NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF ARTS

COURSE CODE: ENG 491

COURSE TITLE: PSYCHOLINGUITICS

COURSE MATERIAL

ENG491

PSYCHOLINGUISTICS

Course Team

Prof. Iyabode O. Nwabueze (Developer/Writer) – NOUN

Dr. Tajudeen Alebiosu (Co-Writer) – RONIK

Prof. Joy C. Eyisi(Editor) – NOUN

Prof. Iyabode O. Nwabueze (Coordinator/Programme Leader) – NOUN

NATIONAL OPEN UNIVERSITY OF NIGERIA

National Open University of Nigeria

Headquarters

National Open University of Nigeria
Headquarters
Plot 91, Cadastral Zone
Nnamdi Azikiwe Expressway
Jabi, Abuja
.
Lagos Office
14/16 Ahmadu Bello Way
Victoria Island
Lagos

e-mail: centralinfo@nou.edu.nig

URL: www.nou.edu.ng

National Open University of Nigeria

First Printed:

Reviewed 2020
ISBN

Printed by …….

For

National Open University of Nigeria

MODULE 1: WHAT IS PSYCHOLINGUISTICS?
Unit 1: What is Psycholinguistics?
Unit 2: History of Psycholinguistics
Unit 3: Different Forms of Psycholinguistic Inquiry
Unit 4: Linking Language and the Mind
Unit 5: How does Psycholinguistics Relate to our Lives?

UNIT 1: WHAT IS PSYCHOLINGUISTICS?

Contents

1.0 INTRODUCTION

This module is a general introduction to the field of psycholinguistics. It attempts to define psycholinguistics by giving you an overview of the field. It looks at different definitions that had been propounded over time in the field as well as traces its history. The link that psycholinguistics has to the human life is discussed. In particular, this unit introduces you to the concept of psycholinguistics. It attempts to give a definitive form to the field. It thus brings to our understanding the reality of the way psychology and linguistics come together to create a new field – psycholinguistics.

2.0 OBJECTIVES

At the end of this unit, you should be able to perform the following tasks:

1. Define psycholinguistics.
2. State some definitions given by different scholars of psycholinguistics.
3. Draw the psycholinguistics operational circle and discuss its working procedure.

3.0 MAIN CONTENT

3.1 What is Psycholinguistics?

The question of what psycholinguistics is has bothered the mind of scholars in the past sixty or so years since Transformational Generative Grammar movement has forced the subject of the link between language and its relationship to the human psychology to the fore front of linguistic studies. Essentially, psycholinguistics is the study of language as it relates to the human mind. Some scholars see psycholinguistics as the study of how language influences and is influenced by the human mind. Other scholars, especially those with psychological leaning, tend to see psycholinguistics in terms of the experimental form of the study of human mind within the laboratory and its ability to comprehend language. This has led to the broad division/categorisation of the area of study into the psycholinguistics and the psychology of language.

Self-Assessment Exercise

Give a clear and concise definition of psycholinguistics.

3.2 Some Definitions of Psycholinguistics

Aitchison (1990:333) defines psycholinguistics as the study of language and mind, which "aims to model the way the mind" works in "relation to language". Looking at this definition, it is obvious that her view of psycholinguistics is that which maps out the strategising of language usage as well as language comprehension. To her, then, anything that the mind does in relation to language is psycholinguistics. She further distinguishes between psycholinguistics and neurolinguistics. Her point of contention is that while neurolinguistics seeks to link language to brain functioning and its influence on language, psycholinguistics measures the unobservable operations of the mind as it relates to the human language experience. It is obvious then that the human brain relates to language in a physically observable manner as is seen in the language of aphasics, while psycholinguistics has many nuances in linguistic employment of humans that may not be possible to measure in a realistic manner. One could agree with this observation as the manner in which medical science could measure language-related task of humans is not realistically possible in psycholinguistics. This has thus resulted in so many controversies concerning the subject as it relates to its source in the work of psychologists and linguists.

Aitchison (1990) also claims that psychologists' attempts to study the language of humans in the laboratory environment have proven unrealistic. This, she notes, has made it obvious that language is a social phenomenon, which needs to be observed beyond the walls of the laboratory. For, according to her, it is effectively frustrating to psychologists who found that a realistic state of affairs in terms of finding how the human mind works in relation to their language production and comprehension could not give the correct data in a laboratory environment.

Another important issue we need to consider here is that, while psychologists maintain that laboratory study of the human language is the best way to elicit data for psycholinguistic study, linguists continue to favour a descriptive study of the human language as they see the more naturalistic study of language as providing best evidence for trustworthy data in psycholinguistic study. Even though psychologists have always looked at laboratory experiments as the most acceptable, the reality is that linguistics that best fits and likely to show a realistic state of affairs in terms of human language usage may be best elicited from human beings in real situations. Descriptive linguistics thus provides the most sensible manner of collecting psycholinguistic data. Having said this, one needs to also state that the linguist as a source of data is still tenable. When one considers the way language death is spreading to the languages of the world, a time may come, and as Crystal (2000) has even already reported, the time may already be with us, when there may be only one speaker of a language of the world. And clearly, it is from the assumed internal processing of the linguistic usages of the informant of that particular language that is on the verge of extinction that the psycholinguistic operations would have to be deduced. As Lang (1994) asserts, language operates in a social form even while presenting its psychological foundation. It is however this psychological foundation that psycholinguistics seeks to unravel.

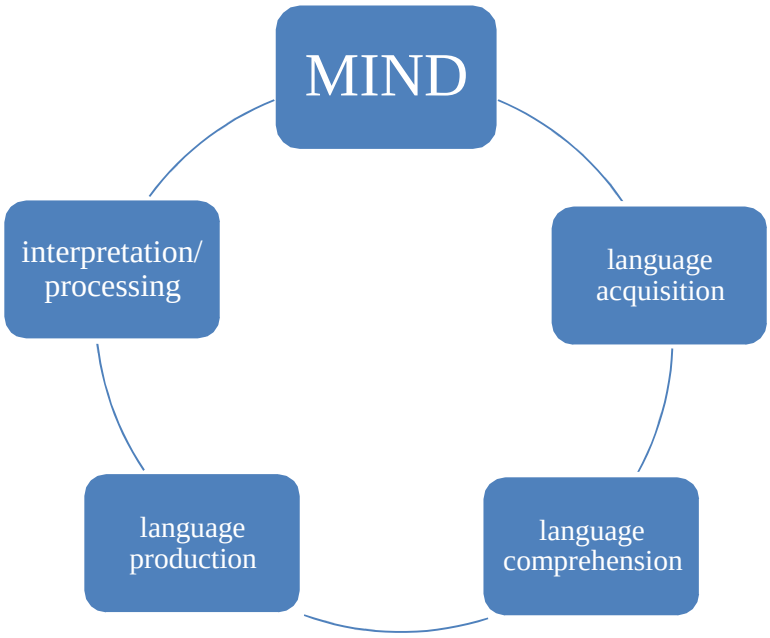
To Hawkins (1994), the internal processing is an important means of unravelling the meaning content in a linguistic context. Human psychology thus retains its important position in human communication process. Vygotsky (1962) actually avers that communication with language only makes meaning in relation to deciphering the communicative intentions of the speaker. This essentially refers to the psychological basis of language use by both speaker and hearer.

Even though many scholars have found Chomsky's (1965) cognitive base for language use objectionable on many fronts, especially his claims of exclusive dominance of competence over performance in language usage, the fact is that his recognition of the important role of the human mind in the psychological base for human language performatives is very insightful. Halliday's (1971) ideational concept appears to lean towards this view too even though he views the sociological foundation of language as a stronger base of human language operations.

As Daniel (2009) firmly notes, the two bases are important in true linguistic inquiries. The link between the two foundations of language obviously affects the way we communicate. As such, linguistic acquisition, processing, comprehension and production are all intertwined. We may thus be able to aver that psycholinguistics is essentially about language usage of human beings and how it is affected by their psychological dispositions to its acquisition, comprehension and production. The next section gives a graphical representation of how the mind relates with language in functional terms.

Below is a graphical representation of how language and the mind relate.

Figure 1: A Psycholinguistic Operational Circle



The graph above presents a non-directional circle of language link with the mind. In this sense, the mind is involved in the acquisition of language, in comprehending what has been said, in producing what is to be said, in processing what is heard or to be said.

Self-Assessment Exercise
State clearly three definitions of psycholinguistics discussed by authors in this unit.

4.0 CONCLUSION

This unit discusses the definition of psycholinguistics. It should be obvious that psycholinguistics is not an easy concept to define. Nonetheless, it is also clear that an important link between psychological studies and the linguistic studies was successfully forged to create this new field called psycholinguistics. The attempt by authors to relate the field to individuality is also apparent. However, the collective mind is also a possibility as shown by some of the authors. You may therefore ask further questions on how to resolve the issues raised in this work. This will show that you are not a passive learner in this course.

5.0 SUMMARY

This unit discusses the definition of psycholinguistics. It also brings to the fore some attempts by scholars to define the field. One sure issue that is not hidden in this work is the fact that psycholinguistics is a link between the human psychology or the human mind and the human language.

6.0 TUTOR MARKED ASSIGNMENT

1. Looking at the different definitions given by the scholars discussed in this unit, create a working definition for the field of psycholinguistics, bearing in mind the importance of capturing the different areas of interest it has.
2. Give a short description of what you think psycholinguistics means.
3. Discuss the views of two scholars on the subject of psycholinguistics.
4. Draw the psycholinguistic operational graph and discuss the way it operates.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1990). “Language and Mind: Psycholinguistics.” *Encyclopaedia of language*. N. E. Collinge. Ed. London and New York: Routledge. 333-370.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Crystal, D. (2000). *Language Death*. Cambridge: Cambridge University Press.

Daniel, I. O. (2009). *Portrayal of Nigerian women’s assertiveness in Nigerian newspapers*. Saarbrucken, Germany: VDM Publishing House Ltd.

Halliday, M. A. K. (1971). “Linguistic Function and Literary Style – an Inquiry into the Language of William Golding’s *The Inheritors*.” *Literary style: A symposium*. S. Chatman. Ed. London: Oxford University Press. 330-68.

Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.

Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. Ed & Trans. Cambridge, Massachusetts: The MIT Press.

Science Daily. (2010). Psycholinguistics. Retrieved, 17 August, 2010. http://www.sciencedaily.com/articles/p/psycholinguistics.htm.

UNIT 2: HISTORY OF PSYCHOLINGUISTICS

Contents

1.0 INTRODUCTION

In Unit 1 of this module, you were introduced to the field of psycholinguistics. The unit gave you some definitions of psycholinguistics. It discussed different views of different scholars on the subject matter. It also encouraged you to raise questions on these definitions as well as to give your own working definition. This unit gives a summary of the when and how of the development of the field of psycholinguistics. It traces its history to the start as well as the point of convergence of psychology and linguistics. Read up the references at the end of the unit as they will help you to understand better what this course is all about.

2.0 OBJECTIVES

At the end of the unit, you should be able to:

1. discuss the start point of psycholinguistics
2. outline the factors that led to the emergence of the psycholinguistic field
3. identify the scholars at the forefront of the emergence of the field of psycholinguistics

3.0 MAIN CONTENT

3.1 The Beginning

According to Levelt (2013:3), "The term "psycholinguistic" was introduced in 1936 by Jacob Kantor, but it was rarely used until 1946, when his student Nicholas Pronko published his article *Language and psycholinguistics: A review."* The article broadly covers approaches to language phenomena, including "the essential psychological features of linguistic happenings", studies of language acquisition, language abilities, gestural language, aphasia, and more. In this work, the term "psycholinguistics" was used, for the first time, used to denote an interdisciplinary field of study that could be theoretically coherent. The term soon became widely accepted and established as a discipline, coherent in both method and theory.

So, the framework of the early 1950s introduced a booming decade in

psycholinguistics. And became a widely shared opinion that the discipline of psycholinguistics emerged during the 1950s and more precisely in 1951.

Levelt (2013:2-3) notes that the year 1951 stands out as a hinge in the history of psycholinguistics, although not by design. It was sheer coincidence that three landmark events were packed in that one year halfway through the twentieth century:

The first event was the Interdisciplinary Summer Seminar in Psychology and Linguistics, which was held at Cornell University from June 18 to August 10. The programme set out to "explore the relationships existing between the fields of psychology and linguistics" and to make recommendations for the development of a field of overlap coined "psycholinguistics." This summer seminar is thus widely considered to be the birth of modern psycholinguistics.

The second event was the publication of George Miller's *Language and communication.* This textbook treats the state of art in the psychology of language and communication, hinting at the emerging new discipline of psycholinguistics.

The third landmark was Karl Lashley's paper "The problem of serial order in behavior", being the first frontal attack on the traditional behaviorist associative-chain theories of serial behavior, such as speech and language. In the article, Lashley avers that a new *syntactic* approach to the treatment of all skilled hierarchical behavior would become a core issue in the imminent "cognitive revolution" (Levelt 2013:3).

It is important to mention that Chomsky, a major pioneer contributor in the field of psycholinguistics, beginning in the 1950s, helped establish a new relationship between linguistics and psychology. Chomsky argued that linguistics should be understood as a part of cognitive psychology, in his first book, *Syntactic Structures* (1957); he however, opposed the traditional learning theory basis of language acquisition. Consequently, his expressed a contrary view from the behaviorist view of the mind as a *tabula rasa* as well as from the verbal learning theory of behaviorism. In Chomsky's view, certain aspects of linguistic knowledge and ability ere the product of a universal innate ability, or *language acquisition device* (LAD), being a device that enables each normal child to construct a systematic grammar and generate phrases (see D'Agostino 1986).

So, it is clear that psycholinguistics as a scientific endeavour started as far back as the 18th century. However, it must be stressed that empirical research in psycholinguistics began in earnest towards the end of the eighteenth century. Aitchison (1990) asserts that the first known experiment in psycholinguistics was conducted by the German philosopher, Dietrich Tiedemann. He used his son as the experiment. In his study, he carefully recorded the linguistic development of his son along with other developmental characteristics that he exhibited. The first experimental record in psycholinguistics is nonetheless credited to the British psychologist Francis Galton (1822-1911).

However, it was only recently, precisely the middle of the 20th century, that the field got some serious attention from scholars. It was believed that Noam Chomsky is the father of psycholinguistics, given the general feeling and belief that the field grew out of his research efforts in linguistics and psychology of language (Aitchison, 1990).

In agreement with Aitchison, Reber (1987) asserts that psycholinguistics has its beginning pre-20th century but nevertheless re-invented itself in the middle of the century. As earlier hinted, by the 1950s and 1960s, the field has grown in leaps and bounds due to the assiduous work of such scholars like Noam Chomsky, Zelig Harris, George Miller, Karl Lashley, Charles Osgood, John Carroll, Thomas Sebeok, and Herbert Simon among a host of others. Though, in his view, which appears to be Roger Brown's as noted by Reber, psycholinguistics seems an aberration as a name to call the emerging field that linked psychology to linguistics. It is better to have used such a term like psycho-linguistics, with a hyphen separating and indicating the hybrid nature of the discipline in order for it not to seem like a 'deranged polyglot' as claimed by Roger Brown (1958) (in Reber, 1987: 326).

In Reber's view, psycholinguistics started to decline by the 1970s as many questions seemingly trail it. He nonetheless acknowledged that scholarship of Chomsky did not decline. And considering that Chomsky is always in 'bold relief' when discussing the scholarship of psycholinguistics, one finds it difficult to agree with his claim that the field is in decline.

As a learner of language, you are therefore encouraged to explore the relevance of psycholinguistics to the present linguistic studies. As much as many would like to discountenance the psychological aspect of linguistic studies and subsume it to the sociological performance, Daniel (2008) proves that the relevance of psychology to linguistic studies is without doubt paramount to the full understanding of linguistic inquiries.

You may, therefore, need to ask yourself some very pertinent questions as you go through this course. What actually is the relevance of psychology to linguistic studies? How much of psychology is relevant to the social study of language? What basis is there to look at psycholinguistics as a distinct course on its own? Is the course really useful to your life as a person? I am sure that by the time you have gone through this course, you should find answers that you seek.

Self-Assessment Exercise
Describe the beginning point of psycholinguistics.

3.2 Factors Responsible for the Emergence of Psycholinguistics
A critical look at the emergence of psycholinguistics will indicate that some important factors are responsible for its emergence, especially after the pre-Chomskyan period. Having traced the beginning of the field at the pre-Comskyan and early Chomskyan eras, in this section, we intend to look at the factors that led to the emergence of the field from the era of Chomsky. Like any academic field of study, there are always problems that require solutions. When it is said that necessity is the mother of

invention, it appears the inventor of the saying did not have psycholinguistics in mind. However, it is obvious that all fields of human

endeavour are always created out of a need to be met. The question then is what factors could be said to be responsible for the emergence of the psycholinguistics field?

3.2.1 Noam Chomsky's Work in Cognitive Linguistics

One major factor is the work of Noam Chomsky. Aitchison (1990) asserts that a direct factor that affected the development of psycholinguistics is the impactful work of Noam Chomsky in linguistics. His cognitive linguistics greatly affected the way the field of psycholinguistics developed. Reber (1987) acknowledged the influence of Chomsky in the development of psycholinguistics. It is thus obvious that the growth of Transformational Generative Grammar, with its focus on the cognitive ability of the native speaker to properly use their language brought the psychological basis of the linguistic performance into great focus. Aitchison actually used the term 'inspired' (1990: 334) to describe the impact of Chomsky's influence in directing research efforts of various scholars in this direction. In this wise, research into child language usage became popular in that period.

Nonetheless, in line with the assertions of Reber (1987), the field began to suffer splintering and disillusionment from different scholars and thus led to a loss of focus. Aitchison notes that many of the Chomsky-inspired work could not be really given conclusive evidence to his theories and proposals (cf. Aitchison, 1989). In addition, psychologists became disillusioned with the fact that psycholinguistics focus was to test hypotheses advanced in theoretical linguistics. Naturally, the field of psycholinguistics began to suffer from such negative attitude. As such, recent years saw different people actually working with their mind on psycholinguistic study but with diverse philosophical traditions as their base of approach.

3.2.2 Modularity of Language

Despite the varying approaches to psycholinguistic study, it is generally agreed among scholars that language is modular in nature. What this means is that the human language system is made up of a number of separate but interacting components. When one looks at Chomsky's (1981) work, a full description of the nature and manner in which these modules interact is explained in details. It is thus a firm base for psycholinguistic inquiry as it exposes the manner in which these linguistic components operate among one another. It could thus be seen that Chomsky remains an important factor in the way the field continues to develop over the years.

Aitchison (1990) however notes that despite this apparent agreement among scholars on the modular nature of the human speech, the integration of the modules has become a point of contest among scholars of language. While some scholars believe that these components are separate with links between them, others are of the view that encapsulation is the watchword in which each module works automatically and independently, with its content sealed off from that of other modules.

The issue nevertheless is that scholarship does not have an end. You may therefore look at the two arguments above and research into that which you think is the most

likely in your own language. Remember that the human language is universal in nature; this is an important point that scholars cannot dispute over. You can thus apply these principles to your own language and ascertain the veracity of these claims.

Self-Assessment Exercise
Outline two important factors responsible for the emergence of psycholinguistics as a field of study.

3.3 Scholars Credited with the Development of Psycholinguistics
In this section, we will be talking about the scholars that have been given the credit of developing psycholinguistics as a field. It is important to do this because, as a scholar, it is necessary that you always acknowledge the contribution of others, especially so as to understand the different perspectives from which the discipline has been impacted on by scholars in its developmental stages.

As you would have noticed, some irreprehensible names have continued to crop up in our discussions above. We will, however, bring to the fore the names of many these linguists and psychologists that have enabled the psycholinguistic field of study to find its feet(a manner of speaking) in the comity of other disciplines.

Noam Chomsky naturally takes the lead. His series of works on Transformational Generative Grammar easily form a basis for the development of the psycholinguistic field. The work had been criticised greatly for being mentalistic (cf. Olaoye, 2007 among others). That notwithstanding, the fact that this mentalistic grammar and the propounding of theories related to it gave psycholinguistics its firm base cannot be wished away. It is thus obvious that the credit for the popularisation of the psycholinguistic discipline will not be misplaced if given to Noam Chomsky. Reber's (1987) and Aitchison's (1990) views on the matter lend credence to this position.

It is still necessary to also state that this very mentalistic nature of Chomsky's propositions have been the major quarrel linguists and some other scholars have with his theories on grammar. As much as the discussion here is not about Chomsky's syntactic theory, it cannot be ignored that the very nature of his propositions is fundamental to the growth of the field under consideration. One may however be cautious in making assertions in the light of Reber's (1987) view that psycholinguistics as a discipline has fallen into disfavour since the early sixties when Chomsky raised the stakes of the field so high.

We will nevertheless consider other linguists that have contributed their quota to the growth of the field. Vygotsky is another scholar that may be considered as a major contributor to the field. His study on the mind and its relation to communication easily gives us such an impression to add him to the list. Aitchison is another great contributor to the development of the field because much of her work has been in this area. Reber (1987) gives credit to a number of other scholars like Zelig Harris, George

Miller, Karl Lashley, Herbert Simon, Charles Osgood, John Carroll, and Thomas Sebeok. It will be rewarding to read about the contributions of these scholars to psycholinguistics, so as to enrich your knowledge.

.

Self-Assessment Exercise

Discuss the contributions of any two scholars to the development of the psycholinguistics as a field.

4.0 CONCLUSION

This unit discussed the history of psycholinguistics. It traced its history from the earliest stage of its development from the 18th century. It discussed the factors that led to its emergence. Obviously, a need to link the human mind to language development and use gave rise to the field. The way Noam Chomsky's work in theoretical linguistics helped to fast track the development of the field through inspiring the spate of work in the area was also focused on. It is thus obvious that psycholinguistics as a field has a strong link with Transformational Generative Grammar developed by Chomsky.

5.0 SUMMARY

This unit presented the historical profile of psycholinguistics. It discussed its root in the work of such linguists like Dietrich Tiedemann and Francis Galton. It extensively presented the larger than life influence of Noam Chomsky's work in theoretical linguistics on the developmental process of psycholinguistics. It outlined the scholars whose works greatly helped the field to develop.

6.0 TUTOR MARKED ASSIGNMENT

1. Give a brief discussion on how psycholinguistics started.
2. Some factors could be attributed to for the emergence of the psycholinguistic field. Outline these factors in a clear manner.
3. Identify the scholars you would consider as playing major roles in the development of psycholinguistics as a field of study.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). "Language and Mind: Psycholinguistics." *Encyclopaedia of language*. N. E. Collinge. Ed. London and New York: Routledge. 333-370.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Olaoye, A. A. (2007). *Introduction to sociolinguistics*. (3rd edn). Abuja: Ogunleye Publishing and Printing Press.

Crystal, D. (2000). *Language Death*. Cambridge: Cambridge University Press.

D'Agostino, F. (1986) *Chomsky's System of Ideas.* Oxford: Oxford University Press.

Daniel, I. O. (2008). *The linguistic and pictorial representation of Nigerian women's assertiveness in selected Nigerian newspapers*. PhD Thesis, Department of English, University of Ibadan, Ibadan.

Daniel, I. O. (2009). *Portrayal of Nigerian women's assertiveness in Nigerian newspapers*. Saarbrucken, Germany: VDM Publishing House Ltd.

Halliday, M. A. K. (1971). “Linguistic Function and Literary Style – an Inquiry into

the Language of William Golding's *The Inheritors*." *Literary style: A symposium*. S. Chatman. Ed. London: Oxford University Press. 330-68.
Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.
Levelt, W. J.M. (2013). A History of Psycholinguistics: The Pre-Chomskyan Era**.** Oxford: Oxford University Press.

Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. Ed. Trans. Cambridge, Massachusetts: The MIT Press.
Reber, A. S. (1987). The rise and (surprisingly rapid) fall of psycholinguistics. *Synthese*, 72:3, 325-339.
Science Daily. (2010). Psycholinguistics. Retrieved, 17 August, 2010. http://www.sciencedaily.com/articles/p/psycholinguistics.htm.

UNIT 3: DIFFERENT FORMS OF PSYCHOLINGUISTIC INQUIRY

Contents

1.0 INTRODUCTION

In Unit 2 of this module, you learnt about the history of psycholinguistics. The unit introduced you to some key players in the history of developing the field of psycholinguistics. It discussed different views of different scholars on the subject matter. The great influence of Noam Chomsky's grammatical postulations on the development of the field is also brought to the fore. This unit gives the diverse attempts made to develop the field of psycholinguistics. It introduces you to the procedures with which the study of psycholinguistics was done by different people in the past. You are expected to read up the references at the end of the unit as they will help you to understand better what this unit specifically focuses on.

2.0 OBJECTIVES

At the end of the unit, you should be able to:

1. state the three processes involved in psycholinguistic inquiry
2. discuss the comprehension process
3. determine the processes involved in the production of speech
4. explain the language acquisition process

3.0 MAIN CONTENT

3.1 The Psycholinguistics Processes

Actually, scholars have been able to determine some processes involved in the psycholinguistic endeavour. It has been found that processes involved in psycholinguistics include the speech comprehension, speech production and the language acquisition. It is actually necessary to state that the process of language comprehension usually precedes that of speech production. It is a natural order, really, as even in the communication process, it is obvious that listening precedes speaking (though we have also wondered if the sounds that the child makes at birth to announce its arrival could be called speech preceding listening). Nonetheless, Steinberg, Nagata and Aline (2001) have questioned the possibility as they believe that speech cannot be attributed to those initial sounds nor comprehension attributed to those initial seeming understanding by the neonate. Nonetheless, it seems natural to assume that speech

comprehension precedes speech production in the whole process of language acquisition. Steinberg, Nagata and Aline (2001) actually assert that it is unimaginable any other way. This unit is thus designed and patterned after this form. The next section presents to you the speech comprehension process which is followed by the section on speech production, after the language acquisition process is fully discussed.

Self-Assessment Exercise
State at least three processes involved in psycholinguistics.

3.2 Speech Comprehension Process

Speech comprehension is about understanding speech. Steinberg, Nagata and Aline (2001) traced the beginning of speech comprehension from the womb. It was however impossible to finalise the very beginning of speech comprehension in children. Whether it begins from the womb is impossible to determine. Even though scholars tried to establish the very time the child starts to comprehend speech, it has not actually been easy for this to be fully established. The attempt to investigate the less than 12 hours after the child was born could not show any significant ability of the **neonate** (new born baby) to understand the mother's voice and react to it while played under an experimental condition after four days. Yet, the same extent of comprehension and reaction to the mother's voice could not be established after just 12 hours (Steinberg, Nagata & Aline, 2001). All these show the impossibility of establishing the actual time that comprehension begins for humans.

Nonetheless, it is important to state that the essential thing about speech comprehension is the fact that it can occur in individuals once they can establish communication occurrence in terms of meaning making. This thus shows meaning as being basic to comprehension. Scovel (1998) regards comprehension as the ability of the listener or reader to be able to decipher the information being passed across. Steinberg, Nagata & Aline (2001) on their part state that except the word in the language is linked to real or existent element, it cannot be regarded as able to be meaningful. In their view, speech can only be comprehended if the person receiving the information can link the words in the language to concrete things, making communicative meaning within that language otherwise communication event may be difficult.

In addition, Steinberg, Nagata and Aline (2001) also aver that thought is the foundation of language. To them, meaning is rooted in the thought of the user of the language. The idea is that without thought, language cannot form meaning. It is this meaning contained in a thought element or the idea contained in the language that contains the meaning. As such, concepts are contained in the language and they can only be comprehended if they are explicitly passed across. The question here is that, as noted by Steinberg, Nagata and Aline (2001), those mute people that can comprehend language can essentially do so because they have thought processes. They were thus able to establish the importance of thought to making meaning in language.

It is also important to determine that their argument is not an extension of linguistic relativism. Nonetheless, one could only say that the connection of thought to language is an important aspect of what psycholinguistics is expected to study after all. Thought is naturally a part of the linguistic process; only that it is never expressed.

In the same vein, it is imperative to state that the being able to produce speech is not the only way of measuring language acquisition. This is because, as mentioned above, it is possible to have the comprehension of language without the ability to produce it. This is seen in the examples provided by Steinberg, Nagata and Aline (2001) in the experiments done with Christopher Nolan, Anne McDonald and Rie (Japanese) who despite being mute went ahead to make use of written language to make impact, even publishing best seller books. It is thus obvious that muteness does not equal lack of language. You may see this being re-enacted in President Hugo Chavez of Venezuela having to be communicating with his aides essentially through writing, due to his partial loss of speech as a result of cancer.

Self-Assessment Exercise

1. Discuss the speech comprehension process.
2. Would you consider a mute person as 'languageless'? State your reason(s) for your view.

3.3 The Speech Production Processes

Aitchinson (1990) avers that speech comprehension and speech production cannot be regarded as two sides of a coin. She opines that they have some dynamics operating in each of them. She also notes that there is the tendency to concentrate on the discussion of speech comprehension at the expense of speech production. However, this position seems at variance with Steinberg, Nagata and Aline (2001) who posit that comprehension is the underdog in the study of speech production and comprehension processes. Nonetheless, this debate is not the focus of this unit but on speech production. Speech production has been conceived as the process by which thoughts are translated into speech. And the process involves the selection of words, the organization of relevant grammatical forms, and the articulation of the resulting sounds (Lightfoot 2010).

Aitchison (1990) suggests that there are two broad processes involved in speech production. These are **lexical selection** and **assemblage**.

3.3.1 Lexical Selection

The idea is that lexical selection process has been viewed as possibly an important means of determining speech production processes in that the tip of the tongue phenomenon suggest that there is an attempt to choose particular words that fit into the intended meaning but the wrong or related in terms of meaning or sound may be chosen instead. This is why someone may say *knife* instead of *wife* or as is often the case with many of us, in answering an older caller, we may say *sir* to a woman instead of *ma* or vice versa. It thus shows that there is some relationship in the choices made by speakers in their production of speech.

Aitchison (1990) also reports that some scholars have suggested that all possible sounds related to what the speaker has in mind to say are activated at the same time. She nonetheless wonders at the possibility of such occurrence as it could lead to thecumbersomeness of choice on the part of the speaker. Her view is that the actual thing that happens is that the speakers of the language appear to have the ability to suppress the word not required immediately in order to select that which best fits the communication intentions of the speaker.

Nevertheless, an important point made by Aitchison is her observation that verbs seem to form a fulcrum in that they get selected first and thus less liable to error in production. In addition, she notes that the speakers of the English language tend to have the ability to provide a word in the case where an existing word may not be readily available. This should c’’’’’’’’learly explain the creativity often observed in the users of the language. It affirms the reality of the dynamism of language. As such, saying that “Children use *deduceful* rules” (Aitchison, 1990:352), where one means to say the word *deductive* is a situation saving device to allow the communication process to move on without interruption. Pragmatics thus becomes a useful tool in psycholinguistic analysis as it is obvious that there will be no communication breakdown in such a situation as the cooperative principle will easily enable the co-interlocutor(s) to supply the required correct word in their minds to interpret the meaning content of the statement.

3.3.2 Assemblage

The slip of tongue phenomenon gives the easiest clue to the assemblage process. It involves words, morphemes, syllables and phonemes. There are about three possible manners in which the process occurs. These include **anticipation**, **perseverations** and **transpositions** (Aitchison, 1990).

Anticipation has to do with when an item comes earlier than expected while perseverations is the wrong repetition of a linguistic item. Transpositions tend to involve a situation where items substitute one another.

Examples of these occurrences include:

He took *sail* out of his *winds*. (transposition)

Aitchison (1990) outlines some tendencies that characterise the occurrence of errors in speech production. She asserts that:

a. Anticipation generally outnumbers perseverations, noting that some anticipations may actually be unfinished transpositions
b. Errors normally occur within tone-groups
c. Units of errors tend to be of approximate equal size, with equal metrical pattern
d. Sound slips are usually obedient to the rules of syllable positioning
e. They also obey the laws of English syllable structure
f. The words formed by slips of tongue are usually more patterned than chance occurrences.

All these suggest that the human speech production process is orderly, making anticipation prominent and giving verbs a fulcrum position that allows for other syntactic and phonemic elements to be filled in as the production process unfolds. In addition, there is a suggestion of a rhythmic patterning, following a hierarchical ordering.

The suggestion then is that the human processing of the language production tends to be that of 'scan-copying mechanism' (Aitchison, 1990). The ability to self-correct also shows that there is a monitoring mechanism in the process of speech production.

The question we need to ask ourselves at this point is: what is the difference between an error and a mistake? Aitchison (1990) appears to see them as the same. But we hold differently that errors being fundamental and thus suggestive of perseveration are due to linguistic incompetence, mistakes are those that are possible to correct in the production process as some of the factors that predispose to slips of tongue are at the root of such slips and not incompetence on the part of the speaker. Clearly, then, it will seem that this dichotomy in the nomenclature of apparent performance fault lines need to be clearly defined.

Self-Assessment Exercise
Outline clearly some of the important processes involved in speech production.

3.4 Language Acquisition

Language acquisition has been described as the process by which humans acquire the capacity to perceive, produce and use words for the purposes of understand and communication (cf. Lightfoot 2010, Saxton 2010). It has to do with the picking up of linguistic afordances in the areas of grammar/syntax, phonetics and vocabulary. Language acquisition is considered a normal process in development. However, children acquire language in stages, while there are variations in the time different children reach various stages. Interestingly, children acquiring/learning the same language will orient to a pattern which almost shares same features in stage sequence to be undergone (Akmajian, 1995). When any of the stage is delayed or never started in children, it is usually seen as a source of concern by the adult (Scovel, 1998); and this is a concern for the field known as developmental psycholinguistics in which the phenomenon is appropriately studied.

The assumption here is that there are stages of human speech development. Even though in their study Steinberg et al (2001) have tried to show that the stage of language learning or acquisition by children involves the neonate stage, Scovel argues for a later stage. He notes that the literature has put the stage at which children begin to manifest their acquisition of their mother tongue as eighteen months. The question is: what was happening before this time?

As argued by Steinberg et al (2001), it appears that the children are soaking up all the linguistic input from their environment. It thus makes it such a landmark when the child utters its first complete word. However, as noted by Scovel, the period before

this time is essentially foreshadowed by some kinds of communication. These authors call the initial sounds made by the child iconic as it merely expresses signs of discomfort or sudden outbursts that may seem inexplicable. The following stage from about two months is that stage at which the child can now express some communication pattern in terms of the child being able to link randomly its expressions to its needs. This crying stage is considered the precursor to the actual human speech. It therefore prepares the child for the time it can effectively make use of its vocal organs among the human species.

The question is: did the child pick up this ability to speak from its environment or is it naturally predisposed to this skill? Chomsky (1965) has proposed that all human beings have the congenital ability to acquire language due to a naturally inbuilt mechanism called the Language Acquisition Device (LAD). Chomsky (1981) later modified this to Universal Grammar (UG) which Scovel (1998) describes as a more appropriate term. Indeed, as argued by Scovel (1998), human beings indeed possess this device as no human being in reality lacks the ability to speak eventually if the linguistic inputs are provided except in a situation where a congenital malformation occurred, which could result in the inability of the person to ever master the neuromuscular skills required for speech production. Nonetheless, when the required environment is made available, the human element tends to develop speech and move from the iconic stage to the symbolic communicative stage. This turning point is usually achieved with the first words of the child (Scovel, 1998). However, children tend to be egocentric in doing their language initiation: their focus tend to be on their world. Anything outside that world never seems to get a labelling.

Of significance are the stages in child language acquisition, especially in developmental
psycholinguistics. The stages have been identified fairly differently by scholars as:

Crying: This is an early vocalisation stage. Apart from being the first vocal response of a child at birth, it is used to convey the basic physiological needs, such as hunger and thirst as well as others needs such as pain, discomfort, etc. in later periods usually up to age.

Cooing: This is another early vocalisation stage from 6 months. It is d stage of the production of non-crying sounds, especially phonemes like short vowels, long vowels.

Babbling: This is the last early vocalization stage usually stating from 7months but more commonly from 9 months in many children. This stage necessitates a wider variety of sounds richer in both consonants and vowels.

Holophrastic: The term “holophrastic” comes from the “holophrase”. So, “When a single word stands for a phrase in a sentence, it is referred to as a holophrase” (Janda and Hamel 1982:170 cited in Jamal & Momammad 2014:20). Usually, from 12 months, a child start using single words or one word utterances.

First Sentences/ Telegraphic: This is the stage in the process of language acquisition when a child attains the age of two years and begin to put two words together.

Normal Speech: This starts from 5 years when a child usually has their speech almost developed into the normal form.

(cf. Saxton 2010; Jamal & Momammad 2014)

However, following Klima and Bellugi (1966), Scovel observes that there are about three stages in language acquisition for both children and adult. He notes that for both the child linguistic acquirer and the adult language learner, the stages appear fixed and cannot be jumped, even if individual ability seems to determine the rate of acquisition for each person.

The three stages are:

Stage 1: use of NO at the start of sentence

No the sun shining

No Mary do it.

Stage 2: use of NO inside the sentence but no auxiliary

Where will she go?
Why Doggy can't see?
Why you don't know?

Stage 3: use of WH word and auxiliary verb before subject

Where will she go?
Why can't Doggy see?
Why don't you know?

(Scovel, 1998:23)

One important point made by scholars here is that none of these stages are ever skipped. The length of time an individual uses in each stage is determined by the individual cognitive level. Scovel also avers that an adult learning a new language undergoes each of these stages. It is consequently obvious that it is not age that determines the language acquisition process, but the progression ability of individuals. Eventually, keeping at it is the important thing as every faithful learner of a new language can eventually gain proficiency in it.

This brings to the fore the debate on the critical period. However, when we look at the universal stages outlined above and the fact that an adult learner of a new language can go through these stages and possibly attain proficiency, the question of the critical period for language learning seems suspect. Critical period is supposed to be that period after adolescence when a person can no longer master the learning of a new language. The evidence of people at very mature stages of their lives getting into new communities and linguistically integrating abound. In our view, the only thing, beyond the congenital factor, that can hinder an individual from attaining proficiency in a new language learning situation is more psychological than biological. To this end, when a language's relevance to the social advancement of the learning appears invisible, the learner may lack the motivation to learn such a language. If the social prestige of such a language is suspect, the learner may have no desire to master the language. A myriad of reasons could be adduced for why a learner may have low motivation for learning a new language; these reasons are however likely to be sociolinguistic rather than biological. The point being made here is that, to us the critical stage period appears fallacious and should be discarded as a factor in psycholinguistic inquiry. You may, of course, test the points made by looking within your environment to find out if there is stage or age in life when the members of your community lack the wherewithal to master a new language introduced into the community.

Essentially, two perspectives are associated to debates on children language acquisition. These are the behaviorist and the innatist perspectives. The behaviourist one is of the view that language is learnt by the child as a form of behavior shaped by conditioned response, while the innatist one which began with Chomsky holds that the abstract system of a language is beyond learning, but that humans possess an innate language faculty or an assess to what has been dubbed 'universal grammar', which aids language acquisition. According to the innatists, it is such a language faculty that

defines human language and distinguishes human communication from animal communication (see Griffiths 2017).

Evidence that language acquisition may really be innate to all humans, as argued by Chomsky and his co-travellers, could be seen in the example of swimming and playing of piano or drum, as noted by Scovel (1998), is very pertinent. He points out that not everybody eventually learns to swim or to play any of the musical instruments mentioned above; but it is rare for anyone not to be able to acquire language except where the environmental linguistic input is unavailable or there is a congenital hindrance. In addition, the fact that every attempt to teach the chimpanzee nicknamed Nim Chimsky (after Noam Chomsky) language proved abortive whereas the human child appeared already predisposed to complex linguistic structures through a regular patterning of its structures even at age two. Scovel insightfully observes that

> in comparing these two sets of data, we are led to the inescapable conclusion that even at a very young age, before they have any conscious awareness of the difference between parts of speech such as nouns and verbs, young humans very rapidly acquire the notion that words do not combine randomly but follow a systematic pattern of permissible sequences (1998: 16).

This proves two things: that the language ability in the human species starts early as well as determinedly so advance that animals of the lower class are never able to attain such linguistic skill because nature did not provide for such ability in them. It also goes to show that children tend to follow the pattern of their target language in terms of its phonology and syntax.

In addition, as noted by Scovel, creativity is also a mark of the child's acquisition of language. He notes examples such as the one from Reich (1986:142):

Daughter: Somebody is at the door
Mother: There's nobody at the door.
Daughter: There's *yesbody* at the door.

(Scovel, 1998: 19)

There is no evidence that the child learnt this particular word from anyone. It will appear that what the child tried to do is to insist or emphasise by bringing the syntactic initial *yes* in a tag into play and combining same to create the new word *yesbody* in contrast to the mother's *nobody* as its own emphatic stress.

Scovel also gives another example of such advanced creativity that took the father of the child a bit of time to puzzle out its ungrammaticality while seeing its acceptability. *There Carlos is!* said by a child is actually a replacement of the usual pronominal with a nominal in the sentence as explained by Scovel. And following his analysis of the pattern as shown below, it shows the child's ability to create not just new words but also adapt sentence structures for its utilitarian communication purposes. The patterns are:

Pattern A: There's Carlos!	[There's/Here's + Noun]
Pattern B: There he is!	[There/Here Pronoun + is]
Pattern C: *There Carlos is!	[There/Here + Noun + is]

(Scovel, 1998:20)

*The asterisk is used to mark ungrammaticality in structures.

Looking at the examples above, it is easy to see that the child has combined the structures of Patterns A and B to form a new one in Pattern C. As argued in Daniel (2012), communicative contingency at times determines linguistic choices more than grammatical correctness. It appears that children's ability to do this efficiently in their linguistic production may supersede that of adults greatly. And why not, if it serves their purposes.

Self-Assessment Exercise

1. State the role played by the Language Acquisition Device and the way it works in the modern linguistic theories.

2. Identify and exemplify with about three structures the proficiency stage in the language learning stages, contrasting the structural examples with the likely initial stage in the language acquisition process.

4.0 CONCLUSION

This unit discussed the three main linguistic processes involved in human language usages. These are the comprehension, the production and the language acquisition processes. It was found that the comprehension processes is the most widely discussed in the literature because it can easily be seen in terms of the reaction of the interlocutor to stimuli. However, the discussion of the production processes indicate that the seeming errors made by speakers tend to inform on them about the actual processes that the human mind engage in in producing speech. The language acquisition process is seen to enable the human being to acquire language. It reveals the innate ability of man to move to the symbolic stage of communicative ability of man. In addition, the human ability to be dynamic in linguistic usages is revealed as starting early through the young human's ability to create new words to meet particular communicative needs per time. The conclusion is thus that the whole linguistic processes end up being essentially to the end of human beings exchanging information through communication.

5.0 SUMMARY

This unit presented the three main processes involved in language usage by the human. It discussed the language comprehension processes and how human beings have been able to capture the essence of language through interpreting the intended meaning of the speaker. It discussed the ability of man to produce speech through some systematic linking of thoughts to result in language. It shows how such involuntary acts, like the slip of tongue, reveal the processes involved in human beings bringing together their thoughts to communicate. It discussed the language acquisition process engaged in by individuals in acquiring or learning a new language. It argues for the innate ability of the human species to acquire language. It exposes the processes involved in this task and the important three stages that the human being must pass through in order to attain proficiency in language learning.

6.0 TUTOR MARKED ASSIGNMENT

1. State the three processes involved in psycholinguistic inquiry.
2. Briefly discuss the comprehension process.
3. Carefully outline the processes involved in the production of speech.
4. Explain the language acquisition process and the essential function of Universal Grammar in the whole process.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1990). "Language and Mind: Psycholinguistics." *Encyclopaedia of language*. N. E. Collinge. Ed. London and New York: Routledge. 333-370.

Akmajian, A., Demers, R., Farmer, A., & Harnish, R. (1995). Linguistics: An Introduction to Language and Communication. The MIT Press.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Jamal Azmi Salim1 & Momammad Mehawesh (2014) *Stages in Language Acquisition: A Case* Study. English Language and Literature Studies; Vol. 4, No. 4, pp. 1-22.

*Lightfoot, David (2010). "Language acquisition and language change". Wiley Interdisciplinary Reviews: Cognitive Science. **1** (5): 677–684.*

Griffiths, Paul (2017), "The Distinction Between Innate and Acquired Characteristics", in Zalta, Edward N. (ed.), The Stanford Encyclopedia of Philosophy (Spring 2017 ed.), Metaphysics Research Lab, Stanford University.

Olaoye, A. A. (2007). *Introduction to sociolinguistics*. (3rd edn). Abuja: Ogunleye Publishing and Printing Press.

Saxton, M. (2010). *Child Language: Acquisition and development.* Thousand Oaks, (CA): SAGE Publications Ltd.

Science Daily. (2010). Psycholinguistics. Retrieved, 17 August, 2010. http://www.sciencedaily.com/articles/p/psycholinguistics.htm.

Scovel, T. (1998). *Psycholinguistics*. Oxford: Oxford University Press.

UNIT 4: LINKING LANGUAGE AND THE MIND

Content

1.0 INTRODUCTION

In the previous unit, you learnt about the different processes involved in language processing. The way human beings work to comprehend language as well as the systems applied to producing speech was discussed. The way in which human beings generally acquire a new language was extensively discussed and the stages required to attain proficiency in language acquisition were outlined. This unit deals with the processes involved in language processing. It tries to link language to the human mind to see how they work together to produce communication.

2.0 OBJECTIVES

At the end of this unit, you should be able to perform the following tasks:

1. Discuss the nature of language.
2. Outline some important processes that characterise the working of the human mind.
3. Link the human mind with the linguistic performance expressed through linguistic choices.

3.0 MAIN CONTENT

3.1 What Is Language?

Scholars have variously defined language, depending on what they need to convey by such a definition. Let us look at some definitions given by scholars and determine the best definition that is useful for our present purposes in this course.

3.1.1 Source of Language

Yule (1996) traced the origin of language to diverse sources. While some of these

sources are considered supernatural, others are viewed as natural while others are viewed further as due to pragmatic purposes. However, whatever is the purported source of the human language, the important issue here is that it has some important characteristics which scholars have tried to establish due to its functional and practical usage by humans.

3.1.2 The Nature of Language

Yule (1996) identifies six important characteristics of the human language. These are:

a. Displacement: This means that the human language can refer to things in the past, the future and even places outside the particular physical context.
b. Arbitrariness: This suggests that a reference and the linguistic element representing it have no actual iconic link. As such, there is no link between the word food and the actual food. This may suggest why it is possible for different languages to have different names for the same reference called food. It is *food* in English, *ounje* in Yoruba, *abinchi* in Hausa, *emuremi* in Okpe, *isare* in Ebira, *nri* in Igbo, etc.
c. Productivity: It is possible for new words to be formed in the course of time. As noted by Yule (1996) and confirmed by Scovel (1998) above, children are especially good at this (see Unit 3 above). Creativity is essentially a part of language learning and acquisition process. And this is why *computer* arrived into the English language when the need to name the contraption arose.
d. Cultural Transmission: Language is a means of transmitting culture from one generation to another. As Hudson (1980) says, language is vehicle of culture.
e. Discreteness: Each distinct sound in language is considered as being discrete. This distinctiveness is what helps to determine if a sound is actually a phoneme or not in a language. The process of doing this is mostly done through the use of minimal pairs.
f. Duality: Language normally has the physical and the meaning levels.

These characteristics of language have remained at the centre of its description. Language is thus usually considered as a **system of human**, **arbitrary**, **conventional symbols** used for **communication**. All these are parts of the features that language has.

Other definitions proposed include:

Hudson (1980), Chomsky (1998), and Okolo (1998) opine that language is a **learned behaviour** which helps us to **reason** and **build social relationships**. Language thus becomes an important carrier of cultural norms and ways of reasoning about them. It reflects attitudes and social relationships obtaining in a particular society in its use by members of such a community.

Langacker (1987: 12) posits that language is actually "an integral part of the human cognition." His argument is that language use is dependent on "**experiential factors** and inextricably bound up with **psychological phenomena** that are not specifically linguistic in character" (p. 13).

Palmer (1976, 1981), Graddol, Cheshire and Swann (1993), Halliday (1985) and Osisanwo (2003) variously describe language as a functional device to communicate meaning. Graddol, Cheshire and Swann (1993) note that it is "a highly **complex system** of **communication**" (p. 12) while Halliday (1985: xvii) calls it a system for "making meaning."
Chomsky's (1998) regards language as an **abstract system** of **behaviour** constituted by rules that determine the appearance and innate meaning of a prospectively indefinite number of sentences.

The essential fact identified by these scholars is that language is **behavioural in form** and **systematic in nature**. While some view its nature as being **psychological**, some regard it as being **functional**. Nonetheless, the essential thing that makes language an important human possession is its ability to help them **interact in the social context**. Thus, both its form and function are very relevant to linguistic description.

Self-Assessment Exercise
Give your own clear definition of language that encapsulates all the possible characteristics that language possesses.

3.2 The Inner Processes of the Human Mind
The human mind is very deep. However, it is the base of thoughts that gives life to language. The human mind is where the thoughts are conceived and then realised as linguistic elements. Aitchison (1990) argues that the human mind is only reflected in terms of thought made tangible by language. The processing of language is seen as a major work that thoughts perform. As such, language reflects thoughts. The processing of thoughts is what language reflects (Aitchison, 1989, 1990; Steinberg, Nagata & Aline, 2001; Yule, 1996). It is thus normal for children learning or acquiring a language to process it within their cognitive and environmental experiences. It is within the limit of the things they have experienced that they use language to express themselves. It is therefore necessary to note that linguistic processing is determined by the environmental experience of the user of the language. The person that is yet to make use of a computer may not be able to describe that experience with language. It is hence not far-fetched to imagine that this person may not be able to process the thoughts concerning this phenomenon in the mind. The ability to comprehend and produce language can consequently be related to environmental factors.

Steinberg, Nagata and Aline (2001) argue that the basic mental entities used by the child acquiring the language are actually derived from the physical world. As such, the child may be able to account for such words as 'drink milk' essentially from the experience of having been given milk to drink by the caregiver. Aitchison (1989) notes that the idea of Chomsky that children come already loaded with language in their minds is unacceptable. The more acceptable idea seems to be that of children being able to process language to express what their environment have enabled them to experience. This second option appears more reasonable and acceptable. She uses many examples of children processing language to prove her point. As such, when

children assert statements like ‘Daddy car’ or ‘Mummy comb’, it is because they can relate to these experiences in their physical environment. Children that do not have a daddy or their daddies do not have a car may not be able to make these sort of assertions. In addition, these children are able to transfer such experiences into similar new experiences to produce new structures that can relate those new experiences. This is an important element of language, its dynamism, which Yule (1996) identified. The next section discusses how the human mind and language inter-relate.

Self-Assessment Exercise
Discuss the important element required by the human mind in order for it to express itself in language.

3.3 How does Language Relate to the Mind?
The main focus of this course has been the way language and the human mind work together. This is why the course has been interchangeably described as psycholinguistics or psychology of language. This section thus zeroes in on the relationship between language and the mind.

Several scholars have previously linked language and mind and the way discursive practices manifest them. Some of these scholars’ observations are discussed here. Vygotsky (1962) observes that the major function which language performs psychologically is to communicate one’s intentions and help maintain social links. He notes that for one to convey what one has in mind, one has to do it through a language of some sorts. He remarks: “Rational intentional conveying of experience and thought to others requires a mediating system, the prototype of which is human speech born of need of intercourse during work…” (p. 6). He thus links the individual’s thinking system to individual social development or self-actualisation within the society. This is manifested through the instrumentality of language. Evidently, the individual’s desire for psychological expression of what is in the person’s mind, in terms of thoughts and/or intentions, is through the medium of language, which could be symbolic, iconic or indexical. This usually gets realised in a social setting, to the end of making intentions understood by others. Essentially, then, the whole point of communication is to have one’s intentions properly understood, and accordingly responded to in the manner that fits into one’s purposes and hopes.

The Sapir-Whorf Hypothesis is also famous for linking language to mind and for the result of this in determining linguistic behavioural patterns in discourse. The claim is that one’s language determines one’s view of the world and consequently how one relates within that world. This theory thereby posits that language absolutely controls one’s mindset and decides the way one uses language (Whorf, 1956). The greatest weakness of this position that has been identified is this view of language’s absolute control of the human mind. It must nevertheless be stated that language really exerts a lot of influence on the human mind and helps to express the psychological disposition of a communicator. It is a two-way process: language can influence one’s thinking and it can also reveal one’s thoughts. This shows that linguistic relativity is about reciprocity rather than domination. Linguistic relativity is thus the acceptable section of their explication.

In more recent times, in terms of the strong influence that language has on social cognition, Theo van Dijk, Norman Fairclough, Ruth Wodak and others in the critical linguistic tradition have extensively studied the phenomenon (cf. van Dijk, 1993; Fairclough, 2001; Wodak, 2001; Martin & Rose, 2003; Wardhaugh, 2006; Baker, Gabrielatos, KhosraviNik, Krzyzanowski, McEnery & Wodak, 2008). They show, from their investigations, that language is an important means of exerting social control through the engagement of discourses to the advantage of those in charge of social power and the media apparatus. Consequently, the link between the private mind and the public mind gets actualised in public discourses. Within communicative activities, the general disposition is created and gets carried out in the private. Also, the perception of one's social positioning gets expressed in one's communicative engagements in the public space.

Clearly then, there is a strong link between language and the human mind and this link is usually revealed in human social interactions through language.

Self-Assessment Exercise
State the connection between linguistic performance and the mind.

4.0 CONCLUSION

This unit discusses the link that exists between language and the mind. It shows how the human mind connects itself to experiences and then translates these into linguistic elements. The importance of environment to the way the human mind processes language is revealed in the unit.

5.0 SUMMARY

This unit describes the nature of language. It also discusses the way the human mind processes language. It in addition outlines in detail the way language and mind relate together in terms of production of linguistic performance. The next unit relates psycholinguistics to the human living condition.

6.0 TUTOR MARKED ASSIGNMENT

1. Discuss the nature of language and indicate four characteristics of language you know.
2. Outline some important processes that characterise the working of the human mind and how do these relate to language production.
3. Give a detailed description of the link the human mind has with linguistic performance expressed through linguistic choices.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). Language and mind: Psycholinguistics.In N. E. Collinge(Ed.) *Encyclopaedia of language*, (pp. 333-370). London and New York: Routledge.

Baker, P., Gabrielatos, C., KhosraviNik, M., Krzyzanowski, M., McEnery, T. &

Wodak, R. (2008). A useful methodological synergy? Combining Critical Discourse Analysis and Corpus Linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse and* society. 19.3: 273-306. http://www.lancaster.ac.uk/fass/doc_library/linguistics/wodak/bakereta2008.pdf. Retrieved, 25 August, 2008.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Chomsky, N. (1998). Linguistic contributions to the study of mind. Excerpted from *Language and mind*. www.Chomsky.info.htm Accessed, April 8, 2006.

Crystal, D. (2000). *Language death*. Cambridge: Cambridge University Press.

Daniel, I. O. (2009). *Portrayal of Nigerian women's assertiveness in Nigerian newspapers*. Saarbrucken, Germany: VDM Publishing House Ltd.

Fairclough, N. (2001). The Dialectics of discourse. *Textus XIV*, 2001: 231-242. http://www.geogr.ku.dk/courses/phd/glob-loc/papers/phdfairclough2.pdf Accessed August 8, 2006.

Graddol, D., Cheshire, J. & Swann, J. (1987, 1993). *Describing language*. Buckingham and Bristol: Open University Press.

Halliday, M. A. K. (1971). Linguistic function and literary style – An inquiry into the language of William Golding's *The Inheritors.* In S. Chatman (Ed.) *Literary style: A symposium*, (pp. 330-68). London: Oxford University Press.

Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.

Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.

Hudson, R. A. (1980). *Sociolinguistics*. Cambridge: Cambridge University Press.

Langacker, R. W. (1987). *Foundations of cognitive grammar*. Stanford, California: Stanford University Press.

Martin, J. R. & Rose, D. 2003. *Working with Discourse*. London: Continuum

Okolo, G. (1998). Language and gender inequality. *Journal of women in colleges of education*. 2: 18-20.

Osisanwo, W. (2003). Introduction to discourse analysis and pragmatics. Lagos: Femolus-Fetop Publishers.

Palmer, F. R. (1977). Modals and actuality. *Journal of Linguistics*. 13.1: 1-23.

Palmer, F. R. (1981). *Semantics*. (2nd edn). Cambridge: Cambridge University Press.

Science Daily. (2010). Psycholinguistics. Retrieved, 17 August, 2010. http://www.sciencedaily.com/articles/p/psycholinguistics.htm.

Scovel, T. (1998). *Psycholinguistics*. Oxford: Oxford University Press.

Steinberg, D. D., Nagata, H. & Aline, D. P. (2001). *Psycholinguistics: Language, mind and world* (2nd edn.). Harlow: Pearson Education Ltd.

Van Dijk, T. A. 1993. "Principles of Critical Discourse Analysis." *Discourse in society*. 249-283. Accessed July14, 2006.
http://www.discourse-in-society.org/OldArticles/Principlesofdiscourseanalysis.pdf

Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. (Eds.) Trans. Cambridge, Massachusetts: The MIT Press.

Wardhaugh, R. (2006). *An introduction to sociolinguistics*. (5th edn). Malden: Blackwell Publishing.

Whorf, B. L. (1956). Language, mind, and reality. In J. B. Carroll. (Ed.) *Language,*

thought and reality: Selected writings of Benjamin Lee Whorf, (pp. 246-270). Massachusetts: MIT.

Wodak, R. (2001). What CDA is about – A summary of its history, important concepts and its developments.InR. Wodak & M. Meyer. (Eds.)*Methods of Critical Discourse Analysis: Introduction to qualitative methods*. London: Sage Publications Ltd.

UNIT 5: HOW DOES PSYCHOLINGUISTICS RELATE TO OUR LIVES?

Contents

1.0 INTRODUCTION

In the previous unit, you learnt about the nature of language. The different characteristics as well as the definitions of language were outlined. The processes of the human minds were discussed as well as how they combine environmental factors to the human cognition and language. The relationship between language and the human mind were also highlighted. This unit discusses the practical way that psycholinguistics can be related with human ways of life. You should thus be able to see that psycholinguistics is not merely an abstract issue but that which has practical application to the human life, your own life

2.0 OBJECTIVES

At the end of this unit, you should be able to:

1. identify the specific ways in which psycholinguistics has practical application to our lives
2. relate psycholinguistics to your personal linguistic experiences

3.0 MAIN CONTENT

3.1 Practical Ways that Psycholinguistics Relate to the Human Ways of Life

You may be wondering right now that in what ways can psycholinguistics affect your life practically. In the first place, it studies the way the human mind works as it relates to language. This shows that the human thinking process is closely connected to language. Language is not independent of the things that go on in our minds. It is quite obvious that language essentially expresses what is going on in our minds. This can be seen quite clearly expressed by scholars in the past. Chomsky's view is that language is rooted in the ability of the user. It is also obvious that when we look at Halliday's argument of ideational function of language, psycholinguistics becomes more relevant to our practical life experiences.

In the famous Chomsky's argument, grammaticality is highly rooted in the ability of the speaker to control language usage. It is also obvious that the things we talk about are rooted in the things that we think about. This makes real the issue of the linguistic reality of the experiences of language users. Halliday's discussion, using the lost tribe

in Golding's *The Inheritor* and how their linguistic choices mainly reflect their personal experiences, shows clearly that the issue of practical usages of psycholinguistics to the human life is very practical.

In addition, psycholinguistics undoubtedly makes obvious, through such practical occurrences like slips of the tongue and the anticipation of the next phoneme in the course of discussing, that psycholinguistics has a practical application in our lives. For example, I am sure that you have had occasion to say 'ma' instead of 'sir', then self-correcting, you end up with 'sir' and laugh at your own seeming incompetence. The question then is: is the speaker here actually unable to know the correct response to have given to the interlocutor or are there other factors responsible for this sort of response? It appears that the other will be the most appropriate answer. Why did I say so? Because the speaker was able to self-correct immediately. It shows that, unlike Chomsky's idea of linguistic incompetence as propounded in his Transformational Generative Grammar theory, this particular scene is not due to that but mainly a psychological situation that could have been rooted in a mind probably occupied with something else. This comes to reason as the interlocutor is able to self- correct.

Psycholinguistics also helps us to study how human beings comprehend language. Steinberg, Nagata and Aline (2001) assert that meanings which underlie speech comprehension are concepts that are in a person's mind. This shows that, within the mind of a person, there must be underlying ideas that give meaning to the language of communication. This could be seen as the basis of Halliday's linguistic theory as noted above.

The slip of tongue phenomenon also easily reveals another way that psycholinguistics can easily be linked to our lives. It shows how human beings anticipate the next item of production in their speeches. When someone thus says 'se shaid', we can easily relate that the person has only interchanged the initial sounds in the two words. Aitchison (1989) argues that this is one of the structural patterns in the production process and that it is not haphazard in nature. The parsing process in structural production thus shows that there is a pattern of production in human speech and the English language makes use of its pattern even in the mistakes made. Scovel (1998) fully agrees with this postulation.

The fact that thought processes are important to interpreting what is being said also reveals how the psycholinguistic studies affect our lives. In addition, as Arokoyo (2012) found out in her study, even children that are in the language acquisition process tend to make a whole lot of assumptions in their communication process, especially, with close family members.

In another sense, our environment as input to the thought processes of human beings can also be seen as another thing that underlies the psycholinguistic study. Concepts do not grow on trees; they are gotten from the experiences of the interlocutor. Psycholinguistics also helps us to uncover the nuances of the relationship of these

experiences to our linguistic choices. Daniel (2008) has argued that deep seated in the linguistic choices of the way women are described in Nigerian newspapers have a lot to do with the perception of the power level of women in the Nigerian society. It is thus not surprising that women are more often regarded as appendages of men. The experience of women to become fulfilled in being seen as the wife or mother of someone (Oriaku, 1996) appears to be rooted in a psychological disposition that exalts wifehood and motherhood above the personhood of the woman within the Nigerian society. This thus clearly shows that even within the social set up, social psychology has a lot of influence on our linguistic life (see Lang, 1994).

It should be obvious by now that psycholinguistics has a lot of practical influence upon our lives, whether privately or socially.

Self-Assessment Exercise
Identify some important areas of the human life in which psycholinguistics has practical impact and influence.

3.2 Relate Psycholinguistics to Your Personal Linguistic Experiences
In this section, you are expected to be able to relate the instances from your own life in which psycholinguistics appears to be manifesting in practical terms.

We are going to help you to be able to deal with this section practically. This will be done by being given some leading questions that will guide you into giving practical realisation of how psycholinguistics has had practical effects in your life.

Scenario A

Have you ever had to remember some things happening around you in order to interpret the meaning of a language event? Let us look at a scenario like this:

> Policeman: This man, stop wasting my time
> Driver: Oga, I beg now! [Prostrating] Just manage am like that [hand stretched to the policeman]
> Policeman: [angrily] Let's go to the station. Can't you hear me?
> Passenger: *Settle the man* now and let us go.

The italicised portion of this exchange will require some contextual or environmental factors to understand. Have you ever thought of the fact that an American that is new in Nigeria may find it difficult to easily interpret this statement? But can you find it difficult to interpret this statement or the whole scene itself? Explain why you think you can interpret this scene or statement without much difficulty? Try to write down your explanation to clarify your thoughts.

Scenario B

Malapropism, tip of the tongue phenomenon and the slip of the tongue are features common with the speech production process. How do these relate to your life in practical terms? Slips of the tongue are a common feature of the sometimes unsuccessful attempts by human beings to communicate. However, they are called slips of tongues because they are produced through unwitting release by the speaker. For you, can you find instances of such occurrences? If yes, describe them.

What do you say of the tip of the tongue phenomenon? I agree with you that it can be very frustrating. You know you have the word right there at the edge of your mind but your tongue can't seem to be able to actualise it. Then, sometime late in the night or when you have gone far away from the scene of the discussion, bingo! with a snap of the finger, probably in the most unrelated environment, the word comes crashing into your world. How about that for an examination setting? You can understand why I said it can be most frustrating. This is part of the things the psycholinguist is expected to provide explanation for. Why did the word decide to elude you? And why must it be at that particular time when you are in desperate need of it? Why did it come back and descend into your consciousness and subsequently your tongue when the crucial moment is probably forever lost (your final year examination? It happened to me when I was writing my essay examination in my final year in the secondary school. Imagine that the spelling of *already* eluded me until after I had submitted my script to the examiner. What a shame!) Describe your experience. I know you will have one.

Self-Assessment Exercise
Discuss two practical ways that you have experienced a situation in which you think psycholinguistics could really help to explain the phenomenon of what happened to you.

4.0 CONCLUSION

This unit discusses the practical application of what psycholinguistics has to do with the human life. It reveals the fact that psycholinguistics may appear like an abstract discipline but that it actually has practical application to the human life.

5.0 SUMMARY

This unit outlines some practical ways in which psycholinguistics affects the individual and social life of people. It reveals some important ways that it has practical application in the life of each individual and the social cognition. It leads the learner to see the practical application of the psycholinguistics study to the life of the individual and their society. It describes the very way the psycholinguistics brings to the fore the individual and social cognition to the way their linguistic choices are made. It also exposes the individual to the very personal unravelling of their own encounter with the psycholinguistic operations in their everyday life experiences.

6.0 TUTOR MARKED ASSIGNMENT

1. Identify some important ways in which psycholinguistics can be practically applied to the individual's life.
2. Describe one important way you have practically seen in your life that the psycholinguistic study will give a clear explanation of your experience.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). Language and mind: Psycholinguistics.In N. E. Collinge(Ed.) *Encyclopaedia of language*, (pp. 333-370). London and New York: Routledge.

Arokoyo, B. A. (2012). Null arguments in the Yoruba child's early speech. *International journal of applied linguistics and English literature*, 1.5: 116-129

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Chomsky, N. (1998). Linguistic contributions to the study of mind. Excerpted from *Language and mind*. www.Chomsky.info.htm Accessed, April 8, 2006.

Daniel, I. O. (2008). "The Linguistic and Pictorial Representation of Nigerian Women's Assertiveness in Selected Nigerian Newspapers." PhD Thesis, Department of English, University of Ibadan, Ibadan.

Halliday, M. A. K. (1971). Linguistic function and literary style – An inquiry into the language of William Golding's *The Inheritors.* In S. Chatman (Ed.) *Literary style: A symposium,* (pp. 330-68). London: Oxford University Press.

Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.

Lang, A. (1994). "Toward a mutual interplay between psychology and semiotics." *Journal of Accelerated Learning and Teaching*. 19.1: 44-66. Accessed, August 12, 2006.http://www.psy.unibe.ch/ukp/langpaper/pap1994-99/1994_mutual_psysem_p.htm#Inhalt

Oriaku, R. (1996). Buchi Emecheta: If not a feminist, then what? In A. Adebayo(Ed.), *Feminism and black women's creative writing: Theory, practice and criticism*, (pp. 72-90). Ibadan: AMD Publishers.

Scovel, T. (1998). *Psycholinguistics*. Oxford: Oxford University Press.

Steinberg, D. D., Nagata, H. & Aline, D. P. (2001). *Psycholinguistics: Language, mind and world* (2nd ed.). Harlow: Pearson Education Ltd.

Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. (Eds.) Trans. Cambridge, Massachusetts: The MIT Press.

Whorf, B. L. (1956). Language, mind, and reality. In J. B. Carroll. (Ed.), *Language, thought and reality: Selected writings of Benjamin Lee Whorf*, (pp. 246-270). Massachusetts: MIT.

Wodak, R. (2001). What CDA is about – A summary of its history, important concepts and its developments.InR. Wodak & M. Meyer. (Eds.)*Methods of Critical Discourse Analysis: Introduction to qualitative methods*. London: Sage Publications Ltd.

MODULE 2: ISSUES IN PSYCHOLINGUISTICS

UNIT 1: LANGUAGE AND THE MIND OR MIND AND LANGUAGE

Contents

1.0 INTRODUCTION

In the previous unit, you learnt about the way language has direct relationship and impact on our lives. You were able to see that, with psycholinguistics, you can explain some phenomena that you have probably experienced without knowing how to account for them. So, the unit discussed tip of the tongue phenomenon and slip of the tongue among others. This unit relates the contention between language and the mind and mind and language.

2.0 OBJECTIVES

At the end of this unit, you should be able to achieve the following:

1. Determine the actual form and structure of psycholinguistics.
2. Identify the link between the human mind and language.

3.0 MAIN CONTENT

3.1 Language and the Mind

In Module 1, Unit 1, you were introduced to what psycholinguistics is all about, that is, the nature of psycholinguistics. This unit is addressing some controversies that surround the nomenclature and description of psycholinguistics. This will held you to ring this course into proper perspective. We shall therefore attempt y to clarify , in this unit, the distinction between psycholinguistics as either having to do with language and the mind or mind and language. The argument is essentially aimed at making a distillation of the extent of each in order to determine if psycholinguistics is more tilted towards language or psychology, especially for your pedagogical necessity.

Aitchison (1990) has drawn our attention to the fact that psycholinguistics developed from the curiosity that psychologists developed from the propositions of Chomsky (1965) concerning language. To her, studying language and the mind is like trying to draw a map of the mind. It is like trying to unearth the connections that link together

the mind and the way language helps make these connections. So, in her view, psychology of language is quite different from psycholinguistics. The issue is that she views psychology as a broader field which covers general topics such as how language shapes thoughts. On the other hand, she notes that psycholinguistics, has to do with such issues like the storage, comprehension, production and acquisition of language in any medium – spoken, written, signed or tactile. It is thus obvious that the nexus between language and the mind is what is being described as psycholinguistics. Its focus on how language is acquired, how it is stored, how it is comprehended and the way it is produced are linguistic-focused and thus shows that the bringing together of language and the mind helps to relate language production with the way the human mind works.

It is obvious then that to think of psycholinguistics is to link the workings, production, comprehension and acquisition of language to the operations of the human mind. It is possible to think of language as being influenced by the mind of the person. As such, the reasons why some statements are made or not made is usually due to the psychological influence on the person. For instance, Arokoyo (2012) notes that Yoruba children tend to make statements with null subjects for the simple fact that they usually assume that the subjects are 'given information', which means that the speaker sees the information as being shared by both interlocutors. This shows that language has influence from the operations of the mind. Of course, meanings are made from human experiences. This is why different interpretations can be given to a particular language event, depending on the experiences of those involved.

Self-Assessment Exercise
Discuss the basis for determining the nature of psycholinguistics as a discipline.

3.2 Mind and Language
The human mind has been described as a labyrinth of highways (Aitchison, 1990). Different thoughts influence the linguistic choices we make. At times also, the operations of the mind affect deeply the way language is used by us.

Aitchison (1990) asserts that psychologists started the investigation into what is now known as psycholinguistics through laboratory investigations of linguistic usages by people through simulated laboratory investigation. It is a reality that the human mind is unobservable and so cannot be studied like some chemical in the laboratory. The best way to determine the way the mind is working, under any circumstance at all, is to observe the behavioural output. And language being a behavioural output,it is obvious that the attempt to restrict the study of language in relation to the human mind would end up in fallacy (Reber, 1987). As Vygotsky (1962) and Lang (1994) clearly argue, language is a social thing and must operate beyond the individual. It will have to involve the mind of members of the society. This further reveals that studying the use of language within the four walls of a laboratory appears unrealistic.

Nonetheless, this is exactly what the early psychologists interested in the study of the human mind in relation to language were doing (Aitchison, 1990). Their interest was kindled by the claims made by Chomsky in the early 60s concerning the way the human language usage is dependent on the cognitive ability of its user in terms of their being congenitally wired for linguistic competence. This perfect native speaker has remained a major quarrel with Chomsky's theory. The mental nature of the theory also makes it suspect to many scholars. It is therefore heartening that even the fact of the context as meaning factor in linguistic usages becomes interesting in the new versions of the theory (Arokoyo, 2012). No language is worth its salt if it does not communicate; and a language can only communicate if it makes meaning.

The psychologists' focus on just the working of the mind and none inclusion of such facts of linguistic performance as being rooted in the mind's operations as influenced by contextual factors makes one wonder about the purpose of such inquiries. Reber's (1987) discussion does make sense within such a context.

Self-Assessment Exercise
Determine the main focus of psychology of language.

3.3 The Link
We have tried to discuss the nature of psycholinguistics. We have also tried to discuss the main focus of psychologists' studyof the way the human mind relates to language usages. We have seen that while psycholinguistics is concerned with the psychological processes related to how humans acquire language, comprehend language and produce linguistic elements; the psychology of language has to do with the study of the mind in relation to language as a behavioural pattern. The main focus of this course is the way language and the human mind work together. This is why the course has been interchangeably described as psycholinguistics or psychology of language. This section thus zeroes in on the relationship between language and the mind.

The human mind is the one that contains the dispositions while language helps to express these dispositions. Other scholars have made this link as we discussed above in Module 1, Unit 4. You can go through the section again to refresh your memory of the details. But the important point you need to get here is that psycholinguistics studies language and the mind in terms of how language is acquired by children and the process of linguistic development in human beings. On the other hand, psychology of language is more interested in the psychological bias in terms of human behaviour and how to relate these to language. Nonetheless, it must be said that the line can become so thin that there is virtually no difference between the two. They could actually be called the same but as noted by Daniel (2008) concerning sociolinguistics and sociology of language, the focus of the study determines which appellation best fits. Thus, our focus in this course is psycholinguistics because we are more interested in the linguistic issues and how the mind affects them.

Self-Assessment Exercise
Identify two actual similarities and/or differences between psycholinguistics and the psychology of language.

4.0 CONCLUSION

This unit has shown you the essential connection that exists between language and the mind. It tries to distinguish between language and the mind (psycholinguistics) and mind and language (psychology of language). Essentially, the conclusion is that the focus of each of these is what determines its nomenclature as they both seem to provide answers to questions about language and the human mind.

5.0 SUMMARY

This unit has shown you that the main focus of psycholinguistics is to describe the way languages are acquired, understood, produced and learnt. The operations of the human mind in terms of linguistic acquisition, competence and production are the focus here. Psychology of language has to do with the mind as the focus of inquiry while trying to identify language as a behavioural pattern. The essential link nonetheless is that both are focused on language in relation to the human mind only that one emphasises language above the psychology influencing the linguistics.

6.0 TUTOR MARKED ASSIGNMENT

1. Discuss your view of the actual form and structure of psycholinguistics.
2. State the basic link you can identify as existing between your mind and your native language.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). Language and mind: Psycholinguistics.In N. E. Collinge(Ed.) *Encyclopaedia of language*, (pp. 333-370). London and New York: Routledge.

Arokoyo, B. A. (2012). Null arguments in the Yoruba child's early speech. *International journal of applied linguistics and English literature*, 1.5: 116-129

Baker, P., Gabrielatos, C., KhosraviNik, M., Krzyzanowski, M., McEnery, T. and Wodak, R. (2008). A useful methodological synergy? Combining Critical Discourse Analysis and Corpus Linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse and* society. 19.3: 273-306. http://www.lancaster.ac.uk/fass/doc_library/linguistics/wodak/bakereta2008.pdf. Retrieved, 25 August, 2008.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Chomsky, N. (1998). Linguistic contributions to the study of mind. Excerpted from *Language and mind*. www.Chomsky.info.htm Accessed, April 8, 2006.

Crystal, D. (2000). *Language death*. Cambridge: Cambridge University Press.

Daniel, I. O. (2009). *Portrayal of Nigerian women's assertiveness in Nigerian newspapers*. Saarbrucken, Germany: VDM Publishing House Ltd.

Fairclough, N. (2001). The dialectics of discourse. *Textus XIV*, 2001: 231-242. http://www.geogr.ku.dk/courses/phd/glob-loc/papers/phdfairclough2.pdf

Accessed August 8, 2006.
Graddol, D., Cheshire, J. & Swann, J. (1987, 1993). *Describing language*. Buckingham and Bristol: Open University Press.
Halliday, M. A. K. (1971). Linguistic function and literary style – An inquiry into the language of William Golding's *The Inheritors.* In S. Chatman (Ed.) *Literary style: A symposium*, (pp. 330-68). London: Oxford University Press.
Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.
Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.
Hudson, R. A. (1980). *Sociolinguistics*. Cambridge: Cambridge University Press.
Langacker, R. W. (1987). *Foundations of cognitive grammar*. Stanford, California: Stanford University Press.
Martin, J. R. & Rose, D. 2003. *Working with Discourse*. London: Continuum
Okolo, G. (1998). Language and gender inequality. *Journal of women in colleges of education*. 2: 18-20.
Osisanwo, W. (2003). Introduction to discourse analysis and pragmatics. Lagos: Femolus-Fetop Publishers.
Palmer, F. R. (1977). Modals and actuality. *Journal of Linguistics*. 13.1: 1-23.
Palmer, F. R. (1981). *Semantics*. (2nd edn). Cambridge: Cambridge University Press.
Reber, A. S. (1987). The rise and (surprisingly rapid) fall of psycholinguistics. *Synthese*, 72:3, 325-339.
Science Daily. (2010). Psycholinguistics. Retrieved, 17 August, 2010. http://www.sciencedaily.com/articles/p/psycholinguistics.htm.
Scovel, T. (1998). *Psycholinguistics*. Oxford: Oxford University Press.
Steinberg, D. D., Nagata, H. & Aline, D. P. (2001). *Psycholinguistics: Language, mind and world* (2nd edn.). Harlow: Pearson Education Ltd.
Van Dijk, T. A. 1993. "Principles of Critical Discourse Analysis." *Discourse in society*. 249-283. Accessed July14, 2006.
http://www.discourse-in-society.org/OldArticles/Principlesofdiscourseanalysis.pdf
Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. (Eds.) Trans. Cambridge, Massachusetts: The MIT Press.
Wardhaugh, R. (2006). *An introduction to sociolinguistics*. (5th edn). Malden: Blackwell Publishing.
Whorf, B. L. (1956). Language, mind, and reality. In J. B. Carroll. (Ed.) *Language, thought and reality: Selected writings of Benjamin Lee Whorf*, (pp. 246-270). Massachusetts: MIT.
Wodak, R. (2001). What CDA is about – A summary of its history, important concepts and its developments.InR. Wodak & M. Meyer. (Eds.)*Methods of Critical Discourse Analysis: Introduction to qualitative methods*. London: Sage Publications Ltd.

UNIT 2: CURRENT ISSUES IN PSYCHOLINGUISTICS

Contents

1.0 INTRODUCTION

In the previous unit, you learnt about the difference between psycholinguistics and psychology of language. It shows that the focus of psycholinguistics is language while that of psychology of language is focused on the mapping of the mind. This Unit will bring to the fore the current issues in psycholinguistic inquiry. It discusses such topics like nativism, modularity, structure and process as issues of concern to psycholinguists. Carefully follow the discussion below and enrich your knowledge on the the controversies which the issues brought about.

2.0 OBJECTIVES

At the end of this unit, you should be able to achieve these :

1. Identify the current issues in psycholinguistics.
2. Understand the controversies associated with the issues.

3.0 MAIN CONTENT

3.1 Nativism

Nativism is a concept that Reber (1987) describes as *anti-learning*. He sees Chomsky as the precursor of this kind of issue in psycholinguistics which sees the essential "knowledge base for acquiring a language as is assumed to be inborn and the observed language be merely the result of a fixing of parameter in a universal system" (p. 330). To him, the actual worry is the idea that language is innate and thus not really influenced by pragmatic factors.

Aitchison (1989) has argued against this Chomskyan position of the human language being basically already made rather than being dependent on the system that enables the person acquiring the language to interact with the environment and have their meaning interpretable within these experiences. The question then is: what is this Chomskyan position that is raising so much dust.

Chomsky (1965) presents the argument that the language is based on the innate competence of native speakers who can self-correct and give faultless performance in that language. Transformational Generative Grammar, developed by Noam Chomsky, is based on the native speaker's 'competence' to recognise incorrect sentence structures in 'performance' (1965). He claims that such grammatically irrelevant interference like memory limitations, distractions, attention and interest shift, and errors do not affect the knowledge a speaker-hearer has about their language.

As noted above, many scholars have raised objection to this Chomsky's perfect native speaker theory. The fact that pragmatic probabilities as possible interpretation elements in meaning assignment to utterances have been left out of the discussion by the generativist idealists has been mentioned above (cf. Dik, 1986; Olaoye, 2007). Nonetheless, going by Arokoyo (2012) claims, it appears the generative theory has become more malleable to meaning inclusion in its syntactic descriptions. Daniel (2008) nonetheless has argued that meaning inclusion is what makes communication real in linguistic performance.

Self-Assessment Exercise
Discuss your understanding of the nativist theory.

3.2 Modularity

Modularity refers to the idea that there are self-contained areas in the brain that store mental processes. Noam Chomsky has noted that the human brain has a distinct area in the brain that functions specifically to help us learn language, referring to this specialized area as a module. Modularity is therefore an important concept relevant to a number of central debates in the cognitive science, including postulations about the structure of the mind. Broadly speaking, it concerns the degree to which cognitive domains such as the lexicon, syntax, etc. can be thought of as separable, i.e., whether they function independently of one another (Mayada & Annette 2004). However, exactly what constitutes a module varies widely across disciplines and theoretical approaches.

According to Field (2004:181), the discussion of modularity is much influenced by Fodor (1983), who views the mind as composed of a set of central systems which handle generalised operations such as attention or memory. These are supplied with information by input systems which process sensory information and language, with the input systems being modular and each has specific functions.

Modularity of language has proved to be a controversial issue among scholars (Aitchison, 1990). The confusion concerns the integration of modules, whether they remain separate or with links between them or have an overall central organiser which contains more abstract representations. Modularity is an important feature of the linguistic description as presented by the principles and parameters theory of Chomsky (1981). The question has thus been whether one can assume that the language could be seen as being in distinct forms or modules that combine to form a phonetic representation from the logical form.

Chomsky (1981) clearly presented this modular form in the principles and parameters theory as expounded by Lamidi (2000) and Daniel (2008). The delineation of the UG in the theory is subsequently expounded as follows. The lexicon specifies all the features peculiar to certain lexical items in terms of its morphological, categorial, contextual, and syntactic characteristics. The categorial component gets projected as a particular X-bar category of noun, verb, adjective, preposition, and so on, as specified for it by the X-bar theory. The categorial and the transformational components constitute the base element in the grammar. The base rules then generate D-structures, otherwise regarded as deep structures, through the insertion of projectile nodes. These are then mapped to S-structure by the rule Move-α. The moved items usually leave traces at the extraction sites and these are co-indexed with the moved elements. This is the rule that constitutes the transformational component. It may get realised at the PF- and LF-representations, which happen to be the respective phonetic and meaning levels of the language.

The subsystems presented of the theory are explainable in the following manner. The bounding theory specifies the restrictions placed on how far an element can move at a time. The government theory indicates the relation between an element and the categories dependent on it. The θ-theory assigns thematic roles to arguments within its purview. Binding theory has to do with relations between an element and its antecedent. X'-theory gives the projectile node representation of categories. Case theory, on its part, is concerned with the assignment of abstract Case to overt NPs. Finally, Control theory deals with the issue of the referential potential of the abstract pronoun, PRO.

It is thus easy to identify the fact that the modular structure of language actually interact to give definite grammatical structures. All these interact at certain levels with one another to dictate the grammaticality or otherwise of a structure. Case and θ-theories are said to be related while government and binding theories have implications for each other when they interact in a structure. Criticisms have been levelled against TGG. From its earliest history of existence, it is claimed that Generative Grammar has always been controversial. According to Yule (1996: 103) "Unfortunately, almost everything involved in the analysis of generative grammar remains controversial."

Nonetheless, the main issue that scholars have had with Chomsky's delineation of the theory remains that of the fantastic native speaker as well as the prescriptism that has remained its hall mark in terms of linguistic description. But the theory has shown the fact that the natural language has a modular structure and form. The more recent linguistic description within this tradition is the Minimalist Program. It attempts to work on how to economise the operations of the linguistic systems to achieve minimal movement for linguistic elements. It has not, however, discountenanced the modular nature of the natural language. This is the view that Aitchison (1990) also notes appears to be agreed upon by scholars.

Self-Assessment Exercise
Describe clearly the interactive modules that operate in the principles and parameters theory.

3.3 Structure
Structure is essentially about the putting together of lexical units to form a whole. This whole is usually about making meaning. Linguists have over the years tried to describe this structure in order to communicate. Nonetheless, structures are usually deeply seated in psychological processes. This is one of the strong points made by Chomsky (1965) and in his subsequent development of the theory. Even Halliday (1971) reveals this important fact in his discussion of the ideational function of language. He proves that the way a language is used has to do with what is going on in the user's mind. Daniel (2008) confirms this position in her analysis of the newspapers linguistic expressions of women, either pictorial or linguistic. She found that women's psychological disposition determines their linguistic choices. When you look at yourself too, ask yourself why did you say what you said. If you choose to wear clothe that bares your body, are you not trying to

make a statement? If you choose to speak down at someone, is it not a sign that you feel superior to the person? Your answer to these questions or teasers should help you to see that the way the mind and language interact is very close.

In addition, Aitchison (1990) suggests that the confusion have always been whether structure and process are closely related or not. The fact that there is a close link has been established above. Nonetheless, our focus in this section is the structure and this is what we will discuss.

The fact that structure could be called the phonetic output of the linguistic process that becomes physically available to us has been mentioned above. It is therefore clear that structure is what can be regarded as the Spell Out stage in the Minimalist Program. It is the actual production. It is the actual output. How does the structure play out as the representation of the production of a linguistic piece? It is obvious that a situation of "em…em…" in a speech event may mean a lot more than mere fillers as they most probably will be described as by linguists. They could suggest indecision or lack of communicative competence by the speaker. In essence, these fillers could be negative. However, they could also be positive. You may ask how. If a politician is trying to show that they have 'arrived', they would likely be using these fillers to impress, to show that they are now what is usually referred to as 'big man'; no gender prejudice intended. This goes to show that structure is a revealer of the mindset of the speaker or their communicative competence, beyond linguistic competence, that is.

In addition, when a structural element is elided, it could be with the intention of making a point to the receiver of the message. It may also be to show ones social position or even to indicate the communicative competence of the speaker. But more often than not, it may be a sign of linguistic competence in the user. In this way, Chomsky's argument of the ability of a speaker being able to self-correct becomes relevant here. As such, proper or grammatical structural forms are a psycholinguistic result of not only properly processing the language but also making the correct linguistic choices to produce the grammatical structure that is obtained in the process.

Self-Assessment Exercise
State the connection between linguistic processing and the linguistic structure that results.

3.4 Process
Linguistic processing involves the analysis, classification and interpretation of a stimulus. In psycholinguistics, it is particularly used for the cognitive operations underlying the four language skills (speaking, listening, reading, writing); the retrieval of lexical items; and the construction of meaning representations, though it sometimes refers more narrowly to the receptive process of listening and reading. However, current models of processing favour early information processing theory, which represented cognitive behaviour in terms of mental states and of processes that modify the states in clearly defined stages (see Field 2004:224).

Hawkins (1994) reveals to us a lot about the issues surrounding linguistic processing.

Nonetheless, as other scholars such as Vygotsky (1962), Lang (1994) and others have shown previously, linguistic processing is very deeply rooted in the mind and manifests in linguistic behaviours that get realised as linguistic productions. Aitchison tries to argue for this link as noted above and it is obvious that this link exists as we have also tried to show above. The reality is that linguistic processes – whether towards comprehension or for the purposes of production – necessarily undergo the same processing but in different orders. This is why it is seen in the communicative process that it is when the language of the speaker (writer) is correctly decoded and

interpreted that we can say that communication has taken place. As such, such example of hesitant speech as noted above could be communicatively meaningful. Nonetheless, except there are such structural forms that can clearly convey them, it may be difficult to decipher the intention of the speaker. This is why the example of the nonsensical sentence given by Chomsky (1965) as an example of a correct structure that does not make sense makes a whole lot of sense here; the fact is that the sentence is actually nonsense and does not have any communicative content that could be interpreted. This is why one still thinks that meaning content eventually becomes the reason for the communicative act in the first place, no matter what contrary view may be held by some generativists (cf. Gray, 1978).

Aitchison (1990) asserts that the link between process and structure is an issue of contention among linguists. Our view is that this need not be so. The reality before us is that without a psychological base, language will have no form. Processing of the language determines its production content just as the processing of the linguistic raw material given by a producer provides the basis of interpretation by a receiver of the message. As Kress (1990) duly notes, none of these processes is idle; they are all very active and very involving for all the parties involved.

Self-Assessment Exercise
Discuss the role of linguistic processing in showing a user's linguistic competence.

4.0 CONCLUSION

This unit outlines current issues in psycholinguistics. These are identified as nativism, modularity, structure and process. In discussing each of these issues, a deep link between them is identified within the literature. The fact that comes out clearly is that they are interrelated. It is thus obvious that the source of the human language is related to its universal form as a modular structure. The physical structure and processing of the human language are linked.

5.0 SUMMARY

This unit discusses four current issues in psycholinguistics. The issues identified are nativism, modularity of language, structure and processing in language. These are duly discussed and the points of difference and unity integrated in the unit. The interplay of the issues and how they link together are discussed here.

6.0 TUTOR MARKED ASSIGNMENT

1. Identify each current issue in psycholinguistics discussed in this unit.
2. Discuss in full nativism, modularity, linguistic processing and structure and also provide your views on each of them.

7.0 REFERENCES/FURTHER READING

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). Language and mind: Psycholinguistics.In N. E. Collinge(Ed.) *Encyclopaedia of language*, (pp. 333-370). London and New York: Routledge.

Arokoyo, Bolanle E. (2012). "Null Arguments in the Yoruba Child's Early Speech." *International Journal Applied Linguistics and Literature*. 1.5: 116-129.
Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.
Chomsky, N. (1981). *Lectures on Government and Binding – the Pisa Lectures*. 5th edn. Dordrecht: Foris Publications.
Daniel, I. O. (2008). *The Linguistic and Pictorial Representation of Nigerian Women's Assertiveness in Selected Nigerian Newspapers.* PhD Thesis, Department of English, University of Ibadan, Ibadan.
Dik, S. C. (1986). "Functional Explanation in Linguistics." *Belgian Journal of Linguistics*. 1: 11-52.

Field, J. (2004) Psycholinguistics: The Key Concepts: Routledge: London and New York

Gray, B. (1978). "Is There a Case against TG?" *Linguistics*. 205: 5-14.
Halliday, M. A. K. (1971). Linguistic function and literary style – An inquiry into the language of William Golding's *The Inheritors.* In S. Chatman (Ed.) *Literary style: A symposium*, (pp. 330-68). London: Oxford University Press.
Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.
Lamidi, M. T. (2000). *Aspects of Chomskyan Grammar*. Ibadan: Emman Publications.
Lang, A. (1994). "Toward a Mutual Interplay between Psychology and Semiotics." *Journal of Accelerated Learning and Teaching*. 19.1: 44-66. Accessed, August 12, 2006.http://www.psy.unibe.ch/ukp/langpaper/pap1994-99/1994_mutual_psysem_p.htm#Inhalt

Mayada E. and Annette K. (2004). Modularity of Mind and Language. *The Encyclopedia of Language and*

Linguistics – Second Edition.

Olaoye, A. A. (2007). *Introduction to sociolinguistics*. 3rd edn. Abuja: Ogunleye Publishing and Printing Press.
Reber, A. S. (1987). The rise and (surprisingly rapid) fall of psycholinguistics. *Synthese*, 72:3, 325-339.
Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. (Eds.) Trans. Cambridge, Massachusetts: The MIT Press.
Yule, G. (1996). *The study of language.* 2nd edn. Cambridge: Cambridge University Press.

UNIT 3: CONTROVERSIES IN PSYCHOLINGUISTICS

Contents

1.0 INTRODUCTION

In the previous unit, such current issues in psycholinguistics like *nativism*, *modularity*, *processing* and *structure* were examined. In this unit, we shall look at the controversial issues in psycholinguistics. The field is full of many topics that have been debated for ages. These areas have influenced language studies and development and more data are still being assembled to learn more about human language behaviour. This thus discusses the stand of the cognitivist/mentalist and the behaviourist schools of thought. While the former holds that language is innate, the latter believes that it is environmental. We will try to draw a middle line between them. We shall also assess the species – specific trait of man in possessing language. Some have argued whether animal communication like the 'dance language' of the bees actually constitutes language in the same sense like that of the human language. The unit will also give an insight into the controversy regarding the relationship between language and thought and we shall see whether children actually imitate adult in their speech or they possess creative instinct to generate what has been labelled as 'child grammar'.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

1. examine the cognitivist/mentalist and behaviourist theories of language acquisition
2. describe the role of imitation in language learning
3. explain the Critical Age Hypothesis (C. A. H.)
4. discuss how thought interrelate with language
5. distinguish between human language and animal communication

3.0 MAIN CONTENT

3.1 General Overview

The field of psycholinguistics is varied and complex. The issues being discussed range from the most profound to the most trivial. Topics being debated include: How

do we acquire language? Is language related to thought? Do children imitate adults when learning to speak? Do animals possess language in the same sense as we talk of human language? All these and many more have generated a lot of controversies that researchers have come to the conclusion that more still needs to be done to determine what really happens when psychology, sociology and philosophy come in contact with human language. Kayami (2001) expresses deep concern when he says that "the topic of human language acquisition implicates the most profound questions about our understanding of the human mind and its subject matter, the speech of children, is endlessly fascinating. But the attempt to understand it scientifically is guaranteed to bring on a certain degree of frustration."

Controversies abound in psycholinguistics because it deals, not only with language study, but also the psychological aspects involved. These include language acquisition and behaviour as well as the psychological mechanisms responsible for them. Implicit in the explanations are questions to be determined. Since psycholinguistics has to do with human mind, a lot of assumptions must be scrutinized to avoid arriving at the wrong conclusions. Psycholinguists want to know how language structures are acquired by children and how they are used in the process of speaking, understanding and remembering.

Arguments also arise whether animal communication differs from that of man. Though they appear the same because they both have fixed systems of signals, this similarity is vague and generalized since it cannot explain adequately human linguistic complexities. For example, the popular "bees dance" often touted as a form of communication is used to communicate the location of food by means of a dance done in the hive. However, this message is limited just like the message of higher primates like gibbons and chimpanzees, which are credited with communication signals similar to human whereas a closer look reveals serious limitations. A cry may indicate 'impending danger' and a grunt may mean desire for food or request for care towards the infants. All these do not constitute language because there is restriction and any message beyond the immediate cannot be conveyed.

Moreover, the relationship between language and thought is still steeped in controversy. The subject has been of considerable interest over the years. Since the Whorfian hypothesis, which claimed total dependence of thought on language generated so much debate, new insights are now given that such a position is extremist and that, as far as cognition is concerned, children can think before they talk. A better perspective is that language is vital to interaction and therefore affects the way we think and which in turn affects the way we speak. Language and thought are therefore integrative and cannot be perceived differently.

Catania (2012) aptly submits that, sometimes, when participants in a controversy have something to say, they merely say the same things in different ways. This underlies the cognitivist/mentalist and the behaviourist debate on language acquisition. While the cognitivists are concerned with the structure of language, the behaviourists emphasize the function. However, the two can overlap. The controversy between the

two schools of thought is in part simply a matter of speaking of the same things in different ways. Sometimes, when we fail to identify the problems appropriately, controversies arise because we mistakenly speak of different things as if they were the same (Catania, 2012).

3.2 Issues in Psycholinguistics (1)

Perhaps there is hardly any field of language study that entertains so much controversy like psycholinguistics. This is not unexpected because it is an area that examines in full detail the relationship between language and the mind. Many areas combine together to furnish it with a corpus of data that still require much scrutiny. These include but not limited to psychology, sociology, philosophy and biology. Carroll (1994) explains that controversial issues abound in psycholinguistics because it has a rich heritage that includes contributions from diverse intellectual tradition of how best to describe language study and language process. Some pertinent questions we ask are:

1. What knowledge of language is needed by human beings to use language?
2. What cognitive processes come to play in language behaviour?

Attempts to answer questions like the above, among other complex questions, require an interdisciplinary approach, which psycholinguistics offers. Psycholinguistics is primarily a sub-discipline of psychology and linguistics but it is also related to developmental psychology, cognitive psychology, neurolinguistics and speech science (Carroll, 1999).

We can now understand why there is a debate on what happens when a child acquires a language. The two schools of thought involved in this debate have been labelled as the cognitivist/mentalist and the behaviourist theorists. The mentalists argue that children are born with a mental biological structure that is genetically wired to process language.

Chomsky (1965) asserts that a child possesses the capacity to generate an infinite set of utterances because of a device termed Language Acquisition Device (LAD), which is a property of the child's brain that endows it to aggregate linguistic information. During language acquisition, children pick a number of words spontaneously and combine them into a structured sequence by assigning each word its natural role. There is thus no need for any explicit instruction as propounded by the behaviourist school of thought.

Mentalists propose that what the child needs is a tacit knowledge of a language as they begin to formulate endless sentences of their own. They argue that a child's mind is not a blank slate (tabula rasa) and that language acquisition is dependent on an innate species – specific module different from general intelligence.

On the other hand, we have the behaviourists who hold that language learning depends wholly on the environment and that imitation is central to language learning. However, the controversy here should not be seen from an extremist position. The assertion by the cognitivists does not really rule out environmental input. They only argue that environment is a catalyst and not the nucleus of language acquisition and learning. They do not actually say that we acquire language without experience. Their assertion is that language acquisition requires environmental input to trigger and stimulate language development. An example is given that deaf children cannot acquire language because when they cannot experience speech, they cannot possess spoken language. It is not possible for children language acquisition to take place in a vacuum. During language acquisition, exposure and stimulation by their caregivers are important factors in language enrichment. Mentalists also support their position by citing the creativity of human language. How come children produce utterances they never heard before? Even the preceding ten lines of this write-up have probably never been written by these authors. Almost every sentence that you hear or speak everyday is a brand new event not previously experienced. Yet, you create them effortlessly from your mental faculty without imitating or depending on anybody. The environment merely serves to stimulate and not to create those bits of language for you. Everyone who knows a language knows a relatively small number of principles, a small number of sounds put together to create words and a large but finite vocabulary. This finite knowledge provides the person who knows a language with infinite creativity (Fernandez &Cains, 2011).

The relationship between language and thought also constitutes a veritable source of controversy in psycholinguistics. We have one school of thought that says thought depends on language and another school says that thought is independent of language. Whorf (1956) claims that we dissect the world through our particular language and that speakers of different languages perceive the world differently in what is usually referred to as linguistic relativity theory. With the increasing complexity of the modern world, we have realized that the Whorfian hypothesis is seriously flawed.

Pinker (1995) argued that Whorf's assertion is extremist because, as far as cognition is concerned, children can think before they talk. It has been shown that people think, not only in words but also in images. Studies in semantics and pragmatics have shown words having more than two meanings but still perfectly understood in various contexts. For example, the word 'spring' can be understood to mean (weather, sudden jump, pool and a metal object). There are also individuals who can think but cannot communicate through language. These are people suffering from neurological disorder and language impairment like 'aphasia'. This occurs where there is damage to the left hemisphere of the brain responsible for language processing.

Fodor (1975) also argues that general intelligence is the system responsible for generating the language of thought, which in turn is translated into speech by our linguistic system. This implies that any thought can be conveyed in any human language, thus contradicting the Whorfian position. Current studies, like Leva (2011), however, suggest that language and thought are integrated and as such cannot be

processed separately. Studies reveal that how people talk changes how they think and learning new colour words enhances a person's ability to discriminate colour. Learning new ways of talking about time imparts a new way of thinking about it (Leva, 2011).

Jones (2010) counters that speakers of a certain language do understand a concept even if it is not in their language. For example, the German word "schandenfrende" which has no equivalent in English is still understood by English speaker, to mean "rejoicing from the bad luck of others." He however concedes that language influences and enforces our thought process.

Ogbulogo (2005) explains that as the environment changes, culture and language typically respond by creating new terminologies to describe it. The terminologies used by a culture primarily reflect that culture's interests and concern. While Indians in Canada's Northwest Territories have 13 terms for different types and conditions of snow, the non-skiing native Southern Californians make do with only 2 terms. These are 'ice' and 'snow'. Nevertheless, they also have other terms in English for different stages of frozen water. These include: blizzard, frost, sleet, slush, etc. In Nigeria, we only talk of dry and wet seasons, which in Yoruba means 'o gbele ' and 'o gi nni ńi ńrespectively. But do you know that the Yoruba language has other weather terminologies like 'ku ruku ru' (fog), 'oye ' (harmattan), etc.? Cassava variants in Nigerian ethnic terminologies include 'akpu', 'e ba ', 'ga ri ', 'oka', 'abacha', 'kpakpo', etc.

Encarta (2012) says the evidently close connection between language and thought does not imply that there is no thought without language. Pre-linguistic infants and higher primates can solve quite complex problems involving spatial memory, which indicates thinking. Artistic and musical thoughts do not require specific linguistic expressions, which may be purely visual or auditory.

We can deduce from the foregoing arguments that all thoughts require representation of one kind or another but are not solely dependent on it. However, there is enough evidence that any representation, linguistic or otherwise, is immensely increased by the use of language.

3.3 Issues in Psycholinguistics (II)

Perhaps, no other controversy has generated more interest than that which holds that animals could communicate in the same sense as we have it in the human language. Can we actually speak of animal language? The answer is no. This is because language is species-specific to man and a large number of evidence suggests that only man has the capacity for language. This is so because of the mechanism in the human brain and the physiological make-up of the vocal track. This genetic make-up endows humans with special adaptability to language behaviour.

Encyclopaedia Britannica (2012) reveals that "other members of the animal kingdom have the ability to communicate through vocal noises but the distinguishing characteristics of

human language are its infinite productivity and creativity." Some have argued that the bees dance constitutes language but such an assertion does not consider that nectar sources are the only known theme of this communication system. Erroneously described as 'dance language', bees are only able to carry out conventionalized movement to indicate the locations of nectar and no other message. Even the way parrots mimic human sounds could only be possible because they are kept in the company of human beings. Such behaviour could not be taken to be a spoken language because it is wholly derivative and serves no independent communicative function.

We can deduce from the above that animal communication differs considerably from that of man. Though they may appear the same when seen as a fixed system of signals, this similarity is vague and generalized because it is inadequate to explain human linguistic complexities. Higher primates such as gibbons and chimpanzees are credited with communication signals similar to humans but a closer look will reveal serious limitations. A cry which may indicate an impending danger is hardly distinguishable from that which is used for anger. While a low sounded grunt may be for care and attention, a similar sound may be taken to be a murmur of delight. While the human language can convey an unlimited set of discrete signals, animal communication revolves around a limited set of signals. No language study has come up to show how any animal can say to another animal "I have found your missing infant being carried away by the hunter who is sleeping under the tree." Animal vocalism remains where it was before civilization whereas the human language is dynamic.

The role of imitation in language behaviour still constitutes an area of controversy in psycholinguistics. Some linguists believe that imitation plays a critical role in language behaviour while others claim otherwise. The major issue is, to what extent does imitation affect language learning and development?

Studies have shown that what is called imitation is just exposure to the adult model which will guide the child to formulate their own sentences and create novel utterances. Psycholinguists based their idea of Universal Grammar (UG) on the assumption that children do not imitate blindly the adult language forms. All children everywhere no matter the race, colour or location are born with a brain ready to equip them with language. As the child grammar develops, it has all the universal properties similar to all other languages elsewhere. The linguistic components of the child grammar at the phonological, syntactic and lexical levels are complete and conform to the rules of the speakers.

When you observe a child acquiring language, there is a systematic unfolding of linguistic complexity from one-word stage to multi-word level. When sufficient exposure is given to the child, they will be attuned genetically to produce their own speech independently.

You may be surprised that language is not taught to children. Researchers have revealed that it is only the encouragement from the caregiver interaction and the peer group relationship from the environment that trigger the child's language production. This interaction will engender their linguistic creativity. When you attempt to correct the child's error, it will be of little or no effect since they will learn the correct pattern on their own without imitation.

McNeil (1966) reports the case of a child who was corrected to say 'ate' when he was saying 'eated' due to generalization of the 'ed' past tense form. The effort proved futile as the child made no attempt to imitate the adult model. Therefore, children's errors often go unnoticed and even when noticed are not corrected because the correction does absolutely no good.

Fernandez and Cairns (2011) argue that the word 'imitation' cannot really be used to describe what goes on in child/caregiver interaction. He contends that "imitation occurs where a child repeats what an adult has said or at least produces a child's version of it immediately an adult has said it." Where a caregiver says: "This is a big blue ball" and the child responds "Blue ball", we cannot actually term such as imitation because there seems to be a great deal of individual variation in the production of such an utterance. A good illustration that imitation plays little or no role in a child's language acquisition is reported in Fernandez and Cairns (2011) where an adult and a child engaged in this conversation:

Child:	Want other one spoon, Daddy.
Adult:	You mean, you want the other spoon.
Child:	Yes, I want other one spoon, please, Daddy.
Adult:	Can you say "the other spoon"?
Child:	Other … one … spoon
Adult:	Say "other".
Child:	Other.
Adult:	Say "spoon".
Child:	Spoon
Adult:	Other … spoon
Child:	Other … spoon. Now can I have other one spoon?

It is obvious that the 'teacher' has only succeeded in wasting his time as the child still repeats what he said from the beginning.

Another area of controversy is the one that says that at certain age language learning and language acquisition will begin to decline. Some psycholinguists hold that a learner reaches their linguistic plateau whereby attempt to learn a language becomes more difficult. Studies still continue to probe into whether such an assertion is true or not.

Slobin (1972) posits that by the time a child is five years old, all the basic structures of the language are in place while fine-tuning will continue till late childhood. This corroborates Lenneberg's (1967) assertion of a critical stage when language

acquisition is crucial. Known as the Critical Age Hypothesis (CAH), it presents the optimal period for first language acquisition as at "the early teen years after which a fully complex linguistic system will not develop." This appears plausible because placidity of the brain is being put to test after a certain age. At a certain critical period, the brain cannot properly process cognitive demands of the language in the same way that it did during infancy. Researches also confirm that some wild children who acquire language very late after childhood found it difficult to learn well. A case was reported of Genie, a Californian girl locked in a closet for the first thirteen years of her life by an abusive father. She acquired words and the ability to communicate verbally but she never acquired the full morphological and syntactic system of English despite the efforts of her rescuers who were from the University of California in Los Angeles. Samples of her speech include:

Genie, full stomach
Want Curtiss play piano

(Curtiss, 1988)

In addition, whereas a child experiences little difficulty in acquiring more than one language, older learners do not find it easy or they possess little proficiency in such language when diligently learnt. This is easy to explain because children do not have a language to lean on whereas a second language (L2) learner can interact in one language and merely use the second one as a back-up. Furthermore, the language learning circuitry of the brain is more elastic in childhood than that of an adult learner who speaks with a foreign accent when they pick up a second language.

4.0 CONCLUSION

In the unit, we discussed some controversial issues in the field of psycholinguistics. These range from very serious issues to those of simple assumptions. We now know that psycholinguistics is an interdisciplinary field consisting of linguistics, psychology, philosophy and speech science among others. A lot of questions need to be answered in such a plethora of studies. Controversial issues that have arisen include whether language is acquired or learnt. What is the role of environment in language learning? Do human beings possess a mental mechanism that predisposes them to acquire language seamlessly? We have examined to what extent the mentalists and the behaviourists can hold their grounds and that the two schools of thought should find a middle point. The study also explained the debate regarding the relationship between language and thought. We have seen the extremist position of the Whorfian hypothesis and that animal communication cannot be on the same platform as human language. We also mentioned the role of imitation in language behaviour and conclude that children are not blind imitators. Finally, we talked on the Critical Age Hypothesis (CAH) debate and explained that at a certain age, learning a language becomes a challenge because the plasticity of the brain functions better during childhood for easier language acquisition and learning.

5.0 SUMMARY

In this unit, you learnt about the complex nature of psycholinguistics and why it is a field steeped in controversy. Many debates are still ongoing in the field because the issues involved have to do with the human mind and various themes in linguistics, sociology, psychology biology and even speech science. Such a multi-disciplinary field of study requires many researches to make conclusions on language behaviour and language development. In this unit, we tried to explain the controversy between the cognitivist/mentalist and the behaviourist theorists with a view to finding a common ground. The unit also looked at the debate whether language depends on thought and vice versa. You also learnt that animal communication differs considerably from human language because the elements of creativity and species-specificity which characterize human language are absent in that of animal. The unit further examines the role of imitation in language behaviour and we now know that children do not imitate the adult model wholesale. The unit was rounded off by talking of the Critical Age Hypothesis (CAH) debate which holds that there is a critical age after which language acquisition becomes difficult. You are now better informed that children learning a language can do it better because their brain is still better predisposed to language acquisition than older learners.

6.0 TUTOR MARKED ASSIGNMENT

1. Examine the controversy of the Mentalist and the Behaviourist schools of thought.
2. 'Psycholinguistics is an interdisciplinary field of study steeped in controversy.' Discuss.
3. Discuss the relationship between language and thought.
4. Distinguish between animal communication and human language.
5. Explain the Critical Age Hypothesis (CAH).

7.0 REFERENCES/FURTHER READING

Carroll, D. (1999). *Psychology of language*. London: Brooks Cole Publishing

Catania,C.(2012).*Chomsky's formal analysis of natural languages: A behavioural translation*. New York: New York University Press

Curtiss, S. (1977). *Genie: A psycholinguistic study of a modern-day "wild child."* New York: Academic Press.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of psycholinguistics*. West Sussex:Wiley Blackwell.

Fodor, J.A. *(1975). Language of thought.* New York: Crowell.

Jones,C.B.(2010)."Does language dictate the way we think?" Retrieved from http//www.xabialdia.es/science 3321html.

Kayami, N. (2001) Syntax and vocabulary of mother's speech to young children: Age and sex comparisons. *Child Development*, 44, 182-185.

Lenneberg, E.H. (1967). *Biological Foundations of Language*. New York: Wiley.

Leva, B. (2011). How Language Shapes Thought. *Scientific America*, 304(2) 62-65
McNeill, D. (1966). Developmental psycholinguistics. In F. Smith and G. A. Miller (eds.), *The Genesis of Language*. Cambridge, MA: The MIT Press.
Ogbulogo, C. (2005).*Concept in Semantics.* Lagos: Sam Ironusasi Publications.
Pinker, A. (1975).*Language Acquisition*. In Cleitman, L.R & Liberman, M (Eds). *An Invitation to Cognitive Science*: Language, 135-182 Cambridge: MIT Press
Pinker. (1995). *The language instinct: How the mind create language*. London: Penguin Books
Slobin, D. I. (1972). Children and language: They learn the same way all around the world. *Psychology Today* 6 (2): 71–4.

UNIT 4: FINDING THE MIDDLE POINT: THE LINGUISTIC UNIVERSALS

Contents

1.0 INTRODUCTION

In the previous unit, the controversies that dominate psycholinguistic inquiry were brought to your awareness. The unit also tried to bring to the fore how these controversies can be brought into positive use for the advancement of the discipline. This unit will thus attempt to integrate these controversial issues and try to find a middle point for all of them. You should, consequently, be ready to make your practical contribution to the advancement of psycholinguistics by providing your own suggestions to the issues raised and how these issues can help advance the field of psycholinguistics. One expects that, as you were previously told in the preceding module, you should take these suggestions from the practical experiences you have had with psycholinguistics. You may be surprised at how much the suggestion you make may impact the field. So, do not be shy in expressing yourself.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

1. relate the issues in psycholinguistics to one another
2. identify linguistic universals as the meeting point of psycholinguistic inquiry

3.0 MAIN CONTENT

3.1 Integrating the Issues in Psycholinguistics

It cannot be denied that there are many issues that are involved in the development of psycholinguistics. There is therefore need to integrate these issues; the controversies surrounding the development of the field as well as the issues that continue to dog its academic steps. Some of these issues that have been raised in the previous units include the nativistic source of language as well as the confusion about the processing and structural form of the natural language. It is obvious that modularity appears to be a commonly held view about language. Nonetheless, the functional approach appears to inflame passions just like the nativistic postures do too (cf. Reber, 1987). As argued by recent scholars (Aitchison, 1989, 1990; Daniel, 2008; Steinberg, Nagata & Aline, 2001; Yule, 1996), the fact of the matter is that language is meant to be used to function by bringing to light the human thought. This function is based on the

psychological state or posture of the individual at a particular time and under a particular circumstance. In addition, it has also come to reality that some of these functions get impaired due, sometimes, to biological accidents. This is where the issue of aphasia comes from.

Another important issue that has remained controversial is that of language acquisition and language learning. What really is the difference? The general consensus had usually been that the language learnt is that which is a person's second language or subsequent language whereas the first language is usually acquired. This means that as you are growing up, you just find yourself speaking the language of those around you. Psycholinguistshave described this as an unconscious process. This language is also technically referred to as Mother Tongue or L1. The question of whether a language is learnt or acquired does not seem to us like an issue that should carry as much controversy as it does. The important thing is that, whether learnt or acquired, linguistic competence of the speaker should be a target of the teacher or instructor, as the case may be.

In the same vein, communicative competence and linguistic competence have remained at logger heads (cf. Adejare, 1995; Daniel, 2008 & Ogunsiji, 2004). The fact is that psychological disposition has a lot to do with the kind of competence a speaker demonstrates most times. The truth also is that there is need for the speaker to have linguistic competence in order to make sensible constructions that are meaningful. On the other hand, the speaker must speak within correct context for the meaningfulness of the structure to manifest. You can check out your words as you speak them to determine this. When you are speaking to your lecturer, do you address them as if you are speaking to your mates in the class? I'm sure your answer is no. Why do you think it is so? This is because in your mind, you know that you have to respect your lecturer. Therefore, your choice of expression as it concerns your lecturer has to be respectful. This is not about the correctness of your grammatical expressions but the relationship between the participants in this context: you and your lecturer. So, communicative competence influenced by your psychological disposition determined your choice of expressions.

Another issue is the critical age hypothesis. Is it really such that when a child passes an age into puberty it can no longer learn a language? There has been argument for and against this position. However, one wonders about the adults that are still able to master a foreign language at a later date in their lives if it is impossible for a person to learn language at a particular time of life. Moreover, the experiments of scholars such as that of Genie in the US where the child was denied linguistic contact until about the age of her teens and she was still able to marginally master the language that was later introduced to her, one begins to wonder if such a notion is actually scientific in outlook. One could therefore state that physical disposition to speech is more likely to determine if one can speak or not. The fact also remains that when through an accident, a person loses the ability to speak properly; this is when the issue of the ability to speak may begin to rare its ugly head.

Nevertheless, one must not deny the fact that, among psycholinguists, the issue of psychological base of language is non-negotiable. Most communication engaged in is informed by the psychological disposition of the speaker.

In addition, it is true that cognition of the language user has a lot to do with the ability of the speaker to make coherent linguistic expressions that are found meaningful. A person suffering from a medical condition that makes it impossible to make sensible communication possible will likely be unable to communicate effectively. This has been found to be the case with aphasia patients. Even those that suffer a condition of paralysis tend to also lose their power of speech. Crystal (1982) insists that there is such a large disparity in the speech of this set of people that more data will be required to ascertain the ability of these ones to speak at their level of communication. He asserts that more data will likely expose this disparity than the assumption that the aphasic patients tend to speak in the same manner. Let us ask you a personal question: Have you ever seen a mad person speak in a sensible manner? If yes, then be sure that that fellow is no longer insane but has the mind restored. You can experiment with this on your own. I'm sure that many people you even assume are sane may surprise you. This is to show you that cognition is a practical part of what psycholinguistics exposes in the user of language.

Self-Assessment Exercise
Discuss how four salient issues in psycholinguistics relate to one another.

3.2 The Inner Processes of the Human Mind
The human mind is very deep. However, it is the base of thoughts that gives life to language. The human mind is where the thoughts are conceived and then realised as linguistic elements. Aitchison (1990) argues that the human mind is only reflected in terms of thought made tangible by language. The processing of language is seen as a major work that thoughts perform. As such, language reflects thoughts. The processing of thoughts is what language reflects (Aitchison, 1989, 1990; Steinberg, Nagata & Aline, 2001; Yule, 1996). It is apparently normal for children learning or acquiring a language to process it within their cognitive and environmental experiences. It is within the limit of the things they have experienced that they use language to express themselves. It is, therefore, necessary to note that linguistic processing is determined by the environmental experience of the user of the language. The person that is yet to make use of a computer may not be able to describe that experience with language. It is clearly not far-fetched to imagine that this person may not be able to process the thoughts concerning this phenomenon in the mind. The ability to comprehend and produce language can be related to environmental factors.

Steinberg, Nagata and Aline (2001) argue that the basic mental entities used by the child acquiring the language are derived from the physical world. As such, the child may be able to account for the words such as 'drink milk' essentially from the experience of having been given milk to drink by the caregiver. Aitchison (1989) notes that the idea of Chomsky that children come already loaded with language in their minds is unacceptable. The more acceptable idea seems to be that of children

being able to process language to express what their environment have enabled them to experience. This second option appears more reasonable and acceptable. She uses many examples of children processing language to prove her point. As such, when children assert statements like 'Daddy car' or 'Mummy comb', it is because they can relate to these experiences in their physical environment. Children that do not have a daddy or their daddies do not have a car may not be able to make such assertions. In addition, these children are able to transfer such experiences into similar new experiences to produce new structures that can relate those new experiences. This is an important element of language, its dynamism, which Yule (1996) identified. The next section discusses how the issues can find a middle point.

Self-Assessment Exercise
Discuss the important element required by the human mind in order for it to express itself in language.

3.2 Linguistic Universals as the Point of Compromise
We have tried to discuss some points of disagreement and points of agreement among scholars of psycholinguistics. You may probably asking the question: what is all the noise about? The issue is that psycholinguistics is really a practical part of our lives as noted above. We have talked about the reality of slips of the tongue or even edge of the tongue phenomenon. Now, I'm sure that you have experienced these at one time or the other. The word either slips out of your mouth before you are ready to say it or you just practically rack your brain, trying to get a hold of that particular word you desire to say or that you think is the most appropriate to communicate your intention. Is this really your experience? If this is true, then you must see that psycholinguistics is not just a field that was dreamed up. It has reality in our lives. If this is so, then what do we think focusing on the differences in the field will likely achieve? Most probably, it will help scholars to produce a lot of academic papers (cf. Crystal, 1982) – and saying nothing. This does not seem a sensible thing to us.

Linguistic universal is a reality that Noam Chomsky has been advocating with his grammar. Universal Grammar (UG) has delineated the reality of linguistic universals among the languages of the world. It appears sensible to agree that many languages of the world have a lot of things in common. In the first place, all languages are produced with the air stream mechanism as their sound source (Daniel, 2011); whether this is egressive or ingressive is usually dependent, most often than not, on the particular sound being produced and, sometimes, the particular language as most languages of the world make use of the expulsion of air (egressive air stream mechanism) to produce their sounds. This being as it may, the fact remains that most languages of the world make use of the air stream mechanism to produce sounds. Sometimes, even this air stream may come from the pharynx or trapped in the larynx. The common point also is that this air stream is usually that which originated from the lungs. But the question then is: is the ingressive production from the lungs? If it is not from there, at least it goes there. So, even here, the lungs are connected to what is happening. Why are we talking about all these here? This is to show that language has a connection with the universal.

In addition, we also know that all languages have four basic skills. These are: listening, speaking, reading and writing. An important point to be made here is that, whether we like it or not, all languages share the same basic skills of listening and speaking. These tie all languages together. There is no language called natural language which does not involve the skill of speaking and listening. One sure thing that is different is that it is when a language attains a greater level of complexity that it gets reduced to writing. Not all languages share these skills of a truth but all of them have the potential of attaining these skills. It thus shows that there are many things that languages share in common.

It is also obvious that all languages are used to communicate. It is clear that for there to be meaning conveyance, there must be a psychological base for the linguistic employment. In this wise, one can see that the issue of deep structure or ideational content of language usage is universal (see Chomsky, 1965; Halliday, 1971; Lang, 1994; Vygotsky, 1962). Thus, we can see that all languages have meaning content; if not, there would be no communication. This is another important link that all languages of the world share.

All languages of the world have modular structure. We mentioned this fact in a previous unit (Unit 2 of this module). This fact is also another fact that has been proven scientifically. It is thus clear that languages have modularity and systems that they share. It is another universal nature of the human language.

Why then are we saying all these things? It is important to see the linking force between the languages of the world. The attempt to make them look so distinct and different may not really be true. It is imperative to determine what a real controversy is and what is pseudo-controversy (apology to Crystal, 1982) in linguistic studies. You need to understand that linguistic universal is the reality of psycholinguistics as a thrust and focus.

Self-Assessment Exercise
Discuss the many ways in which psycholinguistics expresses the points of compromise as a linguistic field.

4.0 CONCLUSION

This unit outlines the different issues in psycholinguistics that mark the points of agreement and controversies. It tries to bring together the points at which the field of psycholinguistics present the points of compromise in the field. It concludes that linguistic universal is the best point of compromise.

The subsequent units outline the specific areas in which psycholinguistics operates.

5.0 SUMMARY

This unit gives a detailed outline of the specific controversies and agreements in psycholinguistics. It identifies controversial issues and the issues on which linguists agree. The last part suggests that the middle point for the issues here is the realisation

that linguistic universal is not just a concept of Chomsky's but a reality as it shows in the different points raised in the unit.

6.0 TUTOR MARKED ASSIGNMENT

1. Discuss the relationship between different elements of psycholinguistics.
2. Identify four possible points at which you think languages have universal application or relationship.
3. Give one important way that all the issues in psycholinguistics can be brought together.

7.0 REFERENCES/FURTHER READING

Adejare, O. (1995). "Communicative competence in English as a second language." In A. Bamgbose, A. Banjo & A. Thomas. (Eds.) *New Englishes: A West African perspective*. Ibadan: Mosuro Publishers and Booksellers.

Aitchison, J. (1989). *The articulate mammal: An introduction to psycholinguistics*(3rdedn). London: Unwin Hyman Ltd.

Aitchison, J. (1990). Language and mind: Psycholinguistics. In N. E. Collinge(Ed.) *Encyclopaedia of language*, (pp. 333-370). London and New York: Routledge.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Massachusetts: MIT Press.

Crystal, D. (1982). Pseudo-controversy in linguistic theory. *Linguistic controversies. Linguistics 34*. London: Edward Arnold. Retrieved from www.davidcrystal.com/…/Linguistics34.pdf on February 18, 2013

Daniel, I. O. (2008). "The linguistic and pictorial representation of Nigerian women's assertiveness in selected Nigerian newspapers." PhD Thesis, Department of English, University of Ibadan, Ibadan.

Daniel, I. O. (2011). *Introductory phonetics and phonology of English*. Newcastle on Tyne: Cambridge Scholars Publishing.

Halliday, M. A. K. (1971). Linguistic function and literary style – An inquiry into the language of William Golding's *The Inheritors.* In S. Chatman (Ed.) *Literary style: A symposium*, (pp. 330-68). London: Oxford University Press.

Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.

Hawkins, J. A. (1994). *A performance theory of order and constituents*. Cambridge: Cambridge University Press.

Lang, A. (1994). "Toward a mutual interplay between psychology and semiotics." *Journal of Accelerated Learning and Teaching*. 19.1: 44-66. Accessed, August 12, 2006.http://www.psy.unibe.ch/ukp/langpaper/pap1994-99/1994_mutual_psysem_p.htm#Inhalt

Ogunsiji, A. (2004). "Developing the basic language skills for communicative competence in learners of English as a second language in Nigeria."*Ibadan Journal of English Studies*. 1: 19-34.

Reber, A. S. (1987). The rise and (surprisingly rapid) fall of psycholinguistics. *Synthese*, 72:3, 325-339.

Steinberg, D. D., Nagata, H. & Aline, D. P. (2001). *Psycholinguistics: Language, mind and world* (2nd edn.). Harlow: Pearson Education Ltd.

Vygotsky, L. S. (1962). *Thought and language*. E. Haafmann & G. Vakar. (Eds.)

Trans. Cambridge, Massachusetts: The MIT Press.
Yule, G. (1996). *The study of language.* 2nd edn. Cambridge: Cambridge University Press.
Wikipedia (2013). Controversies in psycholinguistics. Retrieved from www.wikipedia.com on 20 February, 2013.

MODULE 3: LANGUAGE ACQUISITION AND LEARNING

Unit 1: Biological Foundations

Unit 2: The Role of Cognition

Unit 3: Caregiver Language

Unit 4: Phonology, Syntax, and Semantics

UNIT 1: BIOLOGICAL FOUNDATIONS

Contents

1.0 INTRODUCTION

In this Unit, we will be describing the biological foundations in language development. You will appreciate why psycholinguistics holds strongly that language acquisition and language learning have some bases in biology. Do you remember how you learnt your own language?

You will realise that many people acquire language spontaneously just as walking and breathing. Human beings have been described as the articulate mammal because we possess an innate capacity for language due to our biological make-up. Since language must be expressed in words which are meaningfully connected together, a mental conception situated in the brain is required. Language has, therefore, been called a tool for thought. You will study in this Unit the criteria necessary to describe language as having biological foundations and we shall examine to what extent these criteria have been fully met. This will enable us to validate the psycholinguistic basis of language as purely a form of human behaviour.

2.0 OBJECTIVES

At the end of this Unit, you should be able to perform the following tasks:

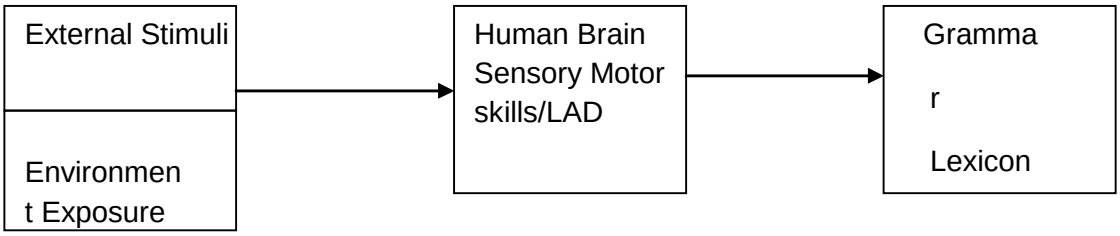
- Discuss the biological foundations of human language.
- State the criteria for biological classification of human language.
- Describe language as distinctively a human affair.
- Distinguish between human language behaviour and animal communication.
- Explain language acquisition and language learning.

3.0 MAIN CONTENT

3.1 General Overview

You are sufficiently informed that part of the concerns of Psycholinguistics is the interplay of psychology and linguistics. You are also aware now that psycholinguistics deals with cognitive process involved in the use of language. Do you realize then that you cannot talk of psychology without the human mind, which is centred in the brain? The brain is a biological organism responsible for cognition, memory, thinking and reasoning. The acquisition of language by children consists of the brain becoming organized in a genetically determined manner.

Fernandez and Cairns (2011) argued that just as the biological based system of human vision is already well developed at birth but required visual stimuli for depth perception of the left versus right eye so also will children acquisition of language require environmental input to trigger or stimulate language development.



Schema showing input/output relationship between environment and cognitive mental processing of language

Note that during these active years of language acquisition, children exposed to more than one language will develop lexicon and grammar of the two languages simultaneously. Human language is genetically based in the brain and it is processed biologically. It develops as the human infant interacts with the environment.

The biologically based system in the human child will be triggered for language acquisition and development. This has been termed the nativist model of language acquisition. The nativist conception of language acquisition asserts that language is a natural developmental process. All children progress through similar milestones on a similar schedule. This could not be so were it not for the fact that language is rooted in human biology (Fernandez & Cairns, 2011:98). It is this biological nature of language acquisition that accounts for the properties of Universal Grammar (UG). You will notice that children in all places and climes follow similar acquisition pattern and word order. The phonological, morphological and syntactical components follow the universal principles of language. Crain (1991) submits that a child's grammar never violates universal principles of language. For instance, they never contain rules that are not structure dependent. Even children acquiring languages that do not follow the general word order of Subject-Verb-Object (SVO) for English and many world languages, still conform to the order of the languages to which they are exposed. Languages like Japanese and Turkish have Subject –Object-Verb (SOV) while some other languages operate (VSO) and (VOS) patterns.

As an illustration, we can have:

Audu eats rice	(SVO English)
Audu je iresi	(SVO Yoruba)
Audu shi shikafa	(SVO Hausa)
Audu riri osikapa	(SVO Igbo)

This is unlike the SOV structure which will give us * "Audu rice eats". However, children conform reasonably to the various grammatical patterns. Fernandez and Cairns (2011) argue that human biology supplies knowledge of universal principles of organizing language. When children are sufficiently equipped, they take input from the environment to rapidly and efficiently acquire the language or languages around them.

Furthermore, Kisilevsky et al (2003) observes that infants are attuned to human language from the moment they are born. A growing body of evidence shows that a child's sensitivity to language predates its birth since the earliest exposure to linguistic input is in uterus.

Self-Assessment Exercise

Explain the nativist model of language acquisition.

3.2 Biological Foundations.

Our possession of language is closely linked with the brain which is the most complex biological organ of the human body. We shall attempt to examine some criteria under which language could be said to have biological foundations. In a seminal work, Lenneberg's (1967:371-4) arguments of a biological system fit the human language classification discussed below:

1. Language is Species-Specific-This implies that only human beings possess the capacity for language. The genetic make-up of human beings makes language acquisition, comprehension and performance unique to man. Pinker (1975) asserts that the shape of the human vocal tract seems to have been modified in evolution for the demands of speech. Also, (Encyclopaedia Britannica, 2010) says that young children have certain characteristics that predispose them to learn language. These characteristics include the structure of the vocal tract which enables children to make the sounds used in language and the ability to understand a general grammatical principle, such as the hierarchical nature of syntax. Moreover, a look at animal communication reveals a rigid pattern of signs. Chimpanzees used in language learning experience are taught in a contrived way by humans to acquire rudimentary abilities to request for food and to tickle. This contrasts sharply to the natural ability of human children to acquire language in a seamless unencumbered manner. No animal has been trained to learn human language creative system with the recursive mechanism for generating an infinite set of utterances. Animal vocalism remains fixed as it was ages before history.

2. Every Member of the Species Should Possess Some Properties to Replicate Language.

This is the criterion on which psycholinguists based their idea of Universal Grammar (UG). You will realize that all children everywhere regardless of colour, race or location are born with a brain which equips them readily for language to take shape. When this language comes up it possesses universal properties because of its striking similarities with other languages of its kind elsewhere. Just like every person's ability to walk or a fish's ability to swim, language acquisition is natural to the human child. Universal Grammar (UG) has its phonological, morphological, syntactic and lexical components and all languages have rules and patterns that conform to the rules of their speakers. Predictably therefore, the general organisation of all languages is the same. Fernandez and Cairns (2011) posit that if languages were not biologically based, there would be no necessity for children to behave in a similar way of acquiring language. We would even expect great variations from language to language in terms of their internal organisation.

3. The Cognitive Processes Involved In Language Production Will Develop With Maturation.
   Researches have shown that there is a close link between language development and maturation. There is a gradual unfolding of linguistic complexity as the child moves from one-word stage to multi-word level. This follows the biological process of crawling before walking. All normal children develop unaided in their acquisition of language. Once they are adequately exposed to the language of the environment, the genetic system programmes the language for them to be developed in an orderly fashion.

   You will be surprised that contrary to your expectation, language is not taught to children. All they need is to be encouraged to interact with the caregivers or other peers in the environment. It is the interaction input that will engender their linguistic creativity. When you try to correct children's errors it is of little use. The child will gradually learn the correct pattern.McNeil (1966) found out that a child who says 'eated' instead of 'ate' will continue saying 'eated' no matter how many times they are corrected.However, in the continual interaction with the environment, the child overcomes the error on its own without any hitch.

4. Certain Aspects of Language Behaviours Emerge Only During Infancy.
   Studies have shown that there is a general pattern of language development common to all children throughout the world. Slobin (1972) carried out extensive studies showing that children around the world learn in the same way. Like all milestones in the biological development of infants; rolling over, sitting up, crawling and walking at similar ages, the milestones of language acquisition are also very similar. While babies are generally known to coo when they are 6 months old and babble around 9 months, they all tend to gravitate towards one – word stage at their first birthday. This is followed by the holophrastic two word-level after which early sentences of increasing length become noticeable. With the child's ability for cognitive processing of

words, complex sentences begin to take shape and an infinite set of utterances could be made. By the time the child is 5 years old, the basic structures of the language are in place while fine-tuning continues till late childhood. Fernandez and Cairns (2011) say that children are sensitive to the same kind of language properties such as word-order and inflexion. They make remarkable errors but their errors are of similar type. You need to know here that there is individual variation in the age at which children acquire language which is conditioned by the characteristics of the acquirer and not the language or the culture in which the language is used. For example, a Nigerian child acquiring Hausa will not speak such language at one-word stage when they are three years old nor will an Igbo child speak the language when they are four years of age. There is a distinct developmental sequence to language acquisition irrespective of culture or child's ecology. Lenneberg's (1967) assertion that there seems to be a critical period in the acquisition of language has been described as Critical Age Hypothesis (CAH). While this remains controversial, psycholinguists generally agree that acquirers reach their peak after a certain period. The optimal period for first language acquisition is put at the early teen years after which a fully complex linguistic system like native accent and morphological inflections will not develop. This has been attributed to the fact that age can contribute to the smooth learning of a language early in life and that at a certain critical period, the brain cannot properly incorporate and process the cognitive properties of anguage in the same way it would do during childhood acquisition.

5. Spontaneous Adaptation of Acquirers to the Behaviour of other Individuals around them.
   The biological system in individuals requires external stimuli that will trigger them to function. This equally applies to language development which depends on the environment to nurture its growth through interaction input. It will be impossible for the child to develop a language in the absence of any language to stimulate them and nobody to interact or give them access to language. You will appreciate this fact when you realize that it is the language that surrounds the child that such a child grows up to speak. If a Yoruba child is taken to Kano to acquire the Hausa language they will speak it flawlessly at all levels of linguistic manifestations. It will interest you to know that Nigeria's first president, Nnamdi Azikiwe was born in Zungeru, Niger State, where he acquired Hausa as Language of Wider Communication (LWC) which he used quite dexterously as a politician to warm his way to the hearts of many northerners.

Self-Assessment Exercise

Discuss the biological basis of language acquisition.

3.3 Language Acquisition and Language Learning

Children acquire knowledge of language or language around them in a relatively brief period and with little apparent effort. This is possible because they are biologically pre-disposed towards acquiring the language of the environment where they interact with people around them.

Encarta Encyclopaedia (2010) holds that whereas children experience little difficulties in acquiring more than one language, after puberty people generally must expend greater effort to learn a second language as they often achieve lower levels of competence in that language. When children are exposed to two languages simultaneously, they acquire the two languages together. However, acquiring another language after the first one is often termed *second language learning.*

In Nigeria, English is a second language we acquire through a formal setting in the classroom. Studies have shown that second language learning tends to follow a similar pattern with that of the first language except that adult learners pick up more slowly compared to children. The reason is simple. In the case of first language acquisition, the child has no other language to function unlike the adult learner who already possesses the L1 but requires the L2 as a backup. However, L2 learners are also able to produce and process simple sentences before complex sentences (Pienemann et al, 2005).You will also note some interference problems in L2 learners such as: "They are not at home" when someone asks for the whereabouts of the infant's mother. The idea of the plural of majesty used to refer to royalties, eminence and elderly ones has been extended to refer to one person.

Sometimes the adult L2 learner deviates from the target language indefinitely in what is termed 'fossilization'(Krasher, 1981). Certain errors will continue to feature in the adult speech as if they are permanently embedded like residuals of a rock formation. In the Nigerian environment, errors such as, "Divide it between Ade, John and Dupe," "I forgot the book at home", "Speak off head", "Borrow me your pen", "go to the garage to board a bus", "I don't hear Hausa language", "Off the light", "Drop me at the bus stop" etc., have been identified in the language repertoire of the L2 learners.

You will realize now that the older learners are not as proficient as the younger acquirers because language acquisition is subject to age effects and internal changes caused by maturation tend to affect the motivation of the adult learner. Furthermore, the language learning circuitry of the brain is more plastic in childhood. That is why you often hear linguists talk of 'foreign accents' when an adult learning a language fails to master the phonology (Pinker, 1975).

Now, are you scared as an adult to learn a new language? You do not need to although it is a challenging and daunting task; it is well worth the effort. This writer learnt a smattering of Hausa during the service year as a youth corps member in Bauchi State.Expressions such as 'Yaya deh', 'Sannu', 'aboki', etc. often opened many windows of opportunities when we do our shopping as speaking English to our Hausa fellows was usually met with undisguised hostility of 'ba turenchi'.

Furthermore, the National Language Policy (NLP) enjoins the learning of another Nigerian language apart from your mother tongue. With the advent of globalization and increasing multilingual needs of the world, it is beneficial to you to learn a new language.

Self-Assessment Exercise

Distinguish between language acquisition and language learning.

4.0 CONCLUSION

The biological foundations of human acquisition and learning of language have shown clearly that language is uniquely species-specific. Attempt to replicate human form of language in other species have failed woefully. The human brain is so complex that its power to process language remains a focus of studies by psycholinguists. When the criteria to show that human language is rooted in biology are closely scrutinized, it is evident that just like a bird's ability to fly and a fish's ability to swim, so also will the human infant acquire language after the initial interaction input has triggered the language development properties.

5.0 SUMMARY

In this Unit, you were able to study that human language has biological foundations. You also learnt that some criteria are required to properly categorize language as having a basis in biology. These criteria were explained in depth one after the other. A further attempt was made to distinguish language acquisition and language learning so that you too can go ahead and learn a new language. "Parlez vous Francais?"

6.0 TUTOR MARKED ASSIGNMENT

1. What do we mean by language is species-specific?
2. Examine the criteria for the biological foundations of human language.
3. Explain the Nativist model of language acquisition.
4. Discuss the Critical Age Hypothesis (CAH).
5. Write short note on each of the following:
   (a) Language Acquisition
   (b) Language learning

7.0 REFERENCES/FURTHER READING

Crain, S. (1991). Language Acquisition in the Absence of Experience. *Behavioural and Brain Science*. 14:597-650.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Kisilevsky, B. S., Hains, S. M. & Lee, K. V. (2003) Effects of Experience on Fetal Voice Recognition.*Psychological Science14* (3): 2204.

Krashen, S, D. (1981).*Second Language Acquisition and Second Language Learning.* Oxford: Pergamon.

Lenneberg, E.H. (1967).*Biological Foundations of Language*. New York: Wiley

Pienemann, M., DiBiase, B., Kawagushi,S. & Hakansson, G. (2005). *Processing Constraints in L1: Psycholinguistic Approach 128 Transfer.* Oxford: OUP

Pinker, A. (1975). *Language Acquisition.* In Cleitman, L. R. & Liberman, M. (Eds.). *An Invitation to Cognitive Science*: Language, 135-182 Cambridge: MIT Press.

Slobin, D. I. (1972). Children and language*:* They learn the same way all around the world. *Psychology Today.* 6 (2) 71-4.

UNIT 2 THE ROLE OF COGNITION

Contents

1.0 INTRODUCTION

In this unit, we will be examining the role of cognition in language acquisition and language learning. We will look at the concept ‘cognition’, and how it fashions and refashions language behaviour. We shall look at the interface between language and thought and how one complements the other. You will appreciate what goes on in the human mind as children language acquisition process suggests a system of remarkable complexity which has generated high degree of attention in psycholinguistics. What happens when a person begins to acquire language? Is there a black box or a mental organ in what Chomsky (1965) referred to as Language Acquisition Device (LAD)?

The Unit will give you an insight into children’s creative input into language acquisition and language learning as novel utterances labelled ‘child grammar’ which characterizes the cognitive and linguistic repertoire of the child will be discussed. The cognitive process in language acquisition will be described and we shall explain to you psycholinguistic terms such as ‘competence’, ‘performance’ and ‘Mean Length of Utterance’ (MLU).

2.0 OBJECTIVES

At the end of this Unit you should be able to demonstrate the following:

1. State the meaning of ‘cognition’.
2. Describe the relationship between language and thought.
3. Discuss the cognitive process involved in language acquisition and language learning.
4. Appreciate the form of language behaviour in children.
5. Explain the nature of language errors of language acquirers.

3.0 MAIN CONTENT

3.1 General Overview

'Cognition' is the process involved in knowing or the act of knowing, which in its completeness includes perception and judgment. Cognition involves all processes of consciousness by which knowledge is accumulated such as perceiving, recognizing, conceiving and reasoning. It is one of the only words that refer to the brain as well as the mind (Encyclopaedia Britannica, 2010). This definition underscores the complexity involved in the role of cognition in language acquisition and language learning. While we do not know everything about how the brain processes language, much is known and much more is being discovered about the mental faculty that affects language intuition and perception.

Language is the centre of human existence and life without it would be meaningless and inconceivable. In this regard, therefore, cognition in language acquisition is one of the most fascinating phases of human development. You can imagine how life without language would be.

Language acquisition remains a central topic in cognitive science. Every theory tried to explain it but it is still steeped in controversy. Language is essentially specie-specific to man as all normal human beings speak. Language is the tool for thought and both language and thought are interlinked.

Earlier theories look back at the total dependence of language on thought. Whorf (1956) in the popular Whorfian hypothesis claims that we categorise the world around us through our particular language and that speakers of different languages perceive the world in different ways. Rigorous researches have clearly shown that such a view is an extreme position as far as cognition is concerned because children can think before they talk (Pinker, 1995).

The role of cognition in language acquisition and language learning affirms that people think not only in words but also in images. Some branches of linguistics like semantics and pragmatics have also proved that human languages are varied and complex because one word can correspond to two thoughts; for example 'bow' when thinking about hunting is not usually confused with 'bow' in a salutation posture showing respect.

You will see that from the foregoing it is tempting to confuse language and thought because we verbalize our thought using language. However, there are individuals who can think but cannot communicate through language. These are infants and people who suffer from neurological disorder like language impairment (aphasia). Any thought can be conveyed in any human language. Fodor (1975) submits that general intelligence is the system responsible for generating the language of thought and this in turn is translated into speech by our linguistic system.

Babies are born with a biological structure, including a brain that is genetically prepared to organize linguistic information. All human languages close to 7000

spoken in the world today though differ greatly on the surface, are profoundly similar in what psycholinguists term language universals.

A person's ability to acquire and use a language is as natural as their ability to walk or a bird's ability to fly. All languages have phonology, morphology, syntax and a lexicon. A person acquiring language possesses recursive mechanism, which allows them to generate an infinite set of utterances as in "… the house that jack built." (Fernandez & Cairns, 2011:54). This is a multi-line poem beginning with: "This is the farmer sowing his corn… that kept the cock that crowed in the morning" …that (children add new thoughts and ideas until they get to the last line) "…that lay in the house that jack built."

Chomsky (1965) also claims that the child's capacity to generate this endless set of sentences is because of Language Acquisition Device (LAD), a property of the child's brain that endows it with a predisposition for acquiring language. Please, note that this is a type of in-built mechanism whereby input from the environment activates internal processes that lead to acquisition of language. The child uses this facility for language acquisition - the outcome is grammar and lexicon. When the environment provides multiple linguistic stimuli, e.g. English and Yoruba, more than one grammar and lexicon will develop. Lukmon is a child whose mother interacts with in English while the grandmother speaks Yoruba to the boy. At age three, he greets his mum in English but says 'E karo' to the old woman. The child now knows intuitively that the language behaviour of the two parents differs.

Secondly, child grammar never violates the universal principles of language. It follows a pattern that is structure-dependent. Even when an adult utters a sentence the child cognitively produces a child's version of it e.g. a caregiver who says "this is a big blue ball" was reported to get a response "blue ball" (Farnadez & Cairns, 2011). This study queries the wholesale role of imitation in language behaviour. Many studies show a great deal of individual variation during language acquisition and learning.

Self-Assessment Exercise

Explain the relationship between language and thought.

3.2 Language, Cognition and Language Development

The claim of the Chomskian School is not that human beings acquire language without experience. Cognitive system requires environmental input to trigger and stimulate language development. Infants born deaf cannot develop their cognition linguistically. They cannot experience speech; therefore, they possess no spoken language. Language acquisition will not happen in a vacuum. The child requires exposure and stimulation to formulate grammar and lexicon including all the properties associated with human language.

Children learn language that are governed by highly subtle and abstract principles and do so without explicit instruction. Language acquisition is to a large extent dependent on an innate, specie-specific module distinct from general intelligence. Gleason and Ratner (1993:9) speak of a human condition language by quoting Bertrand Russel that "no matter how eloquently a dog may bark, he cannot tell you his parents were poor but honest".

When children pick up a number of words spontaneously, they combine them in a structured sequence where every word has a definite role, respect the word order of the adult model and use them for a variety of purposes. We consciously know that a sentence like: * "bites the dog man" cannot be correct because we possess an abstract system of unconscious knowledge about the English language. When people speak of *a red car*, it is the outside that is red, not the inside. This presupposes that there is nothing like a blank slate at birth. There is a Language Acquisition Device (LAD) which triggers the child's innateness to process a language and allows for creativity.

This sentence and the preceding paragraphs may probably never have been produced anywhere in the world before. The same is true for much of what we say everyday in so many places and contexts. Almost every sentence a person hears or says is a brand new event not previously experienced but understood without much difficulty.

You will realize now that a tacit knowledge of a language is all we need to begin functioning effortlessly in the use of such language. We sometimes know how to do something without knowing explicitly how it happens. When we eat, many do not bother to know about the digestive system and we play football without knowing about the muscles involved in the shot that scores a goal!

Self-Assessment Exercise

Discuss the role of cognition in language acquisition and learning.

3.3 The Cognitive Process

Psycholinguists are interested in the child's linguistic performance after the basic sentences have been processed and put into actual use. This occurs when a sentence stored in memory is combined with others to form conversation and narratives. This is termed *linguistic competence and performance.*

When a child possesses the knowledge of the components of language that pair sounds with meanings, whereby the grammar and lexicon of the language is stored in its brain, then we can talk of linguistic competence e.g. Dog = Animal + 4 legs + barking.

Linguistic performance on the other hand is the use of such stored linguistic knowledge in actual processing of words during comprehension and production e.g. "My brother is married to a dog." (Figurative use of 'dog' – flirting is connoted here.)

The schema below represents the cognitive process:

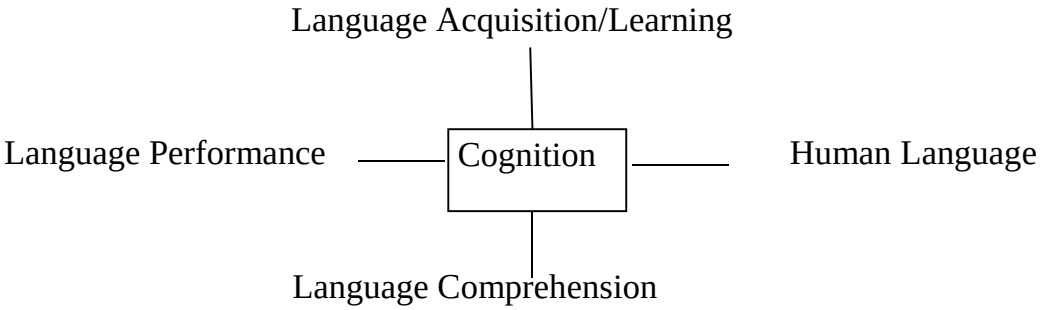


Figure 2: *Schema showing the relationship between cognition and language variables*

Cognitive process could be described as the interlocking relationship between the language-related variables in the above schema.

It is, of course, worthwhile to talk about some 3-4years old preschoolers who talk of scenes from pictures, respond to questions and even describe limited events. An intriguing example is the writer's child's report of a friend who slapped him during a play session. Instead of using the word 'slap' still dormant in his linguistic domain, he said "Ibrahim do like this" by repeatedly tapping himself on the cheek. This shows the dexterity and spontaneity in the cognitive process.

Children around 12 months attain one-word stage when object naming develops (food, eye, nose, ball, toy, etc.). The child's first word remains controversial. Male chauvinists among the Yoruba claim that a child's first utterance is 'ba-ba' meaning (father). This is debatable as the mother-child interaction at this stage is so crucial that many children are inclined to saying 'Ma-ma' (mother). Action words like 'so' 'bia' 'wa' in the three major Nigerian languages, which mean 'come' engage the linguistic repertoire of the child. Even modifiers like 'all gone', 'more', 'finish', 'dirty', 'pupu', etc. are used. Here, they take umbrella or compass dimension as in 'all gone food', 'more more water', 'finish bread,' 'dirty dirty baby', 'pupu pupu sister', etc . You can now appreciate better how the popular advertisement in television stations across Nigeria about "shaky shaky daddy" where the 3year- old child describes the father's condition who just suffered from a bout of fever comes to mind here. At this stage, one word covers many expressions. The child uses 'milk' to say 'give me milk', 'milk has finished', 'I've spilled my milk', etc.

Surakat (2009) gives an insight into a Nigerian preschooler's cognitive process in her acquisition of English at age 47-62 months. In what he termed *pedolinguistics* (child language studies), audio and video data of a child named *Mana* were recorded and analyzed. Sample utterances of *Mana* include: 'I say I go come back' when asked for the whereabouts of the auntie. * "It is paiming me" (touching her mouth) when asked what is wrong with her. When Mana scribbled on a paper, she explained 'I laite peibi like this' to mean (I draw baby like this).Our concern here is that intelligibility is possible in the cognitive process of a child acquiring language. The data also shows that children engage in phonological sound redistribution e.g. *'I want to hear my

noise' instead of '*voice'* when a tape recorder was demonstrated for her. 'Paiming' instead of 'paining' 'peibi' (baby) 'lait' (like) 'anytin' (anything) 'stomas' (stomach)

At the morphological, syntactic and semantic levels, a lot of creativity was noticed:

*Mummy has spoil my toy (absence of tense marker)

*Dupe has finish his food (absence of tense gender marker)

*He goed away (inadequate knowledge of irregular verbs)

*She have two bag (plural morpheme marker's' absent)

With age and cognitive maturity, children tend to master the correct forms. But at their level, communication still goes on all the same. It should be noted that even adult learners of a second language in the Nigerian setting make such mistakes like the ones described above because of the morpho-syntactic pattern of the target language e.g. *'house big' from a Yoruba/English bilingual because in Yoruba, the modifier is post posed ; that is, it comes after the noun 'ile nla' unlike English which is pre-posed (big house). At the semantic level, we also have cases like *'sweet stories' instead of 'interesting stories'.

Moreover, a useful index of language development in cognition is the Mean Length of Utterance (MLU). This is computed by adding bound and free morphemes in a language sample. There is a high degree of correlation of MLU and age because the child's sentences become longer with age. The child's working memory allows the child to plan and execute longer sentences. Several utterances are considered and calculated based on the number of individual morphemes in each utterance. Let us take a particular child who may say the following:

(i) I+ like+ toy = 3 morphemes
(ii) Mummy+ like +s+ to+ sing = 5
(iii) Give+ me+ food = 3 morphemes

These morphemes give a total of 11 which you can now divide by the total number of utterances. These are three. 11/3 = 3.2. MLU = 3.2

Normal children may differ by a year or more in their rate of language development but the stages they pass seem generally the same despite varied exposure. The role of cognition is natural and developmental in language acquisition as all children progress through similar milestones in a similar fashion.

The general trend in the cognitive process of a child's acquisition of language could not explain fully how children succeed. The role of cognition is so complex that psycholinguists agree that more studies are required to fully comprehend the phenomenon of language acquisition and learning.

Self-Assessment Exercise

What cognitive processes are involved in the useful index of language?

4.0 CONCLUSION

The role of cognition in language acquisition and learning has enabled us to appreciate how psycholinguistics tries to explain the complexities of language behaviour as well as the psychological mechanisms responsible for them. We now know that a child's production of speech is not a blind imitation of the adult mode1. There is a recursive structure in the acquirer's sentence that can generate an infinite set of utterances. As a child increases in age and maturity, the cognitive level increases significantly. The linguistic system also seems to work so seamlessly with the rest of the cognitive architecture.

5.0 SUMMARY

In this unit, attempt has been made to explain the role of cognition in language acquisition and learning we tried to show that a child's mind at birth is not a linguistic tabula rasa (blank slate) and that children possess innate capacity for language. You have also seen how the interrelationship between language and thought is brought to the fore with the underpinning that language is a tool for thought and not totally dependent on it.

You have also learnt that the environment in which a child acquires language also plays a crucial role in the cognitive process of language as they require sufficient linguistic stimulation to perform optimally in language proficiency.

6.0 TUTOR MARKED ASSIGNMENT

1. Discuss the role of limitation in language acquisition and learning.

2. What role does environment play in language behaviour?

3. Distinguish between linguistic competence and performance.

4. Describe the nature of language errors of language acquirers.

5. Explain the Mean Length of Utterance (MLU) in language development.

7.0 REFERENCES/FURTHER READING

Brown, R. (1973). *A First Language: The Early Stages.* Cambridge*:* Harvard University Press.

Chomsky, N. (1965). *Aspects of the Theory of Syntax.* Cambridge: M.I.T Press.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Fodor, J.A. *(1975). Language of Thought.* New York: Crowell.

Gleason, J.B. & Ratner, N.B. (Ed.*). (1993*). *Psychology*. New York: Harcourt and Brace.

Pinker, S. (1975*).* Language Acquisition. In Gleitman, L.R. & Liberman, M. (ed.*) An Invitation to Cognitive Science*: *Language, 135*-182.Cambridge: MIT Press.

Rogoff, B. (1990). *Apprenticeship in Thinking*. New York: Oxford University Press.

Surakat,Y.(2009). The Acquisition of English by a Nigerian Pre-schooler. *Linguistics Association of Canada and United States (LACUS)* 32,392-405.

Whorf, B. (1956). *Language, Thought and Reality*. Cambridge: MIT press.

UNIT 3: CAREGIVER LANGUAGE

Contents

1.0 INTRODUCTION

This Unit will be pre-occupied with the discussion of caregiver language. You will learn about who a caregiver is and their role in language acquisition of the infant. This Unit will explain that the interactions children have with caregivers in their early years will profoundly affect their language behaviour and development. From the time a child is born, they are highly motivated, curious and capable learners as they explore their surroundings cognitively and linguistically. It is the caregiver's duty to provide the required motivation that will encourage the infant to develop optimally his aptitude for speech. When the caregiver provides a threat-free relationship, the young learner will feel free to key in into all aspects of growth and development.

When you realize that language competence is one of the most amazing developmental accomplishments of early childhood, then an examination of caregiver language will not be out of place.

2.0 OBJECTIVES

At the end of this Unit, you should be able to do the following:

1. Define what is meant by a caregiver.
2. State the role of caregiver in language acquisition.
3. Explain the importance of caregiver language.
4. Describe some features and characteristics of caregiver language.
5. Exemplify some utterances of Child Directed Speech (CDS).

3.0 MAIN CONTENT

3.1 General Overview

Language development in children remains an important milestone of their personality. Caregiver language has been observed in many languages of the world to be a necessary aspect of the emotional, social and cognitive development in the child's ecology. It thus impacts on children's language development in significant ways. The World Health Organization (2004) explains that "the word *caregiver* denotes people who look after infants or young children". This term is preferred because many young children are not looked

after by their biological mothers. In the Nigerian communal setting, the care of young children is not limited to a person or a child's natural parents. There are many caregivers as relatives, siblings and friends actively participate in taking care of the young ones. When it is time for the child to acquire language, it is tied up closely with the child's experience in relation to the caregiver. The linguistic exposure emanating from the interaction between the child and the caregiver is termed *caregiver language.* Long before the child is able to speak, the caregiver attributes meanings to the utterances, gestures and actions of the infants and responds accordingly. It is the caregiver's concern to extend and complement the child's linguistic capabilities.

Caregiver language has been described in various ways depending on the focus and the function being emphasized. Wikipedia (2012) explains that the term "baby talk" could be used invariably to mean caretaker speech or caregiver language. Other definitions include Infant Directed Speech (IDS), Child–Directed Speech (CDS) and informally as 'motherese'. This is a language in a non-standard form used by adults in talking to toddlers and infants. In other words, caregiver language could be described as a universally understood kind of language which is fashioned for an efficient communication between adult and infant. Have you watched a child less than two years being addressed by a caregiver? Perhaps you yourself have tried to cajole, pet or entice a child using baby talk in a way to get their attention. You will observe that you need to relax your pattern of speech and deliver it in a cooing manner, with raised intonation characterized by simple words and expressions. Through caregiver language, a child increases the pace of language acquisition because such language has been shown to be more effective in getting a child's attention. As children continue to grow, parents who are natural caregivers adapt their speech to suit the child's growing linguistic skills.

You need to take note that when a caregiver gives responsive care and encouragement to the infant, they are ready to develop more confidence and joy in acquiring language. A linguistically deprived child will suffer in their ability to learn a language with reasonable proficiency. Here, you will recall the popular classic Oliver Twist, who was raised in an orphanage without much affection and care. When he dared to ask for more after exhausting his ration of food, he was seriously beaten. Such a hostile attitude of care giving will stifle whatever linguistic creativity a child acquiring language may possess. Basic communication and language development skills are very critical and they lay the foundation for verbal aptitude of toddlers. Nicholas et al (2001) report that the average child from a family of professionals learn 11 million words per year; a child from a working class family hears 6 million words per year and a child from a family receiving welfare benefits hears 3 million words per year.

The implication here is that the caregiver language of the last set has suffered a deficit which will take those children a long time to regain. Sometimes the gap is so wide that it is less likely for these children to ever catch-up with their more advantageous peers.

It is obvious from the illustration above that early language development is sequel to the quality of the social interaction a child has with the caregiver and other peers in his life. Talking to children could be seen as fundamental to language development

because it opens the door for the child to build their linguistic proficiency so that they can independently create their own sentences.

Caregivers often engage in Infant Directed Speech (IDS) during gestures and mimicry. The speech is characterized by demonstration and repetitiousness so that the infant can recognize the necessary requirements for discovering systematic association between sounds and reference (Smith &Yu, 2008).

Vocabulary and gestural social interaction between caregiver and the child is a way to establish better attention and eventual development of language. The moment a caregiver recognizes that a child is responding to their voices by kicking, jerking, cooing and gurgles, they begin taking turns with the child. The caregiver talks, pauses for the child to respond, then speaks again.

Karmiloff and Karmiloff-Smith (2001:48) note that these 'conversations' that are initially one-sided linguistically may actually constitute an important preparation for taking part in later dialogue when the toddler will be capable of using language to replace the primitive kicks and gurgles.

Self-Assessment Exercise

Describe the role of caregiver in language development.

3.2 The Importance of Caregiver Language

You will realise that the role of caregiver language in the language development of a child can not be overemphasised. In this respect, we need to discuss the importance of caregiver language. This is to underscore the assertion that there is a close relationship between a child acquiring language and their caregiver.

Firstly, caregiver language forms an important part of the emotional bonding between parent and child so as to help the child acquire the language without inhibition. Since studies have shown that Infant Directed Speech (IDS) is most preferred by children, caregivers resort to it to further cement their relationship with children under their care.

Secondly, caregiver language enables children to pick words faster than usual. Have you ever wondered how a child with a Mean Length of Utterance (MLU) of 3.2 at 15 months old suddenly began to produce full sentences and countless number of words after a few years later? Mark (2009) asserts that by the age of four months, infants are able to discriminate sounds and even read lips. However, by the time a child reaches age three, he or she will have a vocabulary of approximately 3,000 words.

Moreover, the use of caregiver language ensures more attention on the part of the acquirer. When the caregiver interacts in a slower and more repetitive tone than the one he used in the regular conversation, the cognitive awareness of the child is better enhanced thus sharpening linguistic proficiency.

Caregiver language also triggers off the onset of speech, while contributing to a regular and more stable pattern for language development. It equally serves as a

powerful tool in providing a base for language acquisition. The caregiver-child interaction enables the infant to apply the principles involved to formulate larger words and sentences as they learn to process language.

Studies also reveal that caregiver language increases a child's worth in social partnership. The social situations in which an infant and other peers share the same focus on an object will be rewarding enough to hone them for better interaction. Karoly et al (2005) argue that language and literacy acquisition happens best in the context of caring and attentive relationship which invariably influence other critical components of language development: expressive language, receptive language and social engagement.

The mental development of infants can be aided through the use of caregiver language. This occurs when they process word forms and they remember those words when they need to recall them in future. When caregiver language is used as a priming tool by the children to recognize the faces of caregivers especially when speeches directed at them are accompanied with smiles and friendly gestural postures, their mental awareness increases. Child Directed Speech (CDS) teaches the child the basic structure and functions of language. As the caregiver responds to the infant's babble with meaningless murmurs, the child's cognitive sense develops. Though no logical meaning is attached, the verbal and emotional interaction shows the bidirectional nature of speech and the importance of feedback (Fernard, 1991).

Karoly et al (2005) emphasize that caregivers should model effective interactions and practise basic communication skills: *notice, comment and invite.* They should notice what the child is interested in, comment on the object or activity of interest and invite the child to think and talk about it. When the caregiver demonstrates such an engaging interest in what appeals to the child, the child finds learning to be fun. We, therefore, realize that caregivers language provides children with the clues needed to help them develop their own language skills. Through child Directed speech (CDS) children are given the linguistic tools to help them identify sounds, syllables and finally words and sentences.

Self-Assessment Exercise

Explain the importance of caregiver language.

3.3 The Features and Characteristics of Caregiver Language

Child Directed Speech (CDS) or Caregiver Language is characterised by shortening or simplifying of words. Children like to imitate adults and by so doing love to do things repeatedly. Elgin (2000) reports that children begin to produce familiar sounds of their social environment during language acquisition. Some of you will recall that basic sounds like 'ma', 'da', 'ba', 'fa', are noticeable in the early life of the infant. Celebration and approbation will greet the child's first utterance of 'mama' or 'baba'. Spender (2006) gives an insight into the characteristics of the caregiver language.

1. Lowered speech tempo. This is to create a friendly conversational tone that appeals more to the child for bonding and intimate attention.
2. Clearer articulation. The caregiver should enunciate his word to give a model for the child to imitate.
3. Higher pitch. This equally secures the child's attention as he can get easily distracted.
4. Nouns are used instead of pronouns. Karmiloff & Karmiloff-Smith (2001) exemplify in their studies of a caregiver who interacts with a child as follows:
   "Aren't you a nice baby?"
   "Good GIRL, drink all your Milk."
   "Look, look Doggie. Did you see the Doggie?"
   The caregiver makes sure that the child understands who and what is being referred to. They therefore use proper names instead of pronouns: They also make use of basic vocabulary to encourage the child to learn easily.
5. Concrete references to here and now. The caregiver does this by emphasizing new information through gestures and demonstrations. They call the children's attention in a way to give them special focus e.g. "Look at daddy. He is eating ba-Na-na." The syllabic pronunciation of banana is deliberate to give a child another vocabulary.
6. Use of simple sentence structure. This is a central feature of caregiver language as Child-Directed-Speech must be devoid of any complication. Instead of the caregiver to say "let's go home" we usually get expressions like "Go bye bye."
7. Few incomplete sentences. This is the caregiver style of following the child's pattern of behaviour. Since Child-Directed-Speech reflects developmental nature from one word to two and later to sentence level, it is desirable for the caregiver to encourage the natural flow of the child's language behaviour. Fernald (1991) reports that caregiver language may skip out small words by imitating young children who can make little sense of sentence composition, such as "to" "at" "my" 'so' and 'as' and articles (the, a ,an). A sentence like 'I want you to play your ball' may become 'Daddy wants Dayo to play ball'.
8. Many Repetitions. Children are gifted imitators. Their curiosity to learn is well-endowed such that when a caregiver does anything, the inquisitive child imitates them. This facility can best be used for language development when caregivers frequently repeat words and sentences to sharpen the child's acquisition of language. For example, a sentence like: "that's a bag, Alaba" could be repeated by a follow up "yes, it is a bag" until the child's response is deemed positive by the caregiver.
9. Spenader (2006) also describes some features of caregiver language from one word stage to sentence level. During the one word stage, the child indulges in overextension by generalizing a word inappropriately to other objects with similar characteristics as in 'daddy' used to refer to all men and 'doggy' referring to animals on four legs. The infant at the same time indulges in over-restriction by using a word only for a very specific instance

of the usage as in ‘muffin’ for ‘blackberry muffin’. During the two-word stage, words are strung together as in ‘all broke’,‘all done’ ‘all gone’, ‘want food’, ‘want ball’ ‘mama take’. Shortly after this, the child graduates to telegraphic speech which is the onset of the sentence level. Expressions such as ‘see ball mama’ ‘Push door open’ ‘Good bring book’, etc. dominate the speech repertoire of the child. Please note that the caregiver will always attempt to guide the child to produce meaningful utterances but the development stage of the child will determine how he moves from one caregiver language stage to another. The following exemplifies a typical rapport between a caregiver and a child.

Caregiver	**Child**
Pupu pupu Ade	Pupu Ade
You are a good boy	good boy
I want to pee pee	Peepee
Eat eat food	food
Drink, drink your water	Water/drink water
Take; take your toy	take toy
Bring, bring your ball	bring ball

An interesting feature of the caregiver language is the singing of lullabies and play-songs to convey meaning that is emotional rather than linguistic. However, the acoustic aspects of lullabies are significant enough to assist the child language development. A caregiver in the Yoruba Nigerian setting often sings as follows:

Omo ta lonsukun o	whose child is crying
Omo Ibiloye ni	It is Ibiloye’s child.
Ode mi mo koto	Someone caged me.
O so mi di adie	He treats me like a fowl.
Mo bo mo de	I’m around, I’m here.

The maternal vocalizations above soothe, tickle and alert the child to stop crying and at the same time increase linguistic awareness socially and poetically. Some caregivers substitute a particular word in a sentence with a sound that gives the sense of the word being discussed. Instead of ‘look at the ram’ you can hear ‘look at meh meh’ which is the sound the animal makes. During the sallah festival, many children are thrilled to see many rams being pulled around and you often hear “mummy see meh meh’. The onomatopoeic nature of these words simplifies the language for the infants. These could also be found as ‘moo ‘moo’ in a cow and ‘baa’‘baa’ for sheep.

Pinker (1994) talks of semantic mapping whereby infants could infer the semantic meaning of syntactic categories from the context in which they are heard. For example in a sentence like “the man is patting the cat”, the child should be able to conceptualize what ‘man’ and ‘cat’ mean before he can analyze the sentence grammatically when this is seen in action as demonstrated by the caregiver. Please note that caregiver language is perceived both visually and aurally by the infants. The essence is to assist the child to know that ‘pat’ means caressing a part of the animal’s

body. He would then be able to know that ‘pat is a transitive verb which requires a direct object.

A caregiver may also use language to signal approvals and prohibitions. The mother may praise the child raising her voice ‘bravo’ ‘good boy’ ‘brave’ to express positive feelings by rewarding and encouraging the child. She might also use a deep sound to interrupt and prohibit some bad behaviour displayed by the infant.

Kayami (2001) looks at structure of the caregiver language by describing some as having short and grammatically correct sentences. Examples include:

All dry. All wet
I sit. I shut. No bed
See baby. See pretty
More food. More hot
Mail come. Airplane gone
Bye Bye car. Papa away.

In the same vein Phillips (1973) see Kayami (2001) gives an insight into the vocabulary of the caregiver language in a compendium. This includes:

Blankie	(Blanket)
Dada	(dad, daddy)
Din din	(dinner)
Peepee	(Urinate, penis)
Poo poo	(defecate)
Potty	(toilet)
Sissy	(sister)
Tummy	(stomach)
Wawa	(water)
Wee wee	(urinate)

Diminutives include:

Horsey	-	Horse
Kitty	-	Cat, Kitten
Doggy	-	Dog
Milky	-	Milk

Self-Assessment Exercise:

Illustrate with examples the features and characteristics of caregiver language.

4.0 CONCLUSION

The foregoing has demonstrated the importance of caregiver language in the language behaviour of the child. We have tried to explain that basic communication and language development skills are a crucial part of the foundation for language production which should be formed in the early experiences of an infant. It is these

first building blocks of language that will strengthen the child's experience as a communication partner in their cognitive, social and emotional realities.Caregivers are enjoined to create a linguistically stimulating environment to nurture the onset of language by positive interaction and reinforcement through Child Directed Speech (CDS). In this way children discover easier linguistic patterns and begin to understand word order which later manifests into a deeper understanding of sentence as a whole.

5.0 SUMMARY

In this unit, you learnt that caregiver language is crucial in the child's language acquisition process. You also learnt that Child Directed Speech (CDS) is used by the caregiver to enable the child to process word forms and remember words when asked to recall them in the future. Caregiver language help babies pick up words faster and secure more attention so that they can learn the basic functions and structure of language. When positive interaction occurs between the caregiver and the child, it will be possible to attain high cognitive developments which enhance linguistic competence.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is caregiver language?
2. Explain the importance of caregiver language.
3. Examine the features and characteristics of caregiver language.
4. Discuss the role of interaction in Child Directed Speech (CDS).
5. Provide 10 example of 'baby talk' in your own language.

7.0 REFERENCES/FURTHER READING

Bryant, G. A. & Barret, H. C. (2007), Recognizing Intentions in Infant Directed Speech: Evidence for Universals. *Psychological Science.* 18. 8: 746-751

Elgins, S. H. (2000) The Language Imperative. Cambridge, MA: Perseus Books.

Fernand, A.(1991). Prosody and Focus in Speech to Infants and Adults.*Annals of Child Development*. 8: 43-80.

Karmiloff, K. & Karmiloff-Smith, A. (2001). *Pathways to Language: From Fetus to Adolescent*. Cambridge: Harvard University press.

Karol, L. A., Kilburn, M. R. & Cannon, J. S. (2005*). Early Childhood Intervention*. Santa Monica, C.A.: The Rand.

Kayami, N. (2001). Syntax and vocabulary of mother's speech to young children: Age and sex comparisons. *Child Development*. 44: 182-185.

Mark, P. (2009). Monkey Mother case<http//www.babble.com> retrieved Oct 5, 2012.

Nicholas, H., Ligthbrown, P., & Spada, N. (2001). Recasts as Feedback to Language Learning. *Language learning*. 51,719-785

Pinker, S. (1994). *The Language Instinct: How the Mind create Language*. London: Penguin Books.

Smith, L. B., & Yu, C. (2008). Infants Rapidly learn Word-Referent mappings via Cross Situational Statistics. *Cognition.* 106,333-338

Spenader, J. (2006). Child Language Acquisition. *General Linguistics*. 2: 3-8

World Health Organization. (2004). *The importance of caregiver child interactions for the survival and healthy development of young children.* Geneva: WHO.

UNIT 4 PHONOLOGY, SYNTAX AND SEMANTICS

Contents

1.0 INTRODUCTION

In this unit, we shall look at Phonology, Syntax and Semantics as an integral part of language development. One of the main concerns of Psycholinguistics is to determine what knowledge of language is needed for us to use language and identify the cognitive processes involved in the ordinary use of language. You will realise that a look at the three broad areas of language knowledge will assist us to understand the issues in language processing and production. Phonology is an area in language study which deals with the system of sounds in a particular language while syntax looks at the grammatical arrangement of words within sentences. Semantics, examines the lexical components that form the meanings of words and sentences. Each of these is associated with language development is peculiarly significant ways in humans.

2.0 OBJECTIVES

At the end of this Unit, you should be able to:

1. explain phonology, syntax and semantics and their relationship with one another in language development
2. describe the organs of speech that aid language development
3. state the place and manner of articulation of some consonant sounds
4. appreciate syntactic relationship of sentences in language development
5. explain semantics and the levels of meaning

3.0 MAIN CONTENT

3.1 General Overview

Phonology is used to refer to the sounds and the intonation patterns associated with spoken language. For typically developing children, sensitivity to language form originates in the womb. Golinkoff and Hirshpasek (1999) reveal that the growing foetus can hear a number of sounds generated in the mother's abdomen. As a result of this, infants at birth are already familiar with some of the phonology of their language including its intonation patterns. Young infants are able to discriminate between most of the sounds that are used in language, including those in language to which they have never been exposed.

By about six to seven months a child develops language-like sounds called *babbling.* These are consonant sounds and vowel syllables e.g. tata, dada, mama. Though, babbling seems meaningless it is a significant milestone in phonological development of the child's language. Infants' ability to hear their own vocalization and those of the people around them become increasingly important for speech production.

Phonology is the study of the sound system of language. Perhaps you already know the root word 'phone' from telephone meaning (carrying sound). Other words like microphone, gramophone and xylophone are all related to sound producing items. Phonology will, therefore, be looking at the anatomical and physiological aspects of sound production.

Psycholinguists have described man as the only articulate mammal because he has the apparatus to make the sounds of speech. We learn to speak without knowing much about those organs. However, researchers have shown a detailed understanding of how human body produces the sounds of speech. In phonology, we can see how our lungs breathe out air, produce vibrations in the larynx and with the use of the tongue, teeth and lips, we modify the sounds that translate into speech as shown below:

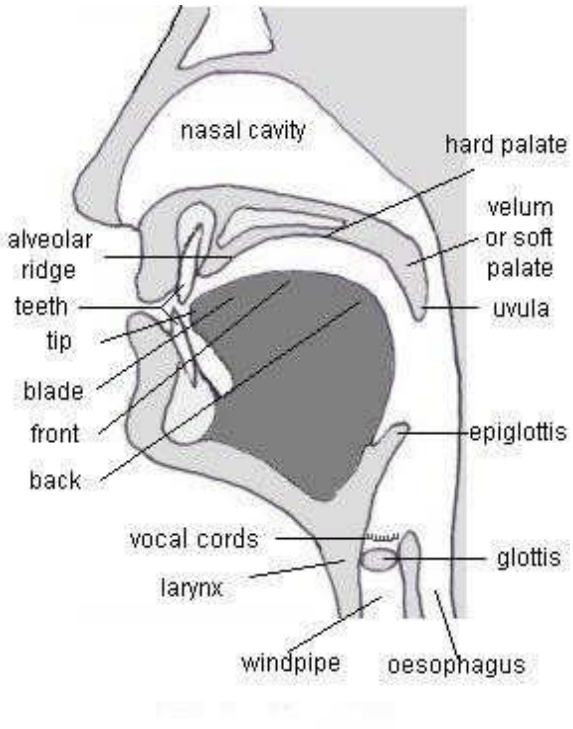


Image credit: Moore (2001)

Snyder and Anderson (2010) hold that speech is a learned system of communication requiring the coordinated use of voice, articulators and language skills. Although many animals are physiologically able to use the voice for communication and convey a wide range of simple messages to other of their species, only humans are able to produce true speech. In a broad sense, speech is synonymous with language.

Roach (1983) argues for the importance of phonology in language study. It gives us an insight into how the human mind works because a man's word is his bond. It also

enables the learner to hear and correct mistakes in such a language while giving us the opportunities to teach the pronunciation of the language to others.

In studying the phonology of any language, we must examine the structure of the segmental phonemes and how they are brought together as meaningful sound units through which the grammar of the language is projected (Jolayemi, 2006).

Let us examine these two sentences:

1. The cat is under the chair.
2. The hat is under the chair.

You notice that the phonemes /k/ and/h/have altered the meaning ascribed to the sentences. These sounds having been realized differently, phonologically, have conveyed different meanings.

Daniel (2011) submits that /t/ can be realized with aspiration, that is, puff of air, in the initial position of a stressed, syllable as in 'tape' but lateralized when followed by a lateral sound as in 'kettle'. However, it is nasalized when close to a nasal sound as in 'kitten'.

In the consideration of syntax, we study the rules that govern the ways in which words are strung together to form phrases, clauses and sentences. Radford (2004) reports that syntax is a word which comes from the Greek. It means "joining of several things together." Later, grammarians adopt it to refer to those principles and rules which teach us to put words together so as to form sentences. For example: "Chike goes to school" is a sentence that abides by the syntactic structure of English. To say,
*"School to Chike goes" will be unacceptable.

A basic sentence in English contains a subject and a predicate. Something or someone which the sentence is talking about is called the *subject.* Therefore Chike is the subject of our sentence above. The predicate contains information about someone or something, that is the subject. In the sentence above, the expression "goes to school" say something about Chike. It is the predicate. In other words, the predicate of a sentence is what remains of the sentence after the subject is taken away. Syntax goes further to talk about grammatical categories called parts of speech. These include; Nouns, adjectives, pronouns, verbs, adverbs, preposition, conjunctions and interjections.

Semantics deals with the study of meaning of word and sentences in a systematic and objective way. It is a complex concept because meaning has different perspectives. The old adage of "one man" food is another man's poison' has a basis in semantics. To spit on someone is derogatory in some cultures but the meaning ascribed to it among some African cultures is that elders bless people when they pray for them by using spit to zeal the prayer.

There are levels of meaning in semantics which help us to categorize them in their proper perspectives. We have conceptual meaning which gives the ordinary

interpretation of word. Secondly, there is connotative meaning which gives additional interpretation to the word expressed.

Self-Assessment Exercise

Explain the relationship between phonology, syntax and semantics in human language development.

3.2 THE SPEECH PHENOMENON

When we speak, we make use of pulmonic egressive air. This is the airstream moving out of our lungs. When such air is expelled; sounds are produced and translated to speech. Sometimes, when we pause to breathe in by using ingressive air, we can only produce quiet speech which is unclear to our listeners.

A young child acquiring language may not produce exactly the same sound used by adults, not because they are not of the correct sound but because their speech organs have not developed fully. They cannot fully control the flow of egressive air so that they will continue speaking rather than purse briefly while drawing more air.

Moore (2001) exemplifies that children may not articulate a word in full or exactly, they can recognise it as an incomplete or mistaken form when an adult says/repeats it back to them.

Adult: What do you want to be when you grow up?

Child: A dowboy.

Adult: So, you want to be a dowboy.

Note here that ‘cowboy’, which contains a consonant sound/k/ is understood by the child to be the correct thing to say but the speech organs are not ripe enough to realize the sound.

A brief discussion of what goes on in the production of speech sounds will be made here. This involves the articulation of vowels and consonant sounds.

English has 12 vowel sounds which are divided into seven short vowels and five long vowels. Vowels are described according to where the production takes places. This could be front, central or back of the mouth and whether the lips are rounded or spread.

The front vowels are: /i: / as in: seek /si:k/, need /ni:d/

/ i/ as in: sick /sik/, wit /wit/

/e/ as in:bet/bet/ net /bet/

/æ/as in: cat /kæt/ man /mæn/

Central vowels are / ə:/ as in: search /sə:tʃ/ girl/gə: l/

/ə/ as in: teacher /ti:tʃə/, clever /klevə/

/ʌ / as in: but /bʌ t/ gut /gʌt/

Back vowels air /u: /as in: cool /ku:l/ blue /blu:/

/u/as in: full /ful/ pull /pul/

/ɔ: / as in: fought /fɔ:t/ court /kɔ:t/

/ɒ / as in: cot /kɒt/ dog /dɒg/

/a: / as in: car /ka: / far /fa: /

This could be diagrammatised thus:

	Front	Central	Back
High	i i:		u u:
Mid	ɛ	ə ə:	ɔ:
Low	æ	ʌ	ɒ a:

Adapted from Moore (2001)

In the production of consonant sounds, there is obstruction of the airstream, which could be partial or total as in /f/ and /p/ respectively.

Here, you will need a mirror to see in your mouth how you realise these two sounds. When /p/ is produced, the flow of air is obstructed by the lips but a different situation access when/f/ is produced. This is due to the fact that the flow of air is partially obstructed by the contact of the lower lip and the upper teeth.

In the phonological classification of consonant sounds, three factors are put into consideration:

1. The place of articulation: This refers to the point in the vocal tract where the air is interrupted for the articulation of a particular consonant sound.
2. Manner of Articulation: This is described according to the degree of obstruction of the air stream whether total or partial.
3. State of Glottis: It is used to show a voiced or voiceless sound. When there is vibration, the consonant sound is voiced and when there is no vibration it is voiceless.

The places of articulation in the production of consonants are:

	Term	**Description**
1.	Bilabial	Involving two lips as in /b/, /p/, /m/ (buy, pie,my).
2	Labio-dental	Lower lip and upper front teeth/f/, /v/ (fun, voodoo).
3.	Dental	Tip of tongue with incisors /θ/, /ð/ (think, though).
4	Alveolar	Tongue tip and alveolar ridge /t/, /d/ (tie, dye).
5.	Palato alveolar	Front part of tongue raised towards the hard palate /ʃ /, /ʤ / (share and jump).
6.	Velar	Back of tongue against soft palate /k/, /g/ (cut, go).
7.	Glottal	Air passes through glottis /h/ (heave, hug).

The manners of articulation are described in this way.

	Term	Description
1.	Plosive	/b/, /p/ total obstruction of air.
2.	Affricate	/tʃ/, /ʤ/ release of air is gradual in the air stream partially obstructed.
3.	Nasal	Air flow through the nasal cavity /m/, /n/.
4.	Fricative	Articulators obstruct the flow of air partially with a frictional noise /h/, /r/.

The state of the Glottis refers to the vocal cords situation when the sounds are produced. This could be voiced or voiceless as explained above:/b/ and /d/are voiced while /p/ and /t/ are voiceless.

You can see from the above that phonology enables us to determine the phonetic realization of sounds of a language in the actual speech. With the use of the articulators, speech sounds become the words of the language. The articulation mechanism comprises the lips, tongue, teeth, palate and jaw. Speech is produced by the interruption or shaping of the vocalized and unvocalised airstream through the movement of the organs of speech. And the acquisition or learning of the sounds of speech of a given language plays an important role in language development.

3.3 Syntax and Semantics

3.3.1 Syntax

Syntax is taken from a Greek word ‘arrange together’. It is the study of those rules that govern the ways in which words are arranged to form phrases clauses and sentences. Chomsky (1965)’s famous sentence “colourless green ideas sleep furiously” though grammatically correct but meaningless is used to demonstrate that the rules governing syntax are distinct from the words conveyed (Radford 2009). In the same vein, Lewis Carroll’s poem ‘Jabberwocky’ contains lines like:

The blithy toves did gyre and gimble.

The blithy toves karulized elastically.

The way words are strung together is English-like even though the words are nonsensical. We however know that the syntax of English will realize ‘toves’ as plural ‘gyre’ ‘gimble and ‘karulized’ as verb and ‘elastically’ as adverb. When the string is altered, the syntactic order will not be English.

In linguistics, you are, therefore, expected to be able to identify each of the constituents in the sentences and to say what category it belongs and the function it serves. These constituents are called word orders, which are combined together to make sentences.

In English, the general word order is Subject Verb Object (SVO) though this varies from language to language. A sentence like:

The boy hit the girl

Subject Verb Object

If you reverse the word order to SOV

*“The girl boy hit the”, the sentence will contravene the syntactic pattern of English and therefore not acceptable.

A typical sentence in the English language consists of a subject and a predicate. While the subject is mostly realized by a noun phrase, the predicate is realized by a verb phrase, e.g.

1. The man (NP) became a doctor. (VP)
2. Her son (NP) speaks Hausa very well. (VP)

Grammatical categories, word class or parts of speech are also identifiable in the English language. These are:

1. Nouns: which names a person, place, things or idea and usually preceded by articles. (Alaba, dog, Lagos, beauty, etc.)
2. Adjectives describe the attributes or qualities of nouns, e.g. great, poor, slow, powerful, etc.

3. Pronouns: The prefix in pronoun ‘pro’ means ‘for’. We can therefore refer to pronoun as a word used instead of noun. When a noun is used repeatedly, it becomes monotonous. Pronouns are used instead. These are, I, you, she, he, they, etc.
4. The verb: - The verb is derived from a Latin word ‘verbrum’ (a word). No sentence can be complete without a finite verb. It is regarded as the most important of the word classes. It is an action word and other word revolve around it e.g. drew, jump, see, etc.
5. The Adverb: This is a modifier which gives more information or meaning about other parts of speech e.g. He talks slowly when provoked. (greatly, wonderfully, etc.)
6. Preposition: This is a word used to show the relationship between nouns or pronouns and other words that they precede in sentences, e.g. The book is on the table. (Under, beside etc.)
7. The conjunction: This is a word that links or joins two words, phrases, clauses or sentence e.g. food and drinks.
8. The interjection: it is an expression of strong feeling or fear, pity or sorrow. Sentences which contain interjections are called exclamatory sentences e.g. What a pity! My goodness! Hurrah!

The acquisition or learning of the syntactic rules and pattern of usage of syntactic structures of a given language also plays an important role in language development.

3.3.2 Semantics

Semantics, derived from a Greek word ‘semantica’ (the study of meaning),. focuses on the relationship between signifiers and what they stand for (cf. Kearns 2000, Wikipedia 2012,). Linguistic semantics is the study of meaning that is used to understand human experience through language. There is interconnection between semantics and other fields of language studies like syntax, morphology and phonology. Within the purview of meaning, sounds, facial expressions and body language have semantic content with different implications.

The meaning of a word cannot be derived from their physical properties but it could be derived from relationship with other words, e.g. the term ‘dog’ in English signifies, Animal +4 legs + barking but this holds true because it is conventional and acceptable to speakers of English. In Yoruba ‘dog’ is named ‘aja’. The question arises “what is doglike about dog? In other parts of the world, people bear names derogatory in our milieu. A former American president called Mr. Bush was at home with such a name but this will be frowned at in many African cultures where they believe that names have psychic implications. Shakespeare once queried: “what is in a name? A rose called by any other name will smell as sweet.”

Fillip (2012) remarks that semantics is the study of meaning expressed by element of a language characterizable as a symbolic element. Through Phonology and syntax, we learn the expressive power of language, but semantics studies the meaning of what is expressed by giving the correct interpretation.

Ogbulogo (2004) submits that semantics is associated with different issues related to

meaning including naming, concepts, sense and reference. While ascribing labels and names for words because they are concrete, the problem of explaining abstract ideas will arise. You can see here that meanings are easy to ascribe to 'bag', 'table' than to 'love' and 'greatness'. These are difficult to explain. When you check your dictionary you will see different shades of meaning e.g. bank (saving money), bank (river side), and bow (showing respect) bow (device for shooting arrow).

Levels of meaning: In semantics, you need to know that meanings are also conceptual or connotative:

1. Conceptual meaning is the primary or denotative meaning of a word. This is the lexical entry you will see in your dictionary. It is not affected by the context or emotional overtones reflected in the utterance. In conceptual meaning, there is a general acceptability of what the term stands for. 'Man' could be signified as Human + male + adult and 'woman' is signified as Human + female + adult.
2. Connotative meaning: refers to how conceptual meaning is coloured to assume a higher meaning different from its ordinary sense.

Alebiosu and Jimoh (2012) exemplify that "my brother is married to a pig" connotes 'a dirty wife', and "the company will fire any lazy workers" connotes 'sack or dismissal'. The language of advertisement is full of connotations. An advertisement in a fuel station which says"put a tiger in your tank" got the attention of more customers than that which says "happy motoring and fast starting".

Ogbulogo (2004) gives the cultural perspective to connotative meaning. If you describe somebody as a 'tortoise' in Yoruba, you mean he is a sly, cunning and tricky person. Hausa will use 'cricket' for the same expression while the western world will use 'the fox' for the same appellation.

Other shades of meaning in semantics are in terms of sense relations. These include synonyms and antonyms. A word is said to be synonymous with another one when a similar word is used to replace it. E.g. good-kind, forbid- prohibit, etc. The English language is rich in synonyms but there are no perfect synonyms. On the other hand, antonyms are words that express the opposite sense of a given word, e.g. big–small, good–bad, etc.

The fact is that the acquisition or learning of semantic rules aids semantic competence that equally plays a significance role in language development.

Self-Assessment Exercise

Give detailed explanation of the levels of meaning in relation to language development.

4.0 CONCLUSION

We have attempted to look at phonology, syntax and semantics and the relationship between them, hinting at their impacts in language development. While phonology deals with the sound system of a particular language and the anatomical and physiological aspect of speech production, syntax is concerned with the arrangement

of words within sentences and their relationship. Semantics talks of the study of meaning of words and sentences. You now know the organs of speech and the areas responsible for production of distinct sounds. You can now also explain how the syntactical pattern of a sentence can affect intelligibility. Semantics has shown you the different shades of meaning and how words could be contextually and culturally determined.

5.0 SUMMARY

Our study of the three main components of language; phonology, syntax and semantics has shown the interconnection between them. In this Unit, we tried to establish that phonology and syntax are concerned with the expressive power of language while semantics studies the meaning of what has been expressed. Language acquisition and language learning must display a good grasp and use of phonological, syntactic and semantic properties of a language before competence and performance can be attained. While knowledge of grammar is essential for cognitive ability the knowledge of the organization and production of sounds including the association of meaning with words give a total linguistic proficiency in the language.

6.0 TUTOR MARKED ASSIGNMENT

1. Explain phonology, syntax, semantics and their relationship.
2. Describe the organs of speech.
3. State the place and manner of articulation of any ten consonant sounds.
4. Name the parts of speech with two examples each.
5. Discuss the levels of meaning in semantics.

7.0 REFERENCES/FURTHER READING

Alebiosu, A. T. & Jimoh, O. Y. (2012*). Improved Use of English and Communication Skills. Lagos:* Newmoon Publishers.

Chomsky, N. (1965). *Aspects of the Theory of Syntax.* Cambridge: MIT press.

Daniel, I. O. (2011). *Introductory Phonetics and Phonology of English.* Newcastle upon Tyne: Cambridge Scholars Publishing.

Filip, A. (2012). *Introduction to Natural language Semantics.* Retrieved on 7th November 2012 http/www, what is semantics?

Golinkaff, R. M. & Hirshpasek, K. (1999). *How baby Talk: the magic and mystery of Language in the first three years of life*. New York: Dutton.

Jolayemi, D. (2006). *The Stress Pattern of Nigerian English: An Empirical Phonological Approach.* Gottengen: CuvillerVelag

Kearns, K. (2000). Semantics. New York: Palgrave Macmillan.

Moore, A.(2001). *Phonology.* Retrieved on 3rd November 2012 from

http//www.shusley.eri/net/armoore/

Ogbulogo, C. (2005). *Concept in Semantics.* Lagos: Sam Ironusasi Publications.

Redfors, A. (2004). *English Syntax: An Introduction.* Cambridge: Cambridge University Press.

Roach, P. (1983). *English Syntax, Phonetics and Phonology*. Cambridge: Cambridge University Press.

Snyder, M.A. & Anderson, P. (2010). *Speech and Speech Disorders.* Microsoft student 2010 DVD Redmond: Microsoft cooperation.

MODULE 4: SPEECH COMPREHENSION

UNIT 1: WHAT IS SPEECH COMPREHENSION?

Contents

1.0 INTRODUCTION

In this unit, we shall examine what speech comprehension is and the processes involved in decoding the meaning of an utterance. When we use language properly and it is well-understood, people are able to communicate and convey information as well as interact among themselves. When we are not able to understand the import of a message we get frustrated and irritable.

After this unit, some of you will better appreciate the response of Casca in Shakespeare's Julius Caesar when asked about what transpired at the capitol when Caesar was thrice offered the crown. "Those that understand him smiled at one another and shook their heads, but for mine own part, it was Greek to me" This statement underscores the importance of speech comprehension in a conversation. It is the interplay of linguistic knowledge and the processes involved in language use that underlie speech comprehension.

2.0 OBJECTIVES

At the end of the Unit, you should be able to perform the following tasks:

1. Explain speech comprehension.
2. See the source of ambiguity in speech.
3. Discuss the process of speech comprehension.
4. Describe the Gricean Cooperative Principle.
5. Detect inferences in speech.

3.0 MAIN CONTENT

3.1 General Overview

In our day to day use of language, we engage in conversations. It important to comprehend what is going onto enable us to achieve the primary goal of conversation, which is understanding the message. As a means of social interaction, conversation is purposely to change each other's mental state. Therefore, successful communication will depend on a great deal of shared knowledge and the ability to access the mental

state of your listener. You need to take into consideration that your referents are available and that your listener will be able to fill the gap of the dialogue.

A speaker who consciously or unconsciously says, 'the Emir of Lagos' or 'Oba of Kano' will be misleading the listener who will detect no referents as such. Lagos has an Oba, Obi is for Onitsha. In the same vein, you cannot have 'the King of France' since there is no monarchical form of government there. You will notice that some premises bear the notice "post no bill". It was reported that a student who did not understand the import of the message could not send his schedule of school fees to his parents. Similarly, a newspaper report that "Radiographers lament increase in cost of Equipment" was misinterpreted as referring to radio engineers. The medical register used to refer to professionals who use X-ray equipment was not correctly processed in the mental lexicon of some of the readers.

Beyond basic sentence processing, psycholinguistic studies in speech comprehension are also concerned with the actual use of language and how sentences are arranged. After a sentence is processed, we store it in the memory combined with other sentences for conversation. In English the same set of words can mean different things when arranged in a different pattern. For example:

1. The senators objected to the plans proposed by the president.
2. The senators proposed the plans objected to by the president.

The two sentences have different meanings even though it is the position of the words 'objected to' and 'proposed' that differs. The difference in the word order leads to the difference in meaning. The words constituting the same sentence will not make sense if rearranged using another structure like:

*Plans to the proposed the senators the objected by president.

In speech comprehension, the working memory is associated with obtaining the basic building blocks of sentence meaning. People usually recall the gist or general meaning of what they have heard but not the surface form. It is only the representation of the meaning that they comprehend and not the exact form of the sentence below.

1. The rich widow is going to give a million dollars to the university.
2. The rich widow is going to give the university a million dollars.

The hearers are interested in the message only but the deep structure of sentence 1 is not the same as the deep structure of sentence 2. If you attempt to replace 'give' with 'donate' only sentence I will be acceptable. This means we can have:

1. The rich widow is going to donate a million dollar to the university.
   It is not grammatical to say:
2. * The rich widow is going to donate the university a million dollars.

When bilinguals are given information in two languages they do not bother to remember which language was used to convey the message as far as the content has been understood. For example, any prayer session in English, Yoruba, Igbo and Hausa

during national emergency is welcomed by all Nigerians once peace is the theme. I‘ve witnessed many social outings where people who have a smattering knowledge of the import of what the speaker is saying just tag along with the majority that understand. Sometimes, Christians join Muslims to say their Arabic Prayer even incoherently just to sustain the social interaction and vice versa.

3.2 Decoding the Meaning of an Utterance

In language processing, comprehension takes place when the attention system becomes engaged. The long term memory is filled with information which will be retrieved quickly with the new linguistic input for rapid comprehension to occur.

The set of possible sentence for a given language is infinite. So, when you know any language, you should be capable of producing an endless set of novel utterances. As you share the knowledge of this language with others in your speech community, people who hear what you say are able to understand you and they in turn should be able to produce the same type of sentences. It is this bi-directional nature of language that underscores speech comprehension.

Ferreira (2005) reveals that language processing is a complex system because processing takes place in a mental workshop that is severely limited in capacity. Most people only retain three to seven unstructured pieces of information before they can relate them in a meaningful way. When we decode the meaning of an utterance, we appreciate how the linguistic system works and interacts with the rest of the cognitive architecture. This is because people understand language at the rate of about 300 words per minute and processing of the lexical retrieval, syntactic passing and semantic interpretation takes place simultaneously in an instant.

A major concern of psycholinguistics as a field in language development is an attempt to explain how listeners understand utterances especially when ambiguity, inferences, ironies and puns are involved. Many of us may know how to speak but it is equally important to know the processes involved in understanding speech.

Let us examine the comprehension of these sentences:

1. Can you close the window?
2. Why not close the window?
3. Will you close the window?
4. Must you close the window?

Even though there is no direct relationship between the form and the intended meaning, listeners will have no problem decoding the meaning of the utterances.

The first sentence if literally interpreted wants to know the ability of the interlocutor to perform the action. But people assume that the speaker is requesting in an indirect manner that the window should be closed. In the second sentence, the speaker wants the window closed but he phrased the request indirectly. In the third sentence, he is questioning the willingness of the interlocutor to close the window while the last sentence wants the window open.

In speech comprehension, we need to examine why these requests are phrased the way the speaker did. There are certain principles governing the use of language in social settings including making excuses, giving apologies, exchanging greetings and the rules of politeness. When we make requests, we are making a demand on someone who may otherwise not be predisposed towards our need. It is therefore incumbent on us to request for their cooperation. Indirect request is more polite than a command like "close the window". The listener who shares the same aspect of the social use of language will comprehend the sentence as a request instead of taking it literally (Carroll, 1994).

Speech comprehension requires more than adding the meaning of the individual words together. We must combine the meaning in a way that respects the grammar of the language and sensitive to the possibility that the language is being used in a metaphoric and non-literal sense (Cacciari & Glucksberg 1994). Psycholinguistic studies have shown that linguistic theories alone are incapable of explaining sentence comprehension and production. There is need to consider the properties of the human mind and the structure of the language.

Treiman et al (2003) exemplified that profound differences could exist in the meanings of some sentences due to the way they are framed:

1. The umpire helped the child to third base.
2. The umpire helped the child on third base.

These are different messages although the sentences differ in just one small word. In the same vein, the following sentences below describe different events.

1. He showed her baby the picture.
2. He showed her the baby picture.

Frazier and Rayer (1982) argued that people sometimes interpret speech by looking for the easy way out. The sentence processor constructs a simple analysis of a sentence and attempt to interpret it as soon as possible. This is called *the garden path theory* where the comprehender takes a simplistic quick understanding of the message until he takes a closer look. For example an ambiguous sentence like, "He greeted the boy in the car", will confuse a comprehender who is being led down a garden path because preference for certain structural relations plays an important role in sentence comprehension. The prepositional phrase "in the car" can modify the noun 'boy' or the verb 'greet'. Disambiguation will only occur when the comprehender places the sentence in its proper context.

Ambiguity has been noticed to be an important source of misinterpretation for many listeners who would not look carefully at the syntactic properties of the sentence. A sentence like "Visiting relatives could be boring" should be appreciated as being capable of double interpretations. Is the speaker complaining about relatives who bore him when they visit? Or does his going to visit relatives constitute boredom?

Likewise, when someone says "We are not teaching machines" Does he mean we are not giving instruction to machines because we teach human beings or we are

not electronic gadgets that teach? Speech comprehension would be effective when the listener takes a cue from the subtext underlying the preceding utterances.

3.3 Speech Processing and Comprehension

Johnson et al (1973) exemplify speech processing and comprehension in a study on how respondents perceive speech report of instrumental inference in speech comprehension. When listeners were given two sentences:

1. He was pounding the nail when……
2. He was looking for the nail when……..

hey responded that they heard the word hammer associated with the first sentence only. However, it is likely the first sentence is framed differently. “He was pounding the nails when it started to rain (note that hammer is not mentioned). The second sentence was “He was looking for the nail when the hammer was stolen”. The first sentence shows that we might infer something about the instrument that was being used because many people associate hammer as the instrument to pound nails. The second sentence might not generate such an inference.

Decoders are always building a representation of the meaning of an utterance through processing of related sentence chunks. Each new sentence is integrated into that growing mental representation. When the sentence is related to the discourse structure, more processing effort will be required to integrate it to the semantic map. Sentences that have been more difficult to integrate or information that is not very related will be more available for recall after the processing is complete (Fernandez& Cairns 2011). Let us consider the following sentences:

1. We went to the zoo and saw different animals.
2. We went to the zoo in a big van.

The relatedness of ‘zoo’ and ‘animals’ is easier and more complete in sentence 1 than ‘zoo’ and ‘van’ in sentence 2.

Wolf (2007) asserts that when people are familiar with something, it is easier to build a semantic representation of the discourse. The more they know about a topic, the easier it will be to make the bridging inferences they need to integrate each sentence into a global representation. This is why advanced courses are often easier than introductory ones.

You will see here that all the topics you are learning in this programme are anchored on what you already know at your lower levels. Your residual knowledge has assisted you in the comprehension of such basic discussion about syntactic order of the English sentence, phonology and semantics. On the other hand, students at the introductory level have nothing to fall back on as they encounter novel terminologies. They are likely to know very little about the topic and they do not have a knowledge base to help them integrate the type of discourse you are already familiar with in your academic context, seminars, conference, readings and lectures. You will notice that

reading the same book or listening to similar lectures at different times of your life leads to different insight.

Fernandez and Cairns (2011) give further insight into the study of speech comprehension. They explain the role of pragmatics in the processing of speech and comprehension. Pragmatic principles are different from those that contribute to grammatical competence. They are concerned with those principles of appropriate use of sentences in discourse. Pragmatic principles govern how people use language to convey more and often different information than that contained in the basic meaning of sentences.

I once witnessed an altercation between two young men and one of them out of anger said “Dayo, don’t annoy me again, I’m from a far place”. The hearer who already knows the import of such a sentence quickly apologized. The Yoruba know that to be from “a far place’ is a ‘cult location’. They also call it ‘omo odo agba’ (child of the elders).Dayo understood that an enemy reported to ‘a far place’ or to elders could be dealt with in a fetish way.

A naive interpreter who thought ‘a far place’ means a distant location would have provoked the speaker more since he would not understand how ‘a far place’ should be part of discourse of dispute. Such linguistic nuances characterized speech processing and comprehension.

Idiomatic expressions like ‘kick the bucket’ ‘pull someone’s leg, ‘cry wolf’are so opaque to comprehend that the hearer must have a shared knowledge of the usage of the expressions before proper comprehension could be effective. Nigerians were amused during the second republic of Shagari regime when a governor embarrassed journalists that asked him to confirm whether it is true that indigenes from his state would now be given bursary award. “Please sir, we want to hear from the horse’s mouth.” He retorted, “Who is a horse?” A politician in Ibadan was also asked why students’ unrest was rampant in Nigeria. His reply was, “How can students rest? They read a lot and engage in all sorts of things.”

The shortcoming of how comprehenders misrepresent the message by the speaker could be overcome if processing involves Grice’ (1975) Cooperative Principle. Grice asserts that conversations sometimes contain a general principle of cooperation which both speaker and hearer must observe if they want comprehension to be effective. According to scholars (eg. Kearns 2000, May et al 2003), the Cooperative Principle is observed in the application of four more specific maxims:

1. The maxim of quantity which states that you should make your contribution during speech to be as much as it is required.
2. The maxim of quality: This holds that you should not say what you believe to be false or talk about what you don’t have enough information.
3. Maxim of relation; you should make your contribution relevant so as not to mislead your hearer.
4. Maxim of manner: you must avoid obscurity or any ambiguity. Be brief and orderly.

The fact is that cognitive orientation to adherence or otherwise to these rules of communication is important in speech processing and comprehension in psycholinguistics.

Self-Assessment Exercise

Explain the cooperative principle and link it with speech the importance of processing and comprehension.

4.0 CONCLUSION

We have discussed what speech comprehension entails and explained that conversation is the primary goals of communication. It is important for the listener to understand what the speaker is saying so that the bidirectional nature of communication can be effective. The unit discussed what happens in decoding the meaning of an utterance and the dynamics of processing speech as a spycholinguistic matter. We also mentioned the place of ambiguity in speech comprehension. Some theories of speech comprehension were examined while the maxims of cooperative principles by Grice offer insight into a better way of making speech comprehension more effective.

5.0 SUMMARY

In this Unit, we looked at what comprehension is and examined the process of decoding the meaning of an utterance. You were told that successful communication depends on both the speaker and the hearer who must ensure that the information being exchanged gets the desired outcome. Speech comprehension is more than the surface expression of utterance. Some shared knowledge and deeper level of understanding are necessary for correct interpretation of the message. You also learnt that decoding ambiguity is an essential part of speech comprehension. The garden path theory where the listener interprets an utterance before taking a close look was explained as incapable of giving you a total comprehension of the message. We explained that a better way of processing utterance is to consider the context and adopt the cooperative principles by Grice (1975).

6.0 TUTOR MARKED ASSIGNMENT

1. Explain speech comprehension.
2. Discuss sources of conflict in understanding speech.
3. What is ambiguity?
4. Distinguish between a request and a command with examples.
5. Discuss the four maxims of cooperative principle and their link with speech processing and comprehension.

7.0 REFERENCES/FURTHER READING

Cacciari, C. & Glucksberg, S. (1994). *Understanding Figurative Language*. San Diego C.A: Academic Press.

Carroll, D. (1994). *Psychology of Language*. London: Brooks Cole Publishing.

Fernandez, E. & Carins, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Ferreira, F. (2005). Psycholinguistics, Formal Grammars and Cognitive Science. *The Linguistic Review* 22, 365-380.

Frazier, L & Rayner, K. (1982). Making and Correcting Errors during Sentence comprehension. *Cognitive Psychology* 14, 178-210

Grice, H.P. (1975). *Logic and Conversation*. New York: Academic press.

Johnson, M, Brandeford, J., Solomon, S (1973). Memory for Tacit Implication of Sentence. *Journal of Experimental Psychology*. 98: 203-5

Kearns, K. (2000). Semantics. New York: Palgrave Macmillan.

May, J.L. Clifton, C. Meyer, A & Wurm, L. (2003). Language Comprehension and Production. *Comprehensive Handbook of Psychology Vol. 4: Experimental Psychology.* New York: John Wiley & sons.

Wolf, M. (2007). *Proust and the Squid: The Story and Science of the Reading Brain.* New York: Harper Collins.

UNIT 2: SPEECH RECOGNITION

Contents

1.0 INTRODUCTION

Speech Recognition is an important area of study in psycholinguistics. It is concerned with how we perceive speech, interpret and then derive meaning from the message. Sometimes, many people confuse Speech Recognition (S. R.) in natural language with Automatic Speech Recognition (A. S. R.) which deals with computational linguistics. It should be clear from the outset that the latter is an offshoot of the former. Automatic Speech Recognition is the translation of spoken words into text or speech to text (STT). Someone reads sections of a text into the speech recognition system which is analyzed, fine-tuned, processed and interpreted to decode a message. Instances are seen in voice dialing and robotized communication system. However, speech recognition in natural language looks at a fundamental problem of how the continuously varying acoustic stimulus produced by a speaker is converted into a sequence of discrete linguistic units by the listener so that the intended message can be understood. This unit will examine the features of speech recognition and explain the various theories and models. You will also learn that despite useful contributions of the various studies by specialists on the field, efforts are still on to actually produce an all-encompassing and empirically more acceptable model of Speech Recognition (S. R.)

2.0 OBJECTIVES

At the end of this unit, you should be able to:

1. define Speech Recognition (S. R.)
2. discuss the features of Speech Recognition
3. describe some Speech Recognition models
4. distinguish between Bottom-up and Top-down information
5. explain the processes of Speech Recognition (S. R.)

3.0 MAIN CONTENT

3.1 General Overview

The ease with which we perceive speech belies the complexity involved. There are cognitive and neural mechanisms at play which enable us to decode the linguistic signal of the speaker as well as information about their identity such as accent, age, gender and emotional state. In speech recognition, there is no one to one relationship between a speech segment and its acoustic qualities.

Wikipedia (2012) explains that Speech Recognition otherwise described as speech perception is the process, by which the sounds of language are heard, interpreted and understood. Studies in the area of speech recognition attempt to explain how human listeners recognize speech sounds and use the information to understand spoken language. Findings from such researches are coded and used to build computer systems that can recognize speech. Results are also helpful to language-impaired listeners and foreign language teachers. Speech recognition begins as a process of perceiving speech at the level of sound signal where the initial auditory signals are processed to extract cues and phonetic information up to word recognition.

Bond (1999) asserts that listeners are faced with a phonetic stream termed the rumble of speech. Because of the continuous, rapid and successive pattern of words, there are assimilations and deletions in the speaker's utterance. Most of the time, the listener needs to untangle the rumble of speech and recover the speaker's intended message. They do this by applying strategies based on their extensive knowledge of the structure of their language. Both speaker and listener are sometimes engaged in other tasks while carrying out conversations. They are often distracted or occupied with their own ideas. Listeners also vary in the amount of attention they pay to speech. Such distractions have been noticed when we talk of 'slips of the ear'. A famous poem which contained lines such as:

> 'They hae slain the Earl of Murray
>
> And laid him on the green'

had the second line wrongly perceived as "And Lady Mondegreen" (Bond 1999).

Aslin and Pisoni (1986) quoted in Pisoni and Renex (2005) proposed that infants come pre-wired with general auditory and processing skills that are then modified selectively by experience and activities in the language learning environment.

Hocket (1958) corroborates that infants at one month are capable of making fine discriminations among a number of distinctive attributes of speech sounds but the course of development of phonetic competence is one characterized by a loss of abilities overtime if specific experience is not forthcoming.

To any casual observer, the speech recognition process often appears to be carried out almost automatically with little conscious effort. However, a complex mechanism is involved. The speech signal is well structured and constrained that even large

distortions can be tolerated without loss of intelligibility. You will see here that sometimes when you get incomplete information you can piece together the missing bit and still get the desired result. Many of us are now familiar with missing text on our mobile phone which often suffers from word loss. However, communication can still be carried out reasonably without much damage. Consider a situation where you receive a text message like this:

"Come … urgently, mama … hospital … money … treatment … bill"

It is evident here that you can easily decode the message because you are already familiar with the nuances and linguistic properties of the English language. The speech signal is not entirely new to you. As a speaker of natural language, the listener has available a good deal of knowledge about the structure of an utterance even before it is over produced (Pisoni, 1976). He identified two reasons why a listener can easily decode the import of an utterance. The first explanation is that the listener knows something about the context in which an utterance is produced. He is aware of the facts, events and all that is related to the world of discourse. All these will be used to generate hypothesis and draw inferences from the little bits of information the speaker gives. Secondly, the listener possesses the knowledge of the phonological, syntactic and semantic structures of the language, which provide the means for constructing an internal representation or recognition of the message.

Self-Assessment Exercise

Explain the role of speech recognition in communication.

3.2 Features of Speech Recognition

Hocket (1958) reveals that human language has a distinctive characteristic that sets it apart from other communication systems. It is symbolic and entails a dual patterning of sound and meaning. It is also grammatical thus allowing the generation of an infinite set of utterances. During the normal course of linguistic communication, we are conscious of the words and sentences spoken to us but rarely note the sounds. Most of the listener's awareness of spoken language is based on meanings not sounds. An utterance consists of a sequence of discrete elements. These are the segments a listener perceives, which are based on the functional sound category of their speech community.

According to Hocket (1958), all morphemes have a complex internal structure, which consists of a sequence of phonemes arranged in a particular order. Differences between morphemes result in differences in meanings which are expressed by variations in the sequencing and arrangement of the constituent phonemes and their features. Consider the following: 'tale' could be re-ordered as 'late' and 'life' could be re-arranged and 'file'. The sequence and arrangement in one order gives a particular meaning and once it is altered, it signals a change in meaning. When people are presented with speech signals, they respond to them as linguistic entitles rather than auditory events. Speech signals are categorized and labelled almost immediately with reference to the listener's linguistic background.

Masoro (1972) in Pisoni (1976) contends that syllables should be the basis of speech recognition. The claim is that phonemes are more abstract entities than syllables because some phonemes cannot exist independently as articulators and acoustic unity whereas syllables can. Phonemes cannot, therefore, be regarded as recognizable units.

Major findings in speech recognition assert that words presented in sentential contexts are more intelligible than the same words presented in isolation. More information than a phonetic sequence is necessary to establish the identity of a phoneme. This implies that there is need for the contribution of syntactic and semantic variables to the speech recognition process. For example, the sound of 'ough' exists in six different realizations in 'cough', 'bough', 'through', though', 'rough' and 'thought'. It will, therefore, be misleading to use the phonemic segment alone for speech recognition.

This corroborates Marslen-Wilson (1975) assertion that the listener analyses the incoming information at all levels of linguistic importance so that decisions at any level can affect processing at other levels. The recognition of connected speech does not rely exclusively on the analysis and recognition of segmental acoustic features.

Fernandez and Cairns (2011) exemplifies that when information is given in abstract sense without contextual clues, it will make no meaning thereby making comprehension difficult. They go further to explain by talking of Bottom-up and Top down information in speech recognition. The bottom-up information gives all the required representation and guides your processing but you still cannot achieve comprehension. For example, you hear your friend say 'baby toy' clearly and unambiguously. You can decode the message at the phonological level and even retrieve it from your lexicon. Yet, in the absence of any contextual clue, it is not meaningful. On the other hand, if you have a baby recently and you are going for shopping and your friend makes a long speech but you can only pick 'baby toy', you only need to add the missing link and still achieve comprehension. This is top down information which is not part of the acoustic signal. When bottom-up information specifies a word or phrase inappropriately or inadequately, the listener is expected to use top-down information to select among a range of possibilities. However, if bottom-up information is adequate top down information will not be necessary.

3.2.1 Levels of Processing in Speech Recognition

Speech Recognition could be seen as a process originating from the lowest level as acoustic waveform to the highest level of conceptual representation of an utterance as a linguistic object. Pisoni (1976) identifies four levels of processing in Speech Recognition. These are:

1. Auditory Level: It is the first stage in speech recognition when the acoustic waveform is transformed or recorded into some neural representation in the nervous system. All the information for speech recognition including the frequency, duration and intensity of the linguistic signals is extracted and coded by the auditory system. The

linguistic information stored in the sensory memory will enable subsequent operations to be carried out to facilitate speech recognition.

2. Phonetic Level: The features and signal required for phonetic classification are obtained from the auditory representations of the acoustic signal. It is at this stage that sounds which represent phonetic segments are perceived in discrete form. The listener will match these representations with what is stored in the long term memory and pick the relevant ones that match the target language.

3. Phonological Level: Here, the listener will convert the linguistic signals in the phonetic segment into phonological segments. The phonological components will give the required information about the sound structure of a given language. Processing at this stage involves the application of phonological rules to the phonetic input to determine the extent to which the phonological segment functions as a distinctive element in the language. It is at this level that linguistic variations at the phonetic level are eliminated and only phonologically distinctive information is coded for further processing.

4. Higher Level Processing: This is the last stage of processing which involves lexical, syntactic and semantic interpretation of the original input. Here, the listener will generate the structure into which the phonological segments are placed and specify the grammatical organization of the input. This information will guide the listener in the correct interpretation of the speech and subsequent word verification processing.

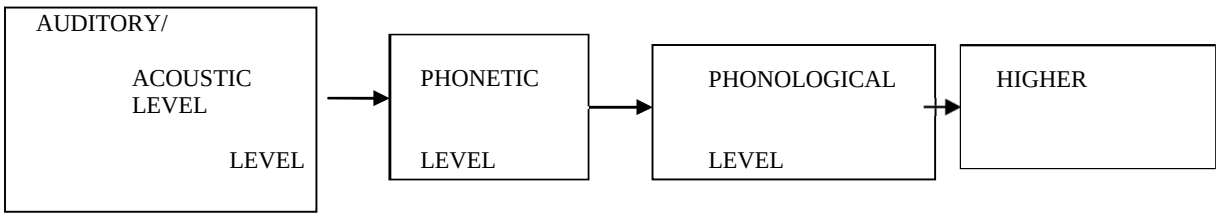


Figure 3: showing the levels of processing in speech recognition

Self-Assessment Exercise

Discuss the features of Speech Recognition.

3.3 Models of Speech Recognition

Though no model is presently acceptable as conclusive in determining what goes on in the Speech Recognition process, some models have been identified as good enough to give us some insight into the mechanism involved in a listener's attempt at speech recognition. A few of them will be examined in our discussion below:

1. The Motor Theory Model: This states that speech can be recognized by processes that are also involved in its production. Liberman et al (1967) argued that since the listener is also a speaker, it is assumed that the speaker-hearer uses only one common process for language processing instead of two independent processes. This theory remains controversial because its evidence is based on logic and faith and not on any strong empirical foundation. Opponents of the model say that the problem of the motor theory rests on the failure to specify the level of analysis, where articulatory knowledge is employed in speech recognition.
2. Trace Model: This model was propounded by McClelland and Elman (1986). It is one of the earlier and popular models based on the principles of interactive activation. The theory argued that all the components of speech recognition like features, phonemes and words have their own role in creating intelligible speech and using TRACE to form them before achieving comprehension. This will enable the listener to complete a stream of speech instead of looking at speech as individual components. The listener uses the model as a framework in which the primary function is to take all the various sources of information found in speech and integrate them to identify single words. Wikiversity (2012) explains that the TRACE model is bi-directional in operation. It allows for either words or phonemes to be derived from a spoken message. By segmenting the individual sounds, phonemes can be determined from spoken words. By combining the phonemes, words can be perceived by the listener.
3. Cohort Model: If you check your dictionary for the word 'cohort', it means group of related items, ally, or associate. Marslen–Wilson (1980) proposes the model as a representation for lexical retrieval. An individual's lexicon is his mental dictionary of all the words they are familiar with. In using the cohort model, a listener maps out auditory information onto words that already exist in their lexicon to interpret new words. Each part of an utterance can be broken down into segments. The listener pays attention to the individual segments and maps these unto pre-existing words in the stock of vocabulary. As more and more segments are identified for recognition, the listener discards those that do not match or ally with the pattern in their mental lexicon. For example, when the listener encounters the word 'English', The listener first recognizes 'En' and begins thinking about words they have in their lexicon which begins with 'En' and all other words following this pattern are considered. These include: 'Engage', 'Engine', 'Engrave', 'Engraft', 'Engross', and 'Engulf'. The next level of processing when the sound 'l' is added leaves the listener with the word 'English', when he has run out of speech segments, which consist of discrete linguistic items that make sense of the representation in his memory. This principle has been adapted in the design of computer search engines like Google, Yahoo, My Web Search and Ask.com. When you decide to search for a word like 'language', the search machine keeps guessing the next segment after your entry of 'lan', it may even suggest other words in its memory like 'land'. When you add 'g' it keeps on accepting such entries in cohort until 'language' is suggested or accepted by either you or the machine. An attempt to input an entry in conflict with words stored in the

memory will be met with “No items match your search”. This implies that your word is not in the cohort.

Apart from those discussed above, there are other emerging models being used to explain speech recognition but not a single one is self-contained. What is important is to consider the aspect of speech and the purpose for you to select a particular model. There are limitations to each model and there are no perfect models for speech recognition. Each model functions in a unique manner and circumstances will determine which one should be adopted.

Self-Assessment Exercise

Discuss any two models of Speech Recognition.

4.0 CONCLUSION

Speech Recognition deals with how the various linguistic segments perceived by the listener can be converted into a meaningful unit so that they can achieve comprehension. Despite the distortions, deletions and omissions involved in the structure of the utterance, the listener will impose a unity by relying on the highly organized pattern of their language and interpret accordingly the phonological, syntactic and semantic variables of the message. The four levels of processing in speech recognition should be noted. These are: Auditory, phonetic, phonological and higher analysis levels. Some theories of speech recognition have been propounded but they are still at the exploratory stages and no single model has been able to account for all that goes on during the process of speech recognition.

5.0 SUMMARY

In this Unit, you learnt about speech recognition as an important feature of comprehension in language development. We have explained that speech recognition involves the processes of hearing, interpreting and comprehending all the sounds produced by the speaker. It is the amalgam of these features into an order that resembles the speech of a given language that constitute speech recognition. You also learnt that speech recognition combines not only the phonetics and the phonology of the speaker’s language but also its syntax and the semantics of the message. Your study in the unit was concluded by examining the features of speech recognition and the four levels of processing. Some models of speech recognition were discussed with a caveat that none could fully explain the mechanism of speech recognition.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is Speech Recognition?
2. Discuss the features of Speech Recognition.
3. Describe the levels involved in the recognition of speech.

4. Explain Bottom-up and Top-down information.

5. Distinguish the Motor Theory Model from the Cohort Model.

7.0 REFERENCES/FURTHER READING

Bond, Z. S. (1999). *Slips of the Ear: Error in the Perception of Speech of Casual Conversation.* San Diego, C. A. Academic Press.

Chomsky, N. & Halle, M (1968*). The Sound Pattern of English*. New York: Harper and Row.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Blackwell.

Liberman, A.M., Cooper, F.S., Shankweiler, D. P., & Studdert-Kennedy, M. (1967). "Perception of the Speech Code". *Psychological Review*74 (6): 431–461

Marslen-Wilson, W. D. (1980). Sentence Perception as an Interactive parallel Process. *Science* 189, 226 – 228.

Pisoni, D. (1976).*Research on Speech Perception.* Bloominton: Indiana University

Pisoni, D. & Remez, R. (2005). *The Handbook on Speech Perception*. Oxford: Blackwell Publishing.

Hocket, C. F. (1958). *A Course in Modern Linguistics*. New York: Macmillan Press.

McClelland, J & Elman, J. (1986). The TRACE Model of Speech Perception. *Cognitive Psychology*. 18, 1 - 86

UNIT 3: PARSING

Contents

1.0 INTRODUCTION

In this Unit, we shall consider parsing as an important process in speech comprehension. Parsing could be described as a form of problem solving language strategy which involves decision making about where to place words and the way these words interrelate within sentences. During parsing, you are expected to assign words in a sentence to their appropriate linguistic categories to allow understanding of what is being conveyed by the speaker. It is essential that the parser obeys the grammatical rules suitable for speech comprehension. It is also important to note that linguistic information by the parser is accessed quickly in both comprehension and production for the goal of effective communication.

2.0 OBJECTIVES

At the end of this Unit, you should be able to:

1. define parsing
2. distinguish the late closure and minimal attachment strategies
3. discuss the features of parsing
4. state the procedures for parsing
5. explain Garden Path Theory in parsing.

3.0 MAIN CONTENT

3.1 General Overview

The overall goal of speech comprehension is for both the encoder and the decoder to understand the message being relayed. Parsing comes in as a strategy to assist in the production and comprehension of the message. Carroll (1999) describes parsing as a method of assigning the elements of a sentence into linguistic categories. In considering a sentence like, ‘The boy goes to school’, the parser assigns determiner + Noun+ Verb + preposition phrase. However, parsing goes beyond classification of words into categories. There is also the need to evaluate the meaning of a sentence and

make necessary inference from each word in the sentence. Wikiversity (2012) explains that when a speech is being parsed, each word in a sentence is examined and processed to contribute to the overall meaning and understanding of the sentence as a whole.

The parser must realise that stringing of words together alone cannot give the desired result of a message. There are thematic categorical components when assigned to take on multiple categories that can alter the meaning of a sentence. All these make parsing so complex that we need more than basic grammatical understanding of a word or a sentence to be able to apply it correctly.

Carroll (1999) says the parsing procedure is a form of problem solving and decision making about where to place words. In taking such a decision, the parser must bear two principles in mind.

1. Immediacy principle. This involves taking a decision immediately we encounter a word.
2. Wait and see principle. Here the parser waits for further information before deciding several possible interpretations of the sentence.

Parsing a sentence involves the use of linguistic knowledge of a language to discover the way in which a sentence is structured. The following represents a fragment of the linguistic knowledge of context free formal grammar of the English language.

S NP +VP

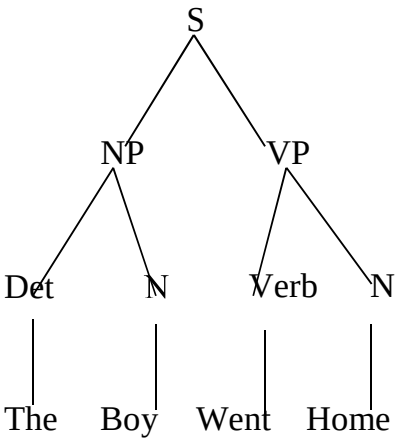
NP Det + N+ Prep

Noun = John, House, bag

Verb = Jump, talk, sleep

Determiner = the, an, a

Schmidt (2012) illustrates the decomposition of a sentence into its components with the parse tree of ‘the boy went home.’



He further argues that intuition alone should not be used to parse a sentence because most of the time our intuition guides us to only one interpretation. A parsing process must consider many different possible interpretations. This is possible if the parser pursues all the possible hypotheses at once. This requires that we make reasonable deductions to enable speech comprehension to be more effective.

Carroll (1999) describes two strategies of parsing in the process of understanding speech. These are the Late Closure Strategy (LCS) and Minimal Attachment Strategy (MAS). In the former, the parser attaches new items to the current constituent because his eye fixations last longer on the latter part of the sentence. For example in "Amina informed that Obi had bought the book yesterday": the adverb 'yesterday' may be attached to the main clause (Amina informed yesterday) or to the subordinate clause (that Obi had bought the book yesterday). Many parsers would prefer the second strategy because it closes up the sentence and their eyes riveted longer on that segment. In the minimal attachment strategy, the parser prefers attaching new items to the phrase marker. In a sentence fragment like, "Mary kissed Jane and her sister..." the parser jumps into a conclusion that both Jane and her sister received a kiss from Mary. No attempt will be made to think of a different way of completing the sentence such as "Mary kissed Jane and her sister became jealous." Parsers prefer the former interpretation because it is quickly decoded (albeit wrongly) and the second sentence requires a new constituent.

Self-Assessment Exercise

Explain the two principles of parsing.

3.2 Features of Parsing.

The parser needs to consider some features to enable him to give a more effective interpretation to the message encountered. These include:

1. Thematic Features
2. Semantic Features.

Thematic Features: These are important linguistic elements to consider because they constitute the most basic understanding of a sentence. The parser needs an initial understanding before any further inferences could be made. When you make a sentence, roles are assigned to every unit in the sentence. These units consist of nouns, verbs adverb, adjectives and other lexico-semantic categories. The thematic features emphasize the lexical information and rely on semantic interpretation of the word in the sentence for parsing to be successful and make for speech comprehension

Christianson (2001), quoted in Wikiversity, says the knowledge of these features allows the linkage and coordination of both the semantic and discourse information as well as lexical and syntactic information.

Semantic Features: The examination of thematic roles may not be enough to parse a sentence because semantic features are affiliated with a particular idea. While the theme of a message is concerned with the general gist that gives a clue to the

discourse level, it is not actually so with a semantic unit which gives a specific interpretation to the idea. For example, when we talk of fruit, a lot of ideas on different types come up in one mental lexicon until we specify whether it is orange, mango or pawpaw. When we mention 'bird' in a discourse, we get different ideas like 'flying', 'feather', 'hooting' and 'pecking' because they are semantic features related to birds.

During parsing, these semantic features are used to describe inferences about the meaning of a sentence. An idiom such as 'pull someone's leg' means the parser knows it is semantically associated with teasing and that there is nothing like a leg being pulled. The reader or listener can only understand the sentence correctly when they are familiar with the idiom.

Sometimes, the semantic features may not be obvious but parsing relies on association with other words to get the correct meaning. When we see a newspaper headline like "Eko 2012: Rivers leads Medal Table as reported in the Daily sun of 29th November,2012, a parser will feel that the use of singular verb 'leads' is wrong because he assumes 'Rivers' is a plural noun. But when he reads further, it will be revealed to him that 'Rivers' refers to a state in Nigeria and it is a singular noun which must take a singular verb. The context is the ongoing national sports festival in which Rivers state comes first.

When we know the overall meaning and association in a sentence, we understand the content better and faster and the time taken to parse decreases. However when we associate wrong inferences with some expressions the semantic import may be misleading. For example in a 'spot the error' exercise for my students, they cannot see that "He committed suicide twice before he died" is semantically faulty. Some rewrote the sentence as "He committed suicide twice before dying" and others say "He committed suicide twice before his death". The focus of the exercise is to teach the parser that the victim cannot die twice and the word assigned should not be 'committed' but 'attempted'. The sentence should be correctly parsed as, "He attempted suicide twice before he died".

Some theories have been used to explain why the parser sometimes fall victim of the problems encountered during parsing. One of them is the Garden Path Theory. The garden path theory is a metaphorical expression used to explain incorrect assumption that people make when they parse words together. During passing, the reader makes mistakes about the context of the noun phrase and is not aware they are being led down through the wrong path. A sentence which begins in one syntactic structure suddenly gets new information being added to it. The new information causes confusion and the reader enters the 'rabbit hole'. For example in parsing a sentence like "Old men and women are invited to the party." the parser decides that "Old men and old women are invited" but a new information was added later to show that the women mentioned are not old because the adjective 'old' may qualify either 'men' or 'women'.

Self-Assessment Exercise

Distinguish between Thematic and Semantic features.

3.3 Procedure in Parsing

The parser has been described as a structural processor (Fernandez& Cairns 2011). He tries to restructure the structure of a sentence to make speech comprehension very effective. The concern of the parser includes reviewing the basic operation of the syntax in three major ways:

1. By creating a basic structure
2. By combining simple units of the sentence with the complex ones
3. By moving elements within the sentence from one structural position to another.

Parsing involves the identification of the basic components of sentence like subject, predicate, preposition, clauses, phrases, etc. by dismantling and reordering them appropriately. The parser must detect the linguistic elements that are moved and link them up to any gap left behind in their original structural positions.

Miller and Selfridge's (1950) experiment shows that unstructured set of words were much harder to recall than structured ones. This shows that syntactic structure is psychologically real. In a sentence like; "*The old man who came here was very happy to see everybody"* we observed that recalling the string of words is easy because the words are related to each other syntactically. It is a different situation when we have another sentence like:*"*"*Time well see ball talk before jump food bread Lagos to great."* With the admixture of grammatical categories in wrong positions, recall is very difficult. We can conclude here that if you listen to the two sets of utterances comprising twelve words each, it will be easier to recall sentence I than to recall sentence 2. This is because while sentence 1 is syntactically well-formed, sentence 2 is syntactically flawed.

A good example of the role of parsing in speech comprehension is Lewis Carroll's opening verse in the poem 'Jabberwocky':

T'wasBrilling and theslithytoves

Did gyre and gimble in the wabe

All mimsy were the borogoves

And the mome raths outgrabe.

We have no problem computing the syntactic relationship in the above poem even when the idea described makes no sense due to, the use of pseudo words. The first clause contains subject N.P 'toves' while 'gyre' and 'gimble' are realized as verbs. We can easily categorize'in the wabe' as a prepositional phrase giving the location of 'toves' as they 'gyred and gimbled' (possibly dancing and singing)

In sentence parsing, a clause is an important segment which corresponds to manageable units for storage in working memory for cognitive processing. A clause consists of a verb and its noun element. A sentence can include an independent clause and one or more subordinate clauses. Each clause corresponds to an integrated representation of meaning and an integrated representation of structure. We can therefore regard clauses as reasonable elements in the parsing of sentences.

In a sentence like 'Ngozi knows the girls next door' the parser's job is simple because only one independent clause is present. However another sentence like "Ngozi knows the girls are naughty" presents a greater task for the parser. This is a complex sentence with an independent clause "Ngozi knows" (something) and a sentential complement "the girls are naughty." This creates difficulty for the parser because of the absence of clause boundary marker like 'that', 'who' as in "Ngozi knows that the girls are naughty". Sentence with marked closed boundaries incur less psychological processing than do sentences with unmarked closed boundaries (Fernandez & Cairns 2011).

Self-Assessment Exercise

Explain the procedure for parsing.

4.0 CONCLUSION:

This unit examined parsing as an important aspect of speech comprehension. In the process of understanding speech, parsing comes in to enable the parser to consider all the essential segment of the message. A good parser will be able to grasp all the thematic and semantic features of speech before taking decision where to assign the elements into appropriate linguistic categories.

5.0 SUMMARY

In this Unit, you were told that parsing is a problem solving strategy which enables the parser to take decisions before assigning words and sentences into appropriate linguistic categories for the ultimate goal of speech comprehension. Two principles are to be borne in mind for parsing to be effective. These are immediate principles and wait and see principle. You were also informed about features of parsing whereby considerations should be given to thematic and semantic features to assist in the correct strategy of speech comprehension. The unit also mentioned the procedure for parsing to give you an underpinning as to how to avoid falling into the rabbit hole.

6.0 TUTOR MARKED ASSIGNMENT

1. Explain parsing.
2. Discuss the Garden Path Theory.
3. Examine the procedure for parsing.
4. Distinguish between thematic and semantic features.
5. Describe Minimal attachment strategy.

7.0 REFERENCES/FURTHER READING

Asheraft, M. H. & Klein, R. H. (2006).*Cognition*. Toronto: Pearson Canada.

Carroll, D. (1999). *Psychology of Language*. London: Brooks Cole Publishing.

Fernandez, E. & Cairns, H. (2011).*Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Ferreira, F & Patson, N. D. (2007). The "Good enough" Approach to Language Comprehension. *Language and Linguistics Compass*, 1, 71-83.

Miller, G. A. & Selfridge, J. A. (1950). Verbal Context and the Recall of Meaningful Material. *American Journal of Psychology* 63:176-85.

Schmidt, C. (2012). *Understanding, Interpreting and Remembering Events*. Retrieved on November 9 2012 from https//www.parsing.html.

Wikiversity. (2012). *Psycholinguistics/Parsing*. Retrieved on 5th Nov. 2012 from http://en.wikiversity.org/w/index.

UNIT 4: INTERPRETATION

Contents

1.0 INTRODUCTION

In this unit, we will explain interpretation as an integral part of speech comprehension. We shall see how any speech process that is fully understood enhances communicative competence and how the reverse can lead to breakdown in communication. When a message is given the hearer needs to reconstruct the structural units that convey the intended meaning and use their knowledge of the language to decode the correct interpretation. Where the hearer lacks the linguistic knowledge to interpret appropriately a given message, they would be unable to perceive anything other than a disjointed and indecipherable string of words. The unit will further give us an insight into age-related process of interpretation. Studies have shown that children interpretation of sentence changes in later childhood. This presupposes that they would have acquired a more mature mental and linguistic cognitive process which will enhance their ability to reconstruct and recreate semantic relationships.

2.0 OBJECTIVES

At the end of this unit, you should be able to demonstrate the following:

1. Explain interpretation.
2. Describe the processes involved in interpretation.
3. Discuss features of speech interpretation.
4. Describe strategies of interpretation.
5. State causes of ambiguity.

3.0 MAIN CONTENT

3.1 General Overview

It is necessary at the outset to make some clarification that word interpretation could be misleading to an unwary observer. Some people take it to mean language interpretation which is the facilitating of oral communication between users of

different languages. In this sense an interpreter is taken to be a person who converts a thought or an expression in a source language into an expression with similar meaning in the target language. When this interaction is in the written form, we talk of language translation. For example, we can translate “let the good people come to me” into Yoruba language as “E jeki awon eni rere wa si odo mi.”

In speech comprehension, however, interpretation takes a completely different form. Here, we are concerned with the hearer’s appropriate understanding of a given message when properly decoded as expected by the speaker. The knowledge of the target language is important for a person to reconstruct and be able to give correct interpretation. Without linguistic knowledge, the person who wants to interpret would only look at the assembly of words as a jumble of disorganized sounds. Have you imagined how illiterate people look at written symbols and letters? Even a cheque, valued at one million naira, is of no use to someone who cannot interpret the message on it. An educationist once said that ‘to an unlettered person A is just three sticks!’

According Muller-Lyer (1989), our perception of linguistic representation is based on the stimulus of a speech signal which is species specific to humans. Some animals like dogs and chimpanzees have been trained to be good communicators but they have no knowledge of language. They only respond to commands and signals associated with calling their names. In human beings, we go a step further because interpreting a sentence is varied and complex. Speech comprehension involves organizing the sounds, words and sentences in a structured pattern to make sense. When a collection of words is unstructured, no meaningful interpretation could be ascribed to the message intended. When an encoder just strings words together without a principled system to combine them into sentences and get the idea across, the decoder may not be able to give any useful interpretation of the message.

During interpretation, we need to bear in mind that the meaning of a sentence is a function of the words in the sentence and their structural organisation. However, there should be a clear distinction between linguistic and psycholinguistic processes. When a sentence leaves us with no proper interpretation, we select a preferred one using extra linguistic yardsticks. This is because grammar is blind to plausibility considerations or facts about the real world. Syntactic structures merely create the representations. Psycholinguistic considerations will weigh all the possibilities and make a decision. For example, when an interpreter meets an ambiguous sentence like:

“The man saw the boy with the binoculars”,

they will be confused with the correct interpretation of the sentence. The sentence can be interpreted to mean that the man saw the boy who holds the binoculars or the man uses the binoculars to view a boy. A good interpreter who knows that binoculars aid vision is likely to arrive at the second interpretation which seems more plausible.

In the Nigerian environment, ability to give correct interpretation to a given speech remains an area that has generated much interest to scholars, educationists and the citizenry. When the late chief Obafemi Awolowo made a speech during the secession period of the defunct Biafran republic, it was given many interpretations. He said, “If

by any act of omission or commission, the Eastern regions secedes, the Western region will opt out of the federal republic of Nigeria."

Many people interpreted the statement to mean that Awolowo supported the secession. It took the late Bola Ige who moved the motion at the Western region house of assembly in April 1967 to clear the air as to the correct import of the message. This he explained as follows:

"Only a daft person can read an invitation or encouragement to secede in that speech. Yoruba want to be part of Nigeria unless pushed out or not wanted".

A good interpreter of any speech must be grounded in the total linguistic import of the message being relayed. When the reggae maestro, the late Bob Marley, released an album titled 'No Woman No Cry', male chauvinists interpreted it to be a good life must be led without reliance on any woman because the presence of a woman carries with it a lot of distraction. However, it took Marley himself to give the proper interpretation saying he meant to console a woman in distress by admonishing her not to cry.

A curious dimension was added to the different shades of speech interpretation when one considers a case reported in Lagos State. An inscription warning people: "Don't Urinate Here" went unheeded for a long time. Suddenly a replacement was done saying "Please we need urine here. Kindly donate" Promptly nobody passes urine in that spot again because the interpretation given to such an inscription is that ritualists want to use the urine.

We can, therefore, deduce that interpretation deals with an integrative framework whereby the whole gamut of linguistic, social and psychological considerations must be brought to bear on the correct interpretation of any utterance or message.

Self-Assessment Exercise

Discuss the concept of interpretation in psycholinguistics.

3.2 Features of Speech Interpretation

Fernandez and Cairns (2011) posit that a linguistic representation based on the stimulus of a speech signal requires the hearer to have linguistic competence because they need the knowledge of the language to perceive the phonological representation which will unlock the sequence of words at the syntactic and semantic levels. The processes of understanding a sentence involve a systematic procedure which begins from the organization of sounds which are realized as words graduating to sentences. You know that all these stages derive from the hearer's knowledge of language which takes on the form of mental representation reconstructed indirectly from the physical speech signal.

McDaniel et al (1998) reports that during language acquisition children's interpretation of a sentence changes in later childhood because of increased knowledge about the grammatical characteristic of lexical items and an enhanced ability to create grammatical structures. Let us examine these sentences:

1. John met Mary before the exhibition.
2. John invited Mary to see the exhibition.

It was observed that young children interpret the two sentences to mean Mary will see the exhibition. The adult interpretation, however, is that John will see the exhibition in the first sentence while Mary will see the exhibition in the second sentence. The difference in the interpretation of young children and that of the adult is as a result of higher cognitive processing of the adult. An adult hearer possesses better linguistic knowledge of the properties of verbs and subordinating conjunctions.

In the same vein Trueswell's (2008) experimental studies reveal that children interpret a sentence quickly until more cognitive processing is done before they are inclined to revise it. When they got an instruction such as: "Put the frog on the napkin into the box", a toy frog was quickly put on the napkin because an empty napkin and a box were provided. Adults did not interpret such a sentence in a similar way because they know that 'in the box' superseded 'on the napkin'. When the young children also interpreted "Cut the tree with the leaves", they assume that leaves will be used to cut the tree instead of the adult processing that only the tree with leaves should be cut.

The studies concluded that only in later childhood will children be able to alter their interpretation of such instruction because they have not overcome their 'cognitive impulsivity' which prevents them from revising initial hypothesis about meaning (Fernandez & Cairns, 2011).

However, as children mature in age, the development of cognitive control allows them to be more linguistically flexible in their modification of initial interpretations and thus they will need to reprocess such commands and sentences.

Since the ultimate goal of speech comprehension is to arrive at the correct interpretation of a given message it is important for the hearer to be aware of Grice's Cooperative Principles of relevance in an utterance.

According to Grice (1975), participants in any conversation assume that the other person will abide by the principles of relevance, which states that the information given should be relevant to the matter under discussion. However, a shared knowledge of the issues relating to the conversation will form the basis of relevance. You will appreciate better this feature in the conversation below:

Emma: (talking to his sister) Is papa at home?

Mercy: Music is playing.

On the surface, Mercy's response bears no relevance to the question by Emma. However, Emma can correctly interpret the reply to mean that papa is not around the

house. This is because papa frowns at music being played to disturb the neighbourhood and it is only in his absence that you can hear music being played aloud. The correct interpretation is possible because of the shared knowledge of both participants in the conversation: Emma and Mercy. Any violation of the shared knowledge will engender wrong interpretation of the message.

Self-Assessment Exercise

Explain 'Cognitive impulsivity' in children's interpretation of speech.

3.3 Strategies in Speech Interpretation.

Carroll (1999) identifies Top-Down and Bottom-up processing of interpretation whereby a listener tries to comprehend what the speaker is trying to say. He categorises such processing into four levels. These are:

1. Phonological
2. Lexical
3. Syntactic
4. Discourse

At the phonological level the interpreter identifies the phonemes and syllables contained in the speech while the lexical level is used to retrieve words from the semantic memory. The syntactic level is concerned with the organisation of the word into constituents as the interpreter forms a phrase structure for each incoming sentence. The last level is the discourse interpretation stage where the hearer links the meaning of a given sentence with preceding ones. Sentences at this level are organized into higher order units taking into consideration many factors that will facilitate correct inferences of a given speech.

Bottom-up processing occurs at the lower level to the higher one whereby all of the lower levels of processing operate without influence from the higher one. When the hearer identifies phonemes, it is not affected by the lexical, syntactic and the discourse levels. This processing model has been criticized as inadequate in providing a fully comprehensive account of how we understand language.

The second model termed Top-down processing states that some information at the disposal of the hearer will have influence on how they will process language at the lower levels. For example, when the hearer interprets a sentence, the context may influence the identification of words within that sentence. Speaking more intuitively, a top-down model of processing is one in which the hearer's expectation plays a significant role (Carroll, 1999).

In speech interpretation, the Garden Path strategy also comes into play just like we mentioned in our discussion of parsing. The hearer jumps into wrong perception and comprehension of the message until he gets new information which renders the earlier

one misleading and unacceptable. When they get the correct perception of what the intended message conveys, they abandon the former interpretation.

Fernandez and Cairns (2011) illustrate that a sentence like:

"The two masked men drew their gun and approached the bank but the boat was already moving down the river",

will lead the listener towards a wrong interpretation because 'masked men' 'gun' and 'bank' easily suggests a robbery scene in the mental lexicon of the hearer. The first reaction is to give an incorrect interpretation until the realization comes with the new information about 'boat' and 'river'. The initial assessment of bank as financial institution will be abandoned once the hearer reanalyzes the sentence on the basis of clearer information.

Also, when a listener meets with some ambiguous sentence funny interpretations may result. Let us examine the following sentences:

1. The injection may contain AIDS Virus.
2. If the baby will not take fresh milk, boil it.
3. Nigerian prostitutes appeal to President Jonathan.

It will require careful consideration for the hearer to give the correct interpretation. The first sentence may mean that we should avoid the injection because it is contaminated with AIDS virus. The second interpretation is to embrace the injection as it could prevent AIDS. The second sentence could be taken to mean that the hearer should boil the milk to make the child accept it or they should boil the child! The last sentence gives a funny message that president Jonathan admires Nigerian prostitutes whereas the speaker is saying that the prostitutes are pleading with the presidents to allow their business to thrive.

It is important for any speaker/reader who wishes to make their message to be correctly interpreted to avoid ambiguity and it is equally expected of the hearer/reader to discern the contextual import of the message to make appropriate inferences and deductions for the goal of communication to be achieved.

Self-Assessment Exercise

Examine the strategies involved in the interpretation of speech.

4.0 CONCLUSION

Interpretation in speech comprehension is the key that enables participants in a conversation to achieve the goal of communication. When a message is given the correct interpretation the hearer has displayed linguistic knowledge which shows that they understand that language is not just a string of words. The hearer must possess linguistic and communicative competence to be able to give adequate interpretation of an utterance. It is, however, important to note that the cognitive processes involved in interpretation are varied and complex. The hearer must be wary of the Garden path strategy and discern ambiguities to avoid misrepresentation of a given message.

5.0 SUMMARY

In this Unit, we examined interpretation of speech as an important aspect of language development. We learnt that when a message is correctly interpreted, the goal of communication is easily achieved. On the other hand, an incorrect interpretation of an utterance can evoke severe frustrations and communication breakdown. You also learnt that young children undergo a period of 'cognitive impulsivity' whereby they quickly interpret a sentence as they see it until they re-analyze and discover that it may mean another thing. Adults, on the other hand, are more reflective, taking into consideration many factors before interpreting a message. The Unit mentioned the strategies of interpreting speech as Top-down and Bottom–up processing and explained the Garden path model and the role of ambiguity in speech interpretation.

6.0 TUTOR-MARKED ASSESSMENT

1. Explain speech interpretation.

2. Discuss some features of speech interpretation.

3. Describe Top-down and Bottom-up Processing.

4. What is 'Cognitive Impulsivity' in Children?

5. Write two interpretations of 'I wrote a poem on Niger Bridge.'

7.0 REFERENCES/FURTHER READING

Carroll, D. (1999). *Psychology of Language*. London: Brook Cole Publishing

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Grice, H.P (1975). *Logic and Conversation*. New York: Academic Press.

McDaniel, D., Cairns H. S. & Hsu, J.R. (1990). Control Principles in the Grammars Of Young Children. *Language Acquisition: A journal of Developmental Linguistics*.4:297 -336.

Muller-Lyer, F. C. (1989*). Achiv Fur Physiologic Supply*. 263-70.

Trueswell, J. C. (2008). Using eye movements as a developmental measure within psycholinguistics. *Developmental Psycholinguistics.* 73-96

MODULE 5: SPEECH PRODUCTION

UNIT 1: WHAT DOES SPEECH PRODUCTION ENTAIL?

Contents

1.0 INTRODUCTION

In this unit, we shall look at what it entails to produce speech. You will learn that speech production is a complex exercise which involves a series of distinct operations and representations. These operations occur at the lexical, syntactic, morphological and phonological levels. What is however of great interest to psycholinguistic studies is the effortless ease with which speech production processes occur. This unit will describe the mental and articulatory mechanisms that govern how speakers encode ideas into meaningful sentence which are subsequently realized as utterances that will lead to speech comprehension.

2.0 OBJECTIVES

At the end of the Unit, you should be able to perform the following tasks:

1. Discuss what speech production entails.
2. Explain the mechanism of speech production.
3. Mention the organs of speech production.
4. Distinguish between grammatical encoding and phonetic encoding.
5. Identify the stages of speech production.

3.0 MAIN CONTENT

3.1 General Overview

Many of us do not bother to think about how we generate spoken words. What are the mental and psychological realities that govern the production of speech? Sometimes, when we pause to appreciate that human beings are born talkers; then, it is important to examine the processes involved in the articulation of speech. Even though important language organs like lips, tongue, jaws and the lungs are brought to bear in the complex mechanism involved, we tend to perform the operation spontaneously because speech making is so natural. However, our study of speech

production will help us to understand better how the brain processes information by which we interact with ourselves.

Levelt (1999) reveals that we produce two to three words per second in normal fluent conversation. These words come from a huge repository known as the mental lexicon which contains 50 to 100 thousand words in a normal literate adult. It is remarkable, however, that the biological basis for language production makes words processing inexhaustible through what is psycholinguistically termed recursive mechanism. The expression "The man is good" can be reproduced endlessly through human capacity for creativity in speech production. We can have "We all agree that the man is good." It is also possible to say "My teacher informed us during our lecture that the man is good."

Such an endless way of novel utterances being generated and added to the trigger sentence is a species-specific trait of human speech production.

The high speed and complexity in word production does not make it error free. It is reported that we err once or twice in 1000words. In an average of 40 minutes of talking per day, we will have produced some 50 million word tokens by the time we reach adulthood (Levelt, 1999).

Study on speech production has its basis on psycholinguistic attempt to know the pattern of errors during utterances. When we speak, our intention is to convey a message. The message to be relayed has varied concepts and the mental lexicon is a reservoir of word from which only those needed for the intended message need to be retrieved. These words have syntactic properties which contain morphological and phonological segments. All the distinct linguistic properties will be energized into the articulatory processes for each of the syllables, words, phrases and sentences contained in the utterance.

According to Levelt (1999), the following are the underlying processes of speech production:

1. The speaker selects a word that is semantically and syntactically appropriate.
2. Retrieval of the word phonological properties
3. Rapid syllabification of the words in context
4. Preparation of the corresponding articulatory gestures.

From the foregoing you have now realized that speech production entails a complex but highly organized and systematized operation. It involves the speaker encoding an idea into an utterance. This utterance will carry the information the hearer will use to decode the speech signals by building the linguistic representations that will lead to the recovery of the intended message. The speaker formulates the message into a set of words well-organized to convey meaning which is transformed into intelligible speech using articulatory mechanism. The hearer must reconstruct the intended meaning from the speech produced by the speaker because encoding and decoding are essential mirror images of one another (Fernandez& Cairns 2011).

Self-Assessment Exercise

What does speech production entail?

3.2 The Process of Speech Production

The process of speech production begins when a conversation takes place and participants take turns as they interact. One of them will want to communicate an idea or give some item of information. There is always an initializing procedure known as pre- verbal message because at this point the idea has not yet been cast into linguistic form (Fernandez& Cairns, 2011).

The mental operations followed some steps in turning an idea into a linguistic representation. The process requires that both the speaker and the hearer must share the same lexicon and grammar. The mental representation must be transformed into a speech signal that will be produced fluently at an appropriate rate with correct intonation.

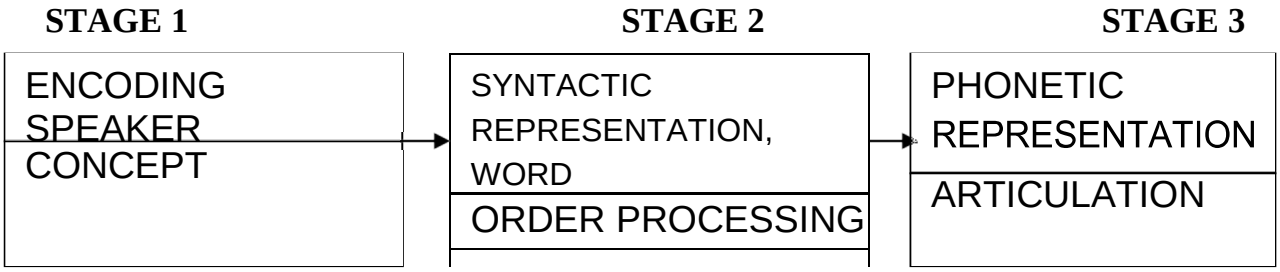


***Figure** 1: Schema showing stages in the production of speech*

Stage 1: Speech production is activated by the idea of a message to be passed by the speaker. This is the conceptualization stage whereby lexical selection takes place. The semantic representation triggers a lexical search for words that best convey the intended meaning. For example, in a sentence like "the boy draws a picture", activation will centre on 'boy' 'draws' and picture'. These concepts came from the mental lexicon of the speaker.

Stage2. For any sentence to be meaningful there must be a systemic link between the string and its structural organization. In other words, a sentence like: "The boy draws a picture." cannot be understood when restructured as *"picture draws boy the" because it has no acceptable pattern of the English grammar. At this stage, the speaker assigns the correct syntactic structure to the word retrieved from the lexicon. Words are arranged into hierarchically organized constituents whereby the subject and its verb must agree in number. Tenses and gender markers must be correct.

Stage 3: This stage creates the phonological representation of the utterance. Here, the utterance is given its phonetic qualities by spelling out the words as phonemes. When the appropriate morphophonological rules have been applied, a final string that will specify the way the sentences will be uttered will be produced. This representation is then translated into instructions to the vocal apparatus from the motor control areas of

the brain. Being a biological operation, neural signals are activated and sent out to the lips, tongue, larynx, mandible and the respiratory system to produce actual speech.

Bock and Levelt (1994) give a broader but similar perspective of the processes of speech production. The first stage is termed *Conceptual Preparation* where the speaker is pre-occupied with the linearization of the information to be expressed. He then decides on what to say first, what next and so on. The next stage is called *Grammatical Encoding* where lexical selection is done and assigned in the correct syntactic order. This is followed by *Morphophonological Encoding* where phonological codes are assigned to the speech produced. When a morpheme is successfully activated, the code becomes available. The fourth stage is described as *Phonetic Encoding* where the corresponding articulatory gesture is prepared. Next is *Articulation* where articulatory gestures are executed by an intricate apparatus consisting of the respiratory system providing the acoustic energy. The last stage termed *Self-Monitoring* is a control stage for speakers to attend to their own overt and internal speech. When errors are detected, which may constitute obstacle to intended communicative effect, speakers can effect corrections and make a repair.

Self-Assessment Exercise

Explain the processes involved in speech production.

3.3 The Mechanism of Speech Production

The psycholinguistic basis of the study of speech production is anchored on the biological foundation of language acquisition. When we produce speech, the mental process and the organs of speech involved interact in a complex and one-to-many relationships. In our study of the mechanism of speech production we shall examine fully that the goal of articulatory movements is to transmit mainly language information through speech. The mechanism of speech production has many levels, from the movement of the organs of speech to the articulation of sound, rhythm and intonation of the utterance.

Contrary to the general assumption, speech production does not start from the lungs. We have mentioned above about concept formation. Our speech begins from the brain.

Belincton (1994.950) quoted in Trujillo (2012) explains that after the creation of the message and the lexico-semantical structure in our mind, we need a representation of the sound sequence and a number of commands, which will be executed by our speech organs to produce the utterance. So we need a phonetic plan and a motor plan.

The physical production of sounds begins with an air-stream released from the lungs, which goes through the trachea and the oral and nasal cavities.

The four processes involved in the mechanism of speech production are:

(1) Initiation
(2) Phonation

(3) Oro-nasal
(4) Articulation

Giegerich (1992) describes the initiation process as the moment when the air is expelled from the lungs as a result of “a pulmonic egressive air-stream.” Although we have cases in some languages where we have ingressive sounds.

The phonation process occurs at the larynx which consists of two horizontal tissues called the vocal cords. These vocal cords are expressed as a simple vibration model and the pitch of the speech changes according to adjustment in the tension of the vocal cords. When the vocal cords close, vibration results in voiced sounds. When they open, the vibration stops and voiceless sounds are produced.

The oro-nasal process involves the passage of the air into the oral or nasal cavity. At this stage it is possible to differentiate the /m/ sound from/n/ in the production which is the most obvious when we produce speech. This takes place in the mouth where we can differentiate most speech sounds. The mouth is a chamber that consists of many organs producing speech. These are the articulators, the lips, teeth, tongue, soft and hard palates. All these make the distinct qualities of the speech we produce because they can be characterized into manner and places of articulation.

Self-Assessment Exercise

Explain the mechanism of speech production

4.0 CONCLUSION

We have tried to look at what it entails to produce speech. We have seen that speech production is a complex but highly systematized operations. It has been shown that human language is information driven. When a speaker attempts to communicate an idea, it is pictured in his mind and he selects the words from his mental lexicon. He then arranges these words to convey a meaningful sentence in an acceptable syntactic pattern. Through the phonetic representation, the speaker transfers the message to his vocal apparatus through which the actual utterance is produced.

5.0 SUMMARY

In this unit, we examined the speech production processes and the mechanism of producing speech. We learnt that encoding of words begins as a preverbal message when an idea that has not been cast into linguistic form is generated. Subsequently, the mental operations will select the lexical items and transform them into correct syntactic patterns. Speech signals are then triggered to incorporate all the phonetic details necessary for actual production.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is pre-verbal message?
2. State Levelt’s underlying processes of speech production.
3. Discuss syntactic representation in speech production.
4. Describe the mechanism of producing speech.

5. Mention some organs of speech production.

7.0 REFERENCES/FURTHER READING

Bock, J.K. & Levelt, W. J. W. (1994). *Language Production: Grammatical Encoding*. New York: Academic Press.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell

Gregerich, H. J. (1992). *English Phonology: An Introduction*. Cambridge: Cambridge University Press.

Levelt, W. J. (1999). 'Models of Word Production' in *Trends in Cognitive Science* Vol. 3, No6 Pp.223-228

Trujillo, F. (2012). The Production of speech sounds retrieved on 20th Novembers, 2012 from http//www.compapp.dcu.ie/Phonetics/process.htm/

UNIT 2: LEXICAL SELECTION AND ASSEMBLAGE OF WORDS

Contents

1.0 INTRODUCTION

In this unit, you will learn further about the complexities involved in the process of speech production. Specifically, we shall look at lexical selection and assemblage of words. Producing a word to express meaning requires the selection of appropriate lexical concepts and the assembly of syntactic framework relevant to the discussion. Though research still continues to determine all that is involved in lexical selection in producing speech, two prominent theories have tried to examine the phenomenon. These are: *cascade selection theory and discrete selection theory*. We will discover the frequency rate of some words and the motivations behind them.

2.0 OBJECTIVES

At the end of the Unit, you should be able to perform the following tasks:

1. Explain lexical selection in speech production.
2. Distinguish between cascade and discrete selection processes.
3. Discuss the three levels of language production.
4. Describe the processes of lexical selection.
5. Give examples of words that are semantically close and semantically far.

3.0 MAIN CONTENT

3.1 General Overview

In the course of speech production, it is important for the speaker to be able to select lexical items corresponding to the intended message. The processes whereby the speaker selects words from the mental lexicon have been labelled under the term lexical selection. During the course of this selection, psycholinguistic studies are concerned with those factors affecting the efficiency and speed with which lexical selection takes place. We are to determine how word frequency can influence lexical selection. A significant problem in lexical selection is how well the concept to be generated matches the desired lexical output.

Griffin and Bock (1998) report that there is no single lexical item in English to describe “son’s wife’s mother” which in Russia is called ‘Svatja’. In the Nigerian setting (Yoruba), kinship terms referring to uncle’s child, sister’s brother, mother’s sister and father’s brother are realized as hyponyms such as ‘brother’, (Iya agba) big mummy’ (Baba agba) big father, etc.

Lexical selection is determined to some extent by the activation level of the target node. This means the higher the activation of a target lexical node at the moment of selection, the easier the retrieval (Dell, 1990). Word frequency and context constraint are quite important in lexical selection.

Words that are high infrequency are processed with greater speed and accuracy than those of low frequency. This is because those words that are more predictable are identified more rapidly and successfully than less predictable words. A speaker’s lexical selection is somehow driven by the thought to be conveyed than by the store of words in his lexicon. During word production, there is need for lexical selection and phonological encoding to express any meaning.

Theories of word production examine the relationship between lexical frequency and word selection including assemblage of words. Retrieving a word during normal speech requires at least two lexically specific steps:

1. Lexical, semantic and syntactic information (meaning/word order)
2. Phonological information (sounds)

Dell et al (1997) corroborate that speech production involves a step in which lexical entries for words called lemmas are selected based on message specification and making grammatical information available. The second step is that in which phonological information is retrieved and assembled. However, the relationship between these two steps is controversial. One school argues that phonological encoding can begin before word selection is completed though the two stages are not mutually exclusive. This is termed the cascade theory (Delletal, 1997). For example, upholstery can be called a ‘couch’ or a ‘sofa’.

The second school posits that selection and phonological encoding takes place in discrete stages (Roelofs, 1992). Word selection precedes phonological encoding with selection completed before encoding begins. There is no influence from activity during lemma selection on phonological encoding. For example, in a picture naming experiment, the word ‘sheep’ was not interfered with even though a phonologically related word ‘sheet’ was presented to the subjects. At no point was there simultaneous sensitivity to both semantically and phonologically related distractors. This is consistent with the idea of independent processing stages. However, it is still debatable to determine the extent to which lexical selection is affected by word frequency in speech production (Ferreira & Griffin, 2003).

3.2 Features of Cascade and Discrete Models

Many studies on lexical selection and assemblage of words tend to agree on the existence of two functional stages described above. However, there are divergent views on the relationship between them. Two prominent theories have emerged: the *cascade lexical selection model* and the *discrete lexical selection model*. These two models have some features that need to be considered.

The discrete model: According to Dell (1997), the following features have been identified as typical of the discrete model of lexical selection:

1. Only one word is activated.
2. The grammatical features are selected prior to word form encoding.
3. Lemmas compete for selection because there are no links of the lexical entries.
4. Effects at different levels should not affect one another.

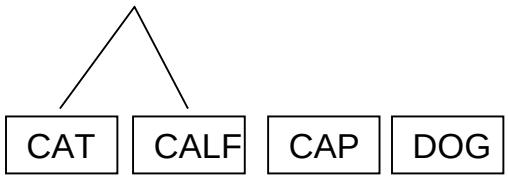
For example, in a picture naming experiment containing the labels:

The frequency rate of retrieving CAT to match the correct picture was high.

The Cascade Model:

1. All active lemmas spread activation to their respective word forms.
2. Word forms also compete for selection.
3. Semantic and phonological effects are predicted to interact.

In the experiment, the word frequency rate was slow because word forms compete for selection e.g.



You are expected to take note here that studies in the area of speech production are not exhaustive and that these models are not mutually exclusive.

Mahon et al (2007), in their experiment, report that frequency of words is determined according to their semantic familiarity or otherwise.

	Picture	Semantically Close	Semantically Far	Unrelated
1.	Bottle	Jar	Saucer	Corn
2.	Dress	Start	Glove	Fence
3.	Cow	Goat	Seal	Pearl
4.	Arrow	Spear	Grenade	Saucer
5.	Stool	Chair	Futon	Caption

3.3 The Processes of Lexical Selection

During speech production, the speaker goes through two processes. The first one is the stage whereby he creates the skeleton of the utterance to be spoken, while the second stage is where he puts flesh to the skeleton. The former is referred to as lexical selection entries in the speaker's vocabulary and assemblage of words while the latter is phonological encoding which is the assembly of sound forms and the generation of intonation (Bock & Levelt, 1994).

A speaker who intends to say "meals on wheels" but says "wheels on meals" usually knows that the lexical selection and the way those words were assembled is faulty. It is, however, through the analysis of speech errors that appropriate lexical selection is determined because it is intended to account for normal speech production model. For example, how do speakers choose the correct words corresponding to intended message?

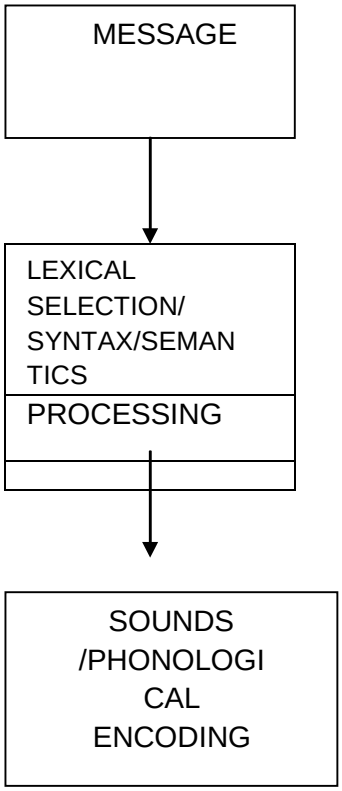


Figure4: Schema showing processes of lexical selection

In Figure 4 above, you can see the three levels of speech production being described. These are the message level, the processing level and the phonological level. The message captures the features from the speaker's intended meaning and provides the raw materials for the processing of lexical selection. The lexical selection level deals with identification of lexical concepts that are suitable for conveying the speaker's meaning. Processing at this level involves the creation of a well-arranged set of word order items and assemblage of words. The third level is phonological encoding which spells out the phonological structure of the utterance and the prosody of the large units.For instance, when you say:

"Ojo will go to Yaba. He will also visit Ikeja." The first step in lexical selection involves identifying the lexical concepts such as form class, nouns pronouns, verbs etc. since Ojo is male, any selection of 'she' for the second sentence will be wrong.

Bock and Levelt (1994) exemplify the process of lexical selection in their explanation of a network model of lexical selection.

First stage: sheep (domestic animals, wool pelt, produce milk)

Second stage: sheep (syntactic property, noun)

Third stage: sheep = (Phonological encoding) /ʃi: p/

This description differs from semantic properties of 'goat' even though the two are animals. Related words that bear similar description may come to mind but there is a distinction between lemmas and lexemes. This could be likened to a situation when you try to remember the name of someone you met before. If wrong names are proposed you ignore them because they will not fit into the mould. As you try to recall someone named 'Musa' people might suggest 'Moses' but you will be able to discern that it does not fill the gap. This implies that appropriate lexical selection must fit the intended message.

Consider the following errors of lexical selection. Where the speakers became conscious of such errors, they attempt to correct them:

"Get out of the clark (car)."

"A branch fell on the tree (roof)."

"He's a man to emanate (emulate)."

"Release the hostages unarmed (unharmed)."

4.0 CONCLUSION

Lexical selection and assemblage of words constitute important aspects of speech production. We were able to learn the complexities that arise in the process of lexical selection and why some words are more frequent than others. Attempt was made to explain the theories of lexical selection and the distinction between the discrete model and the cascade model. You also learnt about the three levels of language production.

We discussed the process of lexical selection and provided examples of errors of lexical selection.

5.0 SUMMARY

When we speak, it is important to select the appropriate words that will best convey the intended message. Lexical selection and assemblage of words is concerned with the study of speech production that provides an insight into the process whereby the speaker selects words from their mental lexicon. The discrete and cascade models also examine the rate of word frequency in lexical selection and conclude that the models are not mutually exclusive. The unit further discusses the processes of lexical selection and exemplifies with the three stages of message, lexical selection processing and phonological encoding.

6.0 TUTOR MARKED ASSIGNMENT

1) What is lexical selection?
2) What are the motivations for word frequency?
3) Explain the processes of lexical selection.
4) Describe the levels of speech production.
5) Give 5 examples of words and their synonyms and antonyms.

7.0 REFERENCES/FURTHER READING

Dell, G. S. (1990) Effects of Frequency and Vocabulary Type on Phonological Speech Errors. *Language and Cognitive Processes* 5, 313-349.

Ferreira, V. S. & Griffin, Z. M. (2003) Phonological Influences on Lexical (mis) Selection. *Psychological Science* 14, 86-90

Roelofs, A. (1992). A Spreading Activation Theory of Lemma Retrieval in Speaking. *Cognition,* 42, 107-142.

Bock, K. Levelt, W. (1994) Language Production: GrammaticalEncoding. In M.A. Gernsbacher (ed), *Handbook of Psycholinguistics* (PP 945-984). New York: Academic Press.

Levelt, W. J. (Ed). (1993*). Lexical Access In speech Production.* Cambridge: Blackwell.

Mahon, B., Costa, A. & Peterson R. (2007) Lexical Selection IsNot by Competition. *Learning, Memory and Cognition.* 3, 503-535

Griffin, Z. M. & Bock, K. (1998) Constraint, Word Frequency and the Relationship between Lexical Processing Levels in Spoken Word Production. *Journal of Memory and Language* 38,313-338.

UNIT 3: THE ‘SLIP OF TONGUE’ PHENOMENON

Contents

1.0 INTRODUCTION

In this unit, we shall learn about the slip of the tongue phenomenon. We shall examine the motivation for the causes of slips and the various types. During our discussion, you will discover that the study of slips otherwise known as speech errors is of importance to psycholinguists because it falls under the category of language production. It will be shown here that slips of the tongue are not random. They are systematic and follow a set of rules which make them a good source of data in language study and development.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define slips of the tongue
- explain how slips occur
- discuss types of slips
- dention five speech errors
- dxamine the importance of slips

3.0 MAIN CONTENT

3.1 General Overview

When a speaker deviates from the correct pattern of an utterance, we talk of slip of the tongue. Such a phenomenon occurs very often in our day to day conversation. Among the Yoruba, they often talk of ‘asiwi’ (mis-statement) and ‘asiso’, (slips). This happens when they say “put clothes on your body” and “cover your body with cloth” (fi aso sara) and (fun ara laso) respectively. When this is the case, we tend to observe that such deviations are involuntary as speakers make effort to correct them once they are conscious of the speech error.

Wikipedia (2012) reports that the term ‘slips of the tongue’ is derived from a Latin expression ‘lapsus linguae’. They are described as conscious or unconscious deviations from the apparent intended form of an utterance which may be spontaneous

or intentional as in puns or word plays. Speech errors are common among children who have not yet refined their speech. Sometimes, slips frequently continue into adulthood thus leading to embarrassment and often betray regional or ethnic origins. For example, in northern Nigeria, it is not uncommon to meet speakers who exchange /f/ for /p/ as in “can I use your fen?” (pen). A typical Igbo speaker who met me when I was just settling down in my new residence at Ayobo-Ipaja, Lagos, talked patronizingly “Oga, come and buy lice” (rice). Likewise, you are likely aware of a popular Fuji musician in Yoruba who alluded to Ibadan people’s speech errors like “kini so? (show), cikin (chicken), etc.

Wang (2012) submits that slips of the tongue occur in the course of information processing in the brain and the production of the utterance. Slips may be conscious when the speaker enters conscious activities the moment the slips occur. The person will perceive the slips and sometimes makes attempt to correct them. Speakers who commit unconscious slips are not aware of such errors and often fail to do any correction. It is the conflict and confusion of concepts during the period of processing information which underlie speech errors.

Carroll (1994) argued that slips are important source of data in psycholinguistic because they have implications for theories of speech production. It is possible to determine the error pattern which can be explained through cognitive and perceptual mechanism acting on linguistic knowledge. This implies that a current language experience may be a source of slip as well as language competence acquired in the past.

Self-Assessment Exercise

Explain slips of the tongue.

3.2 How Slips Occur

Sigmund Freud in (Fromkin, 1973) attempted a psychological explanation of why some speakers commit slips. He described speech errors as a disturbance which could be “as a result of a complicated psychical influence of elements outside the same word, sentence or sequence of spoken words”. Some neurolinguists believe that slips occur when there is a disordering of the hierarchical units of the order of vocal movements in pronouncing the word, the order of words in the sentence or the order of sentences in the paragraph.

Wikipedia (2012) explains that all speakers have a spell of speech errors occasionally. These occur when they are nervous, tired, anxious or intoxicated. During interview sessions, you will observe that even you may not be sure of some utterance which can make you commit slips. I was in a panel one day and one of the candidates gave a different name from the one stated in his curriculum vitae. When queried it was discovered to be his younger brother’s name. Stress session can actually be a cause of slips.

Fromkin (1973) posits that psycholinguistic studies have revealed that slips are non random and predictable. Although it could not be determined when an error will occur

or what the particular error will be, one can predict the kinds of error that will occur. Such predictions are based on our knowledge of the mental grammar utilized by speakers when they produce their utterance. For example, two segments may be transposed as in "Yew Nork" instead of "New York". In some instances, segmental errors can involve vowels as well as consonants e.g. "bud begs' in place of 'bedbugs' etc.

Speech production comes very rapidly and the mechanism involved is very complicated. Through speech errors we can get an insight into the nature of language processing and production. Slips of the tongue provide linguists with empirical evidence for linguistic theories and give opportunities to learn about language competence and performance models Studies on speech errors explain the sequential order of language production processes. We now have clues on how language interaction modules operate. During speech it is now evident that speakers typically plan their utterance ahead but slips come in between competence and performance which is significant psycholinguistically.

Carroll (1986) identifies four features of slips of the tongue:

1. Linguistics elements tend to come from a similar linguistic environment. This means that elements at the initial, middle and final segments interact with one another e.g. "Take my bike." *(bake my bike).
2. Distinctive elements and discrete items which interact with one another tend to be phonetically or semantically similar to one another e.g. consonants exchange with consonants, vowels go with vowels e.g. *"You have hissed my mystery lecturers." (You have missed my history lectures).
3. Slips are consistent with phonological rules of the language e.g. *"I didn't explain clarefully enough." (I didn't explain carefully enough).
4. Stress patterns of slips are consistent. Segments that interact in the utterance received major and minor stress e.g. "burst of beaden' when the target is 'beast of burden'. These features underscore the fact that slips of the tongue are systematic because language production is systematic.

Fernandez and Cairns (2011) assert that words are often organized by their meanings during language processing so that close associates are stored near one another. Slips can give us clues into this meaning based organisation. A word retrieval error somehow results in the selection of semantically and structurally similar word. Instead of "All I want is something for my elbows" you will get ("All I want is something for my shoulders")

(2) "Put the oven on at a very low speed" when the speaker intends to say "put the oven on at a very low temperature."

In each example the speaker has erroneously selected a word that is of the same grammatical class (nouns) and that shares many aspects of meaning with the intended word referred to as the Freudian slips.

Self Assessment Exercise

Discuss the features of slips of the tongue.

3.3 Types of Slips

There are different terminologies and different ways of classifying slips of the tongue. This is because few of them actually fall into one category. They tend to overlap because of the dynamic nature of speech production. The two broad types identifiable are at the phonological and lexical levels. These are further sub-divided into smaller units.

Phonological slips are noticed in the production of the sound segments such as phonetic features, phonemic units, consonant clusters, rhythms and tones. Lexical errors comprise morphemes, words and phrases. If the unit containing the error is the same as that of the target, then we talk of *substitution*. If there is an extra unit in the utterance, we call it *addition* while any omission in the intended utterance is *deletion.*

Wikipedia (2012) reports that one can infer from slips that speakers adhere to a set of linguistic rules. In language production, morphemes are systematically combined with other morphemes and given specific pronunciation. This order governs the occurrence of speech errors e.g. a speaker who tries to say:

(1) "He likes to have his team rested may say (He likes to have his rest teamed). Note that the positions of 'team' and 'rest' contrast with 'rested' and 'teamed'.

(2) Both Kids are sick (both sick are kids).

These rules which tell language users how to produce speech are likely responsible for a systematic pattern of the mental organisation of language. When a speaker engages in substitution, it is one segment substituted in the same category as nouns for nouns, adjectives for adjectives.

The following typology of slips of the tongue has been identified:

	TYPE	DESCRIPTION	EXAMPLE
1.	Substitution	A unit of the sentence contains an intruder.	The queer old dean instead of (the dear old queen).
2.	Deletion	A unit is omitted in the utterance.	He wasn't there (He was there).
3.	Perseveration	An earlier segment reappears in a latter one.	Pulled a tantrum. (pulled a pantrum)
4.	Addition	A new unit is added	The optional number (the moptional

			number).
5.	Swapping	Two words are exchanged	To let the cat out of the bag (to let the house out of the cat)
6.	Shifting	A segment or unit is relocated somewhere else in the utterance.	She decides to hit it. (she decide to hits it).
7.	Anticipation	A later segment is used to replace an earlier one.	Reading list (leading list)
8.	Blending	Where more than one item is untended, two items are fused together	Person/people (perple)
9.	Malapropism	Inappropriate word selection	The two cars collide. (collude)
10.	Spoonerism	Taken from the Rev. W. Spooner noted for puns and word plays	Drink is the curse of the working classes (work is the curse of drinking classes).

Now, you will realize that it is possible to detect some overlapping in the categorization highlighted above. This is not unexpected as features in one segment have a way of being reflected in a similar segment.

Self-Assessment Exercise

Describe any five types of slips with examples.

4.0 CONCLUSION

A slip of the tongue phenomenon has engaged the attention of psycholinguists for a long time. It is an important source of data in our study of speech production and language development. Much is now known about the cognitive procedures involved in metal processing of language. Through speech error, we can now assess better and distinguish between language competence and performance. Such a study will contribute to the establishment of models of speech production. Attempt will also be made to effect corrections where necessary as some slips are made consciously.

5.0 SUMMARY

This unit was preoccupied with the discussion about the slips of tongue phenomenon. We explained to you that they are also called speech errors and they can be conscious or unconscious. You also learnt that slips occur during the course of speech production as the information being processed may suffer conflict and confusion of concepts. It is also possible those speakers who commit slips of thetongue do so because of nervousness, fatigue or stress. Even you will realize that sometimes when you are in the presence of a dignitary, words may fail you and you experience a spell of slips.

However, slips can be categorized into different types with a measure of some overlapping. A segment in substitution in one utterance may feature in another segment in shifting. Your study of slips of the tongue is another way to broaden your knowledge in the exploration and perception of theories of language production.

6.0 TUTOR MARKED ASSIGNMENT

1. What are slips of tongue?
2. Describe the occurrence of slips in speech production.
3. Explain the importance of slips.
4. Discuss the various types of slip, with examples.
5. Examine Carroll's (1986) features of slips.

7.0 REFERENCES/FURTHER READING

Bock, J. K. (1982).Towards A Cognitive Psychology of Syntax. *Psychological Review*. 89: 1-47.

Carroll, D. (1994). *Psychology of Language*. London: Brooks Cole Publishing.

Fernandez, E. & Cairns, H. (2011). *Fundamentals of Psycholinguistics*. West Sussex: Wiley Blackwell.

Fromkin, V. (1973).*Speech Errors as Linguistic Evidence*. The Hague: Mouton.

Levelt, W. J. (1989). *Speaking: From Intention to Articulation*. Cambridge: M.I.T press.

Wang, X. (2012).*On the consciousness of slips of the tongue*retrieved on 1st November, 2012 from http.//Lc.Zju.edu.en/z/juic

UNIT 4: THE HUMAN BRAIN AND THE CAUSES OF APHASIA

Contents

1.0. INTRODUCTION

In this Unit, we shall examine the role of the human brain in speech production and the causes of aphasia. We shall find out about the limitless capacity of the human brain in processing and producing speech and how any serious damage to this vital organ of the body could cause irreparable word loss and language impairment. We will look at the types of aphasia from the mild ones to the serious types and identify the causes of Aphasia. Attempt will also be made to see how Aphasiacs could be helped to enable them to use language to communicate reasonably and manage the unfortunate impediment that confronts them.

2.0 OBJECTIVES

At the end of this Unit, you should be able to

1. Appreciate the role of the human brain in speech production
2. Explain the regions of the human brain responsible for language
3. Discuss the causes of Aphasia
4. State the different types of Aphasia
5. Distinguish between Broca's aphasia and Wernicke's Aphasia.

3.0 MAIN CONTENT

3.1 General Overview

Researches in the realm of the human brain have pre-occupied scientists for ages. Aphasia, 2012: reports of the historical issues in brain and language notes that areas of concern in this respect include:

1. Localization: Where is language?
2. Innateness: How did it get there?
3. Domain specificity: Is language special?
4. Is language separable from speech?
5. Is language essential for humanity?

6. How many forms can language take?
7. Can language disorder be cured?

These and other unexplored areas continue to be of interest to linguists, psychologists, sociologists, neurologists and psycholinguists. The human brain has been described as one of the marvels of creations. It is so outstanding that every second, millions of information pour into your brain from various sources. It is wonderful to imagine how you handle all these with ease.

Studies are still being carried out to determine how the human brain processes language and all that goes on in the production of speech. Findings reveal that what is known is little compared to what is still unknown. A flurry of activities goes on in our head every second. It is a big thing is a small place.

Encarta (2010) explains that the human brain is more powerful than a supercomputer. It is made of about 100billion nerve cells. The surface of the brain is wrinkled and deep grooves divide it into sections. Your brain is protected by bone called the skull. The human brain has three sections, namely: *the cerebrum, the cerebellum* and *the brain stem.* The cerebrum covers the largest part of the brain and it controls your speech, language and emotion. The auditory and visual nerves are also controlled by the cerebrum. The cerebellum coordinates your movements and gives you a sense of balance, while the brain stem controls your automation and things you carry out without being aware of them like the heart pumping blood, blinking eyelids and reflexes.

Newsmedical (2012) reports that in human beings it is the left hemisphere that usually contains the specialized language areas. The brain acts as the command centre for language and communication which controls both the physical and mental components of speech.

You may want to ask why animals do not speak, even though they have brains like we do. Years ago philosopher like Bouilland explained that we should reply that animals lack suitable external organs and that language phenomenon arose from a more potent cause which is the absence of internal organ, the cerebral centre which dictates and coordinates the complicated movements by which a person expresses the operations of their understanding (Aphasia, 2012).

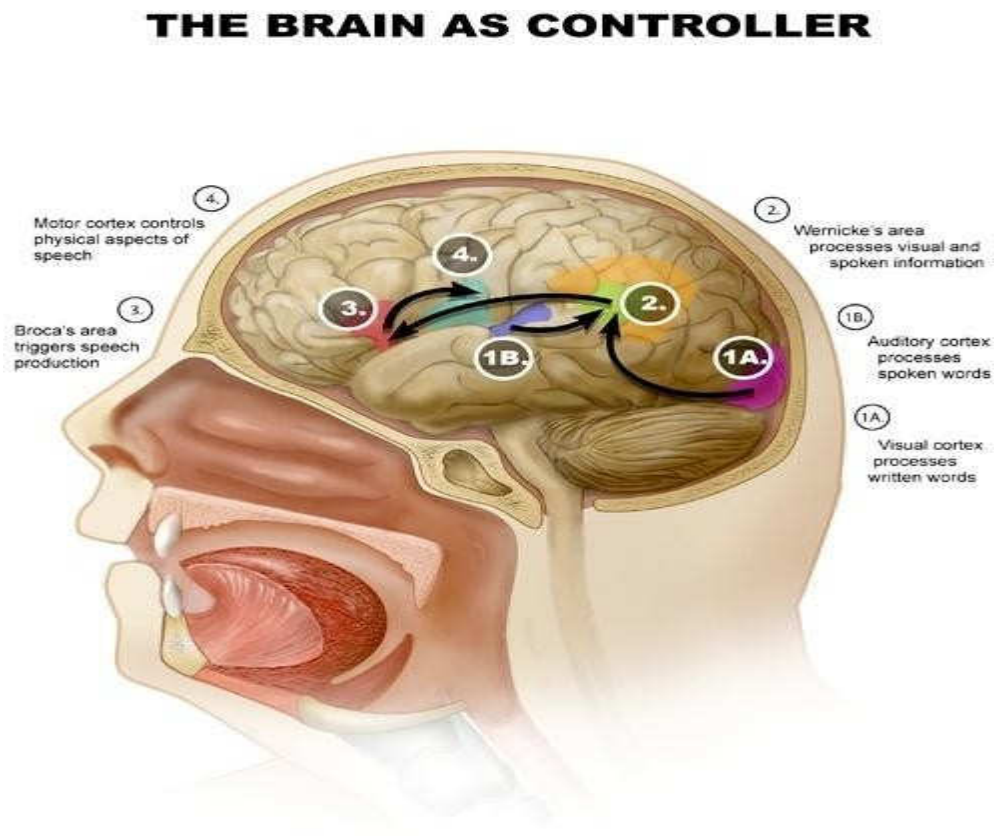


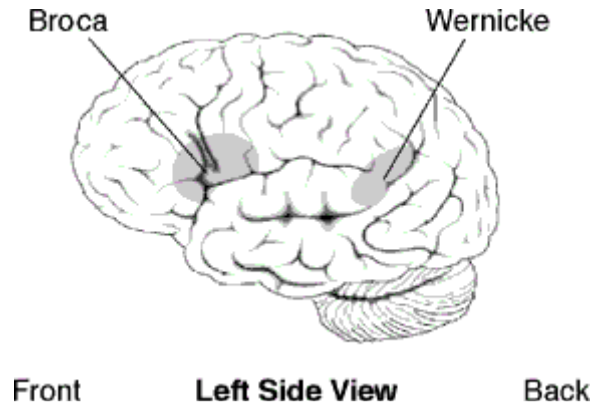
IMAGE CREDIT: Zina Deresky, National Science Foundation.

www.newsmedical.net

An area of great interest in psycholinguistics is the complexity of the human brain and how it understands, accesses, processes and produces language. Researchers have, however, made great strides in identifying the regions of the brain involved in speech. This came accidentally by a French neurologist, Paul Broca, in 1861 when he discovered patients who could understand the spoken language but had difficulty in speaking. He later observed that damage occurred in a certain part of the brain on the left hemisphere known as *Broca's area.*

Thirteen years later, in 1874, a German physician, Carl Wernicke, found patients with fluent speech but severe comprehension problems. A close observation showed that there was damage to another part of the left hemisphere, which later was known as *Wernicke's area.*

These patients with brain damage in specific areas have difficulties with very specific aspects of language and this showed that the human brain is a highly compartmentalized system. Patients who experience damage to Wernicke's area are said to suffer from a disorder called *Wernicke's Aphasia*, which is characterised by the sufferers' ability to produce grammatically correct sentences but often nonsensical and include inverted words. On the other hand, patients who experience damage on the Broca's area are described as suffering from Broca's Aphasia.



Credit: Lingraphica (2012)

Self-Assessment Exercise

Describe the three main parts of the human brain.

3.2 The Causes of Aphasia.

You need to fully understand the term *aphasia* as we try to examine its causes. Lingraphica (2012) defines aphasia as a disorder that results from damage to portions of the brain that are responsible for language. This occurs on the left side (hemisphere) of the brain. Usually this disorder begins suddenly as a result of stroke or head injury but it could also develop slowly if a patient suffers from brain tumor or infection.

Association Internationale Aphasie (2012) reports that Aphasia is a two-syllable word 'a' (non) and 'phasia'(speaking) someone can no longer say what they want to say. Aphasia is as a result of brain damage. The origin of such brain damage is mostly a blood vessel disorder called a stroke cerebral haemorrhage, cerebral infraction or apoplexy. In medical term, this is called Cerebral (brain) Vascular (blood vessel) Accident (CVA). Other causes for the development of aphasia are trauma and injury to the brain as a result of road accident or a brain tumor. Our brains need glucose and oxygen to function. If as a result of CVA, circulation of blood is disrupted, brain cells die in that location. For most people, the area for the use of language is located at the left hemisphere of the brain. When injury occurs in this area, then we speak of aphasia.

A person suffering from aphasia is called an aphasic. Aphasia often impairs the expression and understanding of language as well as reading and writing. The neurological nature of aphasia makes it a very challenging experience as sufferers find it difficult to get their message across. Though aphasia gets in the way of a person's ability to use or understand words, it does not impair the person's intelligence. Please, note that sufferers should be treated with patience and understanding when they have

difficulty in finding the right words to complete their thought. Before you can determine whether a person is an aphasic, please look out for the following symptoms:

1. Is the patient having trouble speaking?
2. Is the patient struggling to find the appropriate term or word?
3. Is the patient using strange or inappropriate expressions in conversation?

Some people who suffer from aphasia have problems understanding what others are saying and this may be due to tiredness or overcrowded environment. Some aphasiacs are known to have difficulty in using numbers and doing simple calculations.

The language disorder experienced by aphasiacs could be diagnosed by a specialist using a series of neurological tests. When the patient is subjected to questions or given some tasks to perform by naming different object and items, the doctor will be able to determine if the person has aphasia. The doctor will also establish the severity of the disorder.

When a case of aphasia has been properly diagnosed it is better managed by a speech therapist who will meet the patient regularly and encourage them to communicate. Sessions will also train the patient in ways to interact without speech commonly called sign language.

Self-Assessment Exercise

Explain the causes of aphasia.

3.3 Types of Aphasia

Psycholinguistic studies have tried to classify aphasia into different types to enable specialists to determine their levels of severity. This is to enable speech therapists to assist sufferers and encourage them in producing speech.

Lingraphica (2012) identified the following types of aphasia:

1. Anomic Aphasia: It is the least severe form of aphasia. Sufferers are unable to use the correct word for the concept they intend to describe. These could be people, objects, places or events. The patients usually understand speech very well but writing ability is poor.

2. Global Aphasia: This occurs from damage to extensive portions of the speech processing areas of the brain. It is described as the most severe of the speech disorders. It occurs immediately after a stroke. The patient loses almost all language functions and has difficulty in understanding as well as in forming words and sentences. The condition is so critical that it is quite difficult to communicate with the individual. They can only produce a few recognizable words understand little or no spoken speech and are unable to read or write.

3. Broca's Aphasia: This is also referred to as *non-fluent or expressive Aphasia.* The patient is able to understand speech and know what they want to say but are not

able to find the words needed to form a complete sentence. Patient's access to vocabulary is restricted and formation of sound is extremely challenging which result in poor speech quality. Broca's aphasics often omit small words such as 'is', 'and' and 'the'. Full length sentences like "I will take the dog for a walk" and "There are two books on the table" may be expressed as "walk dog" and "book book two table". However, the patient has no difficulty in understanding the speech of others fairly well.

4. Wernicke's Aphasia: This is also known as *fluent or receptive aphasia*. The patient experiences serious comprehension difficulties and is unable to grasp the meaning of spoken words. The person will be able to produce fluent connected speech which however will be full of meaningless words that sound like a sentence but make no sense. They tend to add unnecessary words and even create their own as in "You know that smoodle pinkered and that I want to get him round and take care of him like you went before" Instead of "the dog needs to go out, so I will take him for a walk". It is difficult to follow what the patient means. Wernicke's aphasiacs are often unaware of their mistakes and have great difficulties understanding speech.

5. Conduction Aphasia: The patient has difficulty in the connection between the speech comprehension and production areas. This may be due to damage to areas that transmit information between Werincke's areas and Broca's area. Auditory Comprehension is near normal and oral expression is fluent with occasional expression errors leaving the person with poor repetition ability.

6. Primary Progressive Aphasia (PPA): This is described as a rare degenerative brain and nervous system disorder which makes speech and language skills decline overtime. Sufferers have problem in naming objects. They also misuse word endings, verb tenses, conjunctions and pronouns. PPA is a progressive type of speech loss in which the frontal and temporal lobes of the brain shrink.

The classification above could not be said to be mutually exclusive as they are bound to overlap depending on the region of the brain affected by the injury and the extent of the damage

APHASIA TAXONOMY AND CHARACTERISTICS

SN	*Type of Aphasia*	*Repetition*	*Naming*	*Auditory Comprehension*	*Fluency*
1	Anomic Aphasia	Mild	Moderate	Mild	Fluent
2	Global Aphasia	Poor	Poor	Poor	Non-fluent
3	Broca's	Mod-severe	Mod-severe	Mild-difficulty	Non-fluent
4	Wernicke's	Mild	Mild	Defective	Fluent
5	Conduction Aphasia	Poor	Poor	Relatively good	Fluent
6	Primary Progressive Aphasia	Moderate	poor	poor	Non-fluent

Becky and Spivey (2008) submit that you should endeavour to help persons suffering from aphasia. They are intelligent and capable of learning like other normal human beings. They therefore need a lot of encouragement. You should try and assist anyone suffering from aphasia in the following ways:

- Strengthen the remaining language skills.
- Find ways to compensate for the skills that are lost.
- Improve memory of object names with pictures and flash cards.
- Learn to interact with them through sign language.
- Simplify your own language by using short, uncomplicated sentences.
- Allow aphasiacs plenty of time to think and speak.
- Avoid correcting the person's speech.
- Encourage any type of communication like gestures, pointing, drawing and using signs.

Self-Assessment Exercise Discuss

any four types of aphasia.

4.0 CONCLUSION

The human brain remains the most complex language processing and producing organ for human beings. This powerful organ is however very sensitive and complicated that any damage or injury to it may lead to language impairment, with severe consequences for the patient. When such injury occurs, a disorder known as *aphasia* may result. We can, however, lessen the suffering of these people by giving them therapy session and showing a lot of understanding in our interaction with them.

5.0SUMMARY

In this unit, attempt was made to let you know the role of the human brain in language comprehension and production. You also learnt that human brain is a complex but delicate organ capable of storing a wonderful amount of information. However, when an individual suffers an injury or damage to the left hemisphere responsible for processing language, they will lose the ability to speak coherently and experience speech disorder. The unit taught you about different types of aphasia depending on the severity and extent of damage to the brain. It closes by giving you some useful tips to help people who suffer from aphasia.

6.0 TUTOR MARKED ASSIGNMENT

1. Describe the human brain as a complex organ.
2. Explain the regions of the brain involved in speech production.
3. What are the causes of aphasia?
4. State the different types of Aphasia?
5. Suggest some ways to help Aphasiacs.

7.0 REFERENCES/FURTHER READING

Aphasia (2012) retrieved October 10, 2012 from http://cr1.ucsd.edu/courses/aphasia

Association Internationale Aphasie. (2012). *An Overview of Aphasia* Retrieved October, 9 2012 from www.aphasia-international.com

Becky, L.& Spivey, M. (2008). *What is Aphasia*? New York: Super Duper Publications.

Dingwali,W.O. (1993).The Biological Basin of Human Communicative Behaviour In J.S. Gleason and B.Ratner (eds*) Psycholinguistics*, 41-88 New York: Harcourt Brace.

Lingraphica. (2012). ‘ Aphasia Defined’ National Institute of Deafness and Other Communication Diseases.

National Institute on Deafness and other Communication Disorder. (2008).*Aphasia.* Bethesda: Clearing House Communications.

Newsmedical (2012*). Language and the Human Brain* retrieved October,10 2012 from www.newsmedical.net.