequate reasoning as well. The people of some countries have a single uniting worldview even though there are various languages spoken by the citizens. In some countries, like China, Vietnam, Cuba, for example, the citizens have their single ideology, i.e., communist, as a single worldview. This worldview emerged not because of they have a single language used in those countries but because of the cultural and historical events that brought them into that single ideology.

Moreover, the social structure and worldview in a country might change any time even though the language used in that country does not change (Steinberg and Sciarini, 2006; Steinberg, Nagata and Aline, 2001).

5.4 SUMMARY

Thought has a real connection with culture; culture has a relation to language. How close the relationships are is the main discussion of the Sapir-Whorf Hypothesis, an idea proposing a clear relationship amongst language, thought and culture. This relationship has been believed by earlier linguists among others are some behaviourists like Watson, Blount or Kenneth Burke. Recently, the concept has been developed by some other modern linguists like Chomsky, Edward Sapir or Benjamin L. Whorf, even in other disciplines language and culture are also reviewed as an independent topic. However, there has been debating areas in which linguists are not still in one agreement up to now.

5.5 AFTER-READING ACTIVITIES

5.5.1 Questions for self-study

1. Match the following terms to their definitions!

Sapir-Whorf hypothesis	a. *inventio*, *dispotio, elocutio, memoria,* and *pronuntiatio*
Symbolic interactionism	b. Wilhelm von Humboldt's idea
Rhetoric	c. meaning is created through and sustained by interaction in the social group or culture
Language reflects social interaction	d. language shapes/influences speakers' worldview

5.5.2 Independent learning

1	Mention four theories of the dependence of thought and culture on language!
2	Mention more proponents of the idea of the relationship among language, thought and culture!

References

Barrett, E. 2007. Experiential learning in practice as research: Context, method, knowledge. *Journal of Visual Art Practice*, 6(2):115–124. doi: 10.1386/jvap.6.2.115_1.

Beals, D.E. and Tabors, P.O. 1995. Arboretum, Bureaucratic, and Carbohydrates: Preschoolers' Exposure to Rare Vocabulary at Home. *First language*. ERIC, 15, pp. 57–76.

Berk, L.E. 2000. *Child Development*. Boston: Allyn & Bacon.

Blount, B.G. 1974. *Language, Culture and Society.* Cambridge, Massachusetts: Winthrop Publishers, Inc.

Braine, M.D.S. and Bowerman, M. 1976. Children's first word combinations. *Monographs of the society for research in child development*. JSTOR, 41(164):1–104.

Brown, K. 2002. *Encyclopedia of language & linguistics*. Michigan, USA: Elsevier Pergamon.

Bukatko, D. and Daehler, M. 1995. *Child Development: A thematic approach. Boston: Houghton*. Boston: Houghton Mifflin Company.

Casson, R.W. 1981. *Language, Culture and Cognition: Anthropological Perspective*. New York: Macmillan Publishing Co. Inc.

Croft, K. 1980. *Readings on English as a Second Language for Teachers and Teacher Trainees*. 2nd ed. Massachusetts: Winthrop Publishers, Inc.

Dell, G.S. 1986. A Spreading-Activation Theory of Retrieval in Sentence Production. *Psychological Review*, 93(3):283–321. doi: 10.1037/0033-295X.93.3.283.

Denes, P.B. and Pinson, E.N. 2007. *The speech chain: the physics and biology of spoken language*. USA, UK: W.H Freeman and company.

Ellis, R. 2015. *Understanding second language acquisition.* 2nd Edition. Oxford: Oxford university press.

Encyclopedia, B. 1956. *A New Survey of Universal Knowledge*. Chicago, Toronto, London: Encyclopedia Britannica, Inc.

Fernald, A. and Mazzie, C. 1991. Prosody and focus in speech to infants and adults. *Developmental Psychology*, 27(2):209.

Fernández, E.M. and Cairns, H.S. 2011. *Fundamentals of psycholinguistics*. UK: UK: Wiley Blackwell.

Fowler, H.R. 1983. *The Little, Brown Handbook*. 2nd ed. Boston: Little, Brown and Company, Inc.

Garman, M. 1990. *Psycholinguistics*. Cambridge: Cambridge University Press.

Gibson, J. 1966. *The senses considered as perceptual systems*. New York: Houghton Mifflin.

Glover, J.A. and Bruning, R.H. 1987. *Educational Psychology*. Boston, MA: Little, Brown & Company.

Golden, J., Berquist, G.F. and Goleman, W.F. 1984. *The Rhetoric of Western Thought*. Dubuque, Iowa: Kendall/Hunt Publishing Company.

Gordon, E. and Troyke, L.Q. 1987. *Simon & Schuster Workbook for Writers*. New Jenrsey: Prentice Hall.

Harley, T. 2001. *The psychology of language*. East Sussex: Psychology Press.

Huckin, T.N. and Olsen, L.A. 1991. *Technical Writing and Professional Communication for Nonnative Speakers of English*. 2nd ed. New York: McGraw-Hill, Inc.

Jordan, J.E. 1965. *Using Rhetoric*. New York: Harper &Row, Publishers.

Krashen, S. 2004. *Principle and practice in second language acquisition*. Oxford: Pergamon Press. Available from: http://eprints.uanl.mx/5481/1/1020149995.PDF.

Lane, H., Howard, C. and Hapke, H.M. 2019. *Natural Language Processing in Action. Understanding, analyzing, and generating text with python.* New York: Manning Shelter Island.

Levelt, W.J.M., Roelofs, A. and Meyer, A.S. 1999. Levelt, Roelofs, Meyer_A theory of lexical access in speech production Behav_1999. *Behavioural and Brain science*, (33):1–76.

Littlejohn, W. 1992. *Theories of Human Communication*. 4th ed. Belmont, California: Wadsworth Publishing Company.

Loewen, S. and Sato, M. 2017. *The Routledge Handbook of Instructed Second Language Acquisition*. New York: Routledge Tayor & Francis Group. doi: 10.4324/9781315676968.

Lorch, S.L. 1984. *Basic Writing. A Practical Approach*. 2nd Ed. Toronto: Little Brown and Company, Ltd.

Memering, D. and O'hare, F. 1980. *The Writer's Work: Guide to Effective Composition*. Englewood Cliffs: Prentice-Hall, Inc.

Menn, L. 2017. *Psycholinguistics: Introduction and Applications*. San Diego, USA: San Diego, USA: Plural Publishing.

Muspratt, S., Luke, A. and Freebody, P. 1997. *Constructing critical literacies*. Cresskill. NJ: Hampton Press.

Peterson, C. and McCabe, A. 1992. Parental styles of narrative elicitation: Effect on children's narrative structure and content. *First Language*, 12(36):299–321.

Roelofs, A., Ozdemir, R. and Levelts, W.J.M. 2007. Influences of spoken word planning on speech recognition. *Journal of Experimental Psychology: learning, memory, and cognition*, (33):900–913.

Sampson, G. 1977. *Schools of Linguistics*. Stanford, California: Stanford University Press.

Saville-troike, M. 2010. *Introducting second language acquisition*. Cambridge: Cambridge: Cambridge University Press.

Schichedanz, J.A., Forsyth, P.D. and Forsyth, G.A. 1998. *Understanding children and adolescents*. 3rd ed. Boston: Allyn and Baon.

Shaffer, D.R. 1999. *Developmental psychology: Childhood & adolescence.* 5th ed. Pacific Grove, CA: Brook Cole Publishing Company.

Steinberg, D., Nagata, H. and Aline, D. 2001. *Psycholinguistics:Language, Mind and Worlds*. New York: Routledge Tayor & Francis Group.

Steinberg, D. and Sciarini, N.V. 2006. *An introduction to psycholinguistics*. London: Pearson Longman.

Thomas, L. and Wareing, S. 1999. *Language, Society, and Power*. Padstow, Cornwell: T.J. International, Ltd.

Traxler, M.J. 2012. *Introduction to psycholinguistics. Understanding language science*, *Immunology Letters*. Massachusset: Wiley Blackwell. doi: 10.1016/j.imlet.2014.08.006.

Wahab, A. 1995. *Isu Linguistik. Pengajaran Bahasa dan Sastra*. Surabaya: Airlangga University Press.

Warnick, B. and Inch, E.S. 1994. *Critical Thinking and Communication.* New York: Macmillan Publishing Company.

Glossary

Aphasia = a disease concerning with language dysfunction because of brain impairment

Competence = hidden knowledge of language learners

Contrastive analysis = an SLA approach where L1 and L2 learners' problems are compared in order to have similarities and differences

Error analysis = an SLA approach which pay more attention to learners' ability to construct language through their creativity from error patterns

First Language Acquisition = a process of getting to the skill of having first languages among individual learners

Instructed Second Language Acquisition = sub field of SLA which views that both learning and acquisition can happen in class

Language dissolution = a phenomenon of losing the language they previously mastered because of some factors

Monitoring hypothesis = when a learner is learning language, what she/he has already learned will function as a monitoring system in her/his mind

Performance = concrete skills of language learners

Psycholinguistics = a sub-field of linguistics which aims at discovering how speaking, understanding, reading, and writing are managed in human brain, and how the brain works in relation to language development.

Sapir-Whorf hypothesis = language shapes/influences speakers' worldview

Second Language Acquisition = a process of getting to the skill of having subsequent languages among individual learners

Tip-of-the-tongue = when speakers are in the efforts of a word retrieval but temporarily cannot recall and pronounce the word

Index

T

V

W

Z

Key Answers

Key answers of questions for self-study in chapter 1

Paul Broca	e
Karl Wernicke	d
Psycholinguistics	b
Language dissolution	c
Core of linguistics	a

Key answers of questions for self-study in chapter 2

Language acquisition	b
Second Language Acquisition	a
First Language Acquisition	c
Instructed Second Language Acquisition	e
Cooing	d
Babbling	g
Telegraphic	f
Monitoring hypothesis	j
Error analysis	h
Contrastive analysis	i

Key answers of questions for self-study in chapter 3

Parsing	b
Hesitation	a
Pausing	d
Tip-of-the-tongue	c

Key answers of questions for self-study in chapter 4

Physiological level	b
Acoustic level	a
Competence	d
Performance	c
Brain hemisphere	f
Wernicke area of brain	g
Broca area of brain	e
Aphasia	i
Dyslexia	h

Key answers of questions for self-study in chapter 5

Sapir-Whorf hypothesis	d
Symbolic interactionism	c
Rhetoric	a
Language reflects social interaction	b

About the Author

Susilo is a professor of psycholinguistics at the Faculty of Teacher Training and Education, Mulawarman University. He got his Ph.D. from Malang State University in 2004. In 2007, he got Fulbright Senior Research Grant in CUNY, USA. He wrote articles in many international and national journals. He also presented several papers in international and national conferences. His main interest of research is in psycholinguistics, especially focusing on second language acquisition, EFL contrastive rhetoric, and EFL teacher training. His major academic interests are psycholiguistics, L2 teacher education, TEFL, and Applied linguistics.

In addition, he has been the head of Language centre, Mulawarman University (2009-2010); in 2010-2011, He has been a coordinator of English Master Program at the Faculty of Teacher Training and Education, Mulawarman University. In 2012-2020, he has been a director of Research and Community Services Institute, Mulawarman University.