

LANGUAGE AND THOUGHT: A TWO COIN OF ONE FACE IN BEING AND FUNCTION

Ebeh, John Igbogo Ph.D

Department of Philosophy
Kogi State University Anyigba
Kogi State
ebeh4u@gmail.com

DOI:[10.13140/RG.2.2.21005.15840](https://doi.org/10.13140/RG.2.2.21005.15840)

&

Aleke Matthew

Department of Philosophy
Kogi State University Ayigba
Kogi State
toogood4god@gmail.com

DOI:[10.13140/RG.2.2.21005.15840](https://doi.org/10.13140/RG.2.2.21005.15840)

Abstract

This research focuses on finding out whether language and thought are one and the same mental activity or are they two different entities that does not need each other in their being and functions. Adopting expository and critical analysis methodologies into the interdisciplinary experimental approaches on their relationships, the research submits that language and thought are both genetic and ontologically different from each other but at the same time inseparable from each other in the sense that both needs each other for its being and functions.

Keywords: Language, Thought, Being, Function

Introduction

To find the relationship that exist between language and thought in their being and function is that of finding out the role language plays in thought and vice versa. The question begging for answers are: does language and thought exist interdependent or are they two independent mental faculties that run parallel? While some schools of thoughts are of the view that language and thought are independent of on one another, others are of the view that both of them can only function interdependently. The realist school of thought for instance, held that “a true proposition says that which is and the name (words) is part of the true

proposition if it names an object correctly according to nature"¹, while the protogorian relativism and conventionalism school of thoughts is of the view that "words are nothing but the idea in the mind of the speaker-words indicates the things as well as the ideas"². This problem has received so much attention of scholars from different fields of life. While the non-scientific scholars investigate the problem speculatively, scientists think it is better to face it experimentally. Our concern in this paper is to critically analyze the approaches in both speculative and experimental perspectives to ascertain whether language and thought are one and the same mental activity or two different entities that exist independent of one another.

The Geneticists' Approach

Genetics is the science that study "how living things pass on characteristics (or traits) and its variations in the cell make-up from one generation to the other"³. Genetically, thought and language have different roots. That is to say that language and thought have different origins within an individual. In their ontological development, language and thought have different roots. The two develop along different lines and independent of each other. In the speech development of a child according to Harley, we can with certainty establish a prelinguistic stage, a stage where language is "pre-intellectual" and thought "non-verbal"⁴. Up to a certain point in time, the two follow different lines, interdependent of each other. We find "no specific interdependence between the genetic roots of thought and language"⁵. At a certain point "these lines meet (language and thought) whereupon thought becomes verbal and speech rational. Although thought and language have different genetic origins, the two function interdependently in a normal rational being"⁶. The close correspondence between thought and speech is unique characteristics of human being. It is not only thought that language influences but the whole of human consciousness. In cognitive exercise, "words play central part not only in development of thought

¹ Plato, *Cratylus*, 384-385.

² G. W. Leibniz, *New Essay on Human Understanding*, Ed. P. Remnant and J. Bennett (Cambridge: Cambridge University Press, 1996), 285.

³M. Ananya, *What is Genetics?* Available (online): <https://www.news-medical.net> > Accessed March 19, 2018,

⁴ W. G. Hardy, *Language, Thought, and Experience: A Tapestry of the Dimensions of meaning*. (Baltimore: University Park Press, 1978), 339.

⁵ L. S. Vygotsky, *Language and Thought*, 119.

⁶ Ibid.

but in the historical growth of consciousness”⁷. Complementing the geneticist view on the indispensability of language and thought Vygotsky states:

... it is in word meaning that thought and speech unite into verbal thought. In meaning, then, the answer to our question about the relationship between thought and speech can be found. A word without meaning is an empty sound, no longer part of human speech.... Word meaning is both thought and speech⁸

Thought and language having different and independent genetic roots are not connected by a primary bound. A connection originates changes and grows in the course of the evolution of thinking and speech. He (Vygotsky) maintains that “it would be wrong . . . to regard thought and speech as two unrelated process. The absence of a primary bound does not mean that a connection between them can be formed only in a mechanical way”⁹.

The clear point the geneticists established in their experiment is that in a normal healthy person, language and thought are ontologically and functionally inseparable. A healthy person thinks in concepts. Word (language) serves important function in the formation of concepts. “A concept emerges only when the abstracted traits are synthesized anew and the resulting abstract synthesis becomes the main instrument of thought. The decisive role in this process . . . is played by the word, (language) deliberately used to direct all parts process of concept formation”¹⁰.

Both language and thought form an internal interdependence which strikes us when we try to examine the meaning of word or attach some meaning to our thought. A thoughtless word has no meaning, just as a wordless thought is but a confused fluid. “The interdependency of language and thought is a living process: thought is born through words. A word devoid of thought is a dead thing and thought unembodied in words remains a shadow”¹¹. A thought without language is an empty mental wandering.

⁷ Ibid, 153.

⁸ Ibid, 154.

⁹ L. S. Vygotsky. *Language and Thought*, 119 - 120

¹⁰ Ibid, 152

¹¹ W. G. Hardy, *Language, Thought, and Experience: A Tapestry of the Dimensions of meaning.*, 267

The Phenomenologists' Approach

Phenomenology is a method of enquiry which is based on the premise "that reality consists of objects as they are perceived or understood in the human consciousness and not anything independent of human consciousness"¹². The phenomenologists investigations on the relationship between language and thought Championed by the experiment of Benjamin Lee Whorf and Edward Sapir were of the view that "the structure of human languages influences the manner in which he reflects reality and behaves in respect to it"¹³. The structure of our language, according to this principle "affects the way we remember things and our world views".¹⁴ The 'habitual thought' of a speaker of language is constrained by his linguistic structure. Thus, his view of time, space or casual process would differ significantly from those of the speaker of other languages. According to Edward Sapir and Benjamin Lee Whorf:

It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the "real world" is to a large extent unconsciously built up on the language habit of the group We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation.¹⁵

Whorf and Sapir who travelled across different cultures analyzing the influence of culture in thought pattern revealed that the differences in languages structure affect deeply our thinking. As language structure affects the structure of thought, in the same way it affects the speaker's way of viewing reality ... his *Weltanschauung* (world view). Nature and languages are believed to be inwardly akin and that is why every culture be it considered as civilized or primitive, there is some belief that language effect some change in reality. For example, there is a

¹² M. Heidegger, *Time and Being*, tr. by J. Glenn Gray.(New Haven: Yale University Press, 1956), 101 -102.

¹³ J. Carroll (ed), *Language, Thought and Reality, selected writings of Benjamin Lee Whorf*. (Cambridge, Massachusetts: The MIT Press, 1956), 23

¹⁴ This has much in common with the structuralism of Levi-Stauss according to which the language and cultural structure of a person determines to a great extent his thinking and his world views. Cf. Levi-Stauss, *Les Structures elementaires de la parente*, 1949; *Anthropologie structural*, rev. ed. 1961: and *La Pensee Sauvage*. 1962.

¹⁵ E. Sapir quoted in B. I. Ewelu, *Language and Thought: A Problematique in African Philosophy*.,129

belief in every culture that to know the name of a person or an object is to possess some powers over him and over it. This belief plays behind the practice in every culture of calling certain things by veiled names, especially things that are believed to be sacred (*O bi n' igwe* instead of *Chukwu*, *Nwanyi afo nri* instead of *Nwanyi di ime*) or very profane or horrible (*Ekperima* in place of *Onye ohii*) among the Igbos.

The Psychologists' Approach

Psychology is the study of human mind and its functions especially those affecting behaviour in a given context. It encompasses the study of "human thought, behaviour, development, personality, emotion, motivation and more"¹⁶. The experimental study of the Swiss psychologist Jean Piaget on the mental development of a child from birth to adulthood is a very good example of the role of language in thought and vice versa. Piaget undertakes to study the mental development of a person from birth up to adulthood. In his study, Piaget distinguished four mental developmental periods of a person from infancy to adulthood, pointing out the role of language in each period. The first period is the **sensory motor period** which lasts normally from birth to two years. In this period the infant begins to separate self from others. The child explores the physical properties of objects in environment and acquires the "*object permanence*", that is the ability to know that the object exists even when they are no longer in view. This view was also supported by another psychologist Vygotsky. According to Vygotsky:

The attainment of object permanence is very important in the mental development of a child. Without it the child is, as it were, incapable of language because the child has to attain the object permanence in order to be able to acquire concept of objects and names. Thus the attainment of object permanence marks the beginning of language development in the child¹⁷.

The second period is the **pre-operational period**: two to seven years. At this period language develops rapidly. This is the period referred to by some psychologists as "critical period" in the sense that it is the period in which

¹⁶ J. Piaget, *The Psychology of Intelligence*. (London: Routledge and Kegan Paul, 1950), 272.

¹⁷ L. S., Vygotsky, Expatriating Piaget's experimental approach to the question of question of the relationship between language and thought and how both developed in a child as the child's cognitive powers develop in his work titled *Thought and Language*, 15

linguistic events must happen to the child for normal cognitive development. Language is believed to be acquired most efficiently during this period. The child's language in this period is generally egocentric in the sense that the child cares not so much of any interlocutor. "Cognition in this period is still limited and the child is not yet capable of "conversation" and "reversibility", for example, the child believes that the amount of water in a glass changes when it is poured into a container of different shape"¹⁸. Thus language is a one-way traffic just as cognition in this period. The third period is the **concrete-operational period** that spans from seven to eleven years. This period is marked with much improvement in the cognitive performances. In this stage the child is capable of conservation and reversibility. The "acquisition of conservation and reversibility marks the beginning of logical thinking and representations"¹⁹. The fourth and final period according to Piaget's classification is the **formal operational** period which runs from eleven years through adulthood. In this stage cognition becomes fully flexible and abstract. A person can "form hypothesis and evaluate them mentally, sometimes in the absence of concrete object"²⁰. From the foregoing, we can see that Piaget includes both language and thought in the term "cognition". Thus when he talks of cognitive development, he meant thought and language. It is in this sense that he points out the nature of child's thinking in each of the four stages and the type of language the child is capable of commanding in each stage.

The Cognitive Scientists' Approach

According to Moses L. S., Endruliss, J., Grabmayer, et al., cognitive science is the branch of science that deals with "language and reasoning, with the structure of the mind, and with all forms of human intellectual activities"²¹. Our major concern here is to examine the role of language in working of computer and other "intelligent" machines such as: Siri, Tesla, Cogito, Netflix Pandora nest (goggle), Boxever, Flying drones, Echo etc. and then to see whether we can, by way of analogy, draw some conclusion about the role of language in thought,

¹⁸ L. S. Vygotsky, *Language and Thought*, p. 134

¹⁹ Ibid.

²⁰ A.B. Crider et al, *Psychology*: (New Jersey: Scott, Foresman and Company, 1983), 327-338 .

²¹ L. S. Moss, J. Endruliss, C. Grabmayer, D. Hendricks, and J. W. Klop, Automatic sequence and zip specifications. In N. Dershowitz (Ed) *Proceedings of the (2012)27th Annual ACM/IEEE Symposium on Logic in Computer Science*. (Los Alamitos, CA: IEEE), 335 - 344.

vice versa in the working of human mind. In order to do this, a striking question that will serve as a takeoff point is: is it possible for computer or any intelligent machine performs its "intelligent" function without having any language programed into it.

Computer is designed as an imitation of human intelligence and is meant for complex calculations. Computer is said to do its intellectual work at three levels; the *implementation* level which is concerned with computer's hardware, the *representation* level which is concerned with the storage of data and output of results and the *computation* level which is concerned with the time and memory required to perform a given calculations. Reacting to the computer imitation of the human intelligence Ewelu writes:

In comparison to human intelligence, the first level of computer intellectual work which is the level of implementation work is like the natural potentials (faculties) which man is endowed with for accomplishing some intellectual work. The second level which is the representation level is like human the means of representations – perception, thought, mental models, language, etc., and the third level the computation is the level of thought geared towards finding a solution to a given problem²².

In Artificial intelligence (AI), as in human cognition, language plays some major role in the second and third levels. The computation is accomplished by certain form of representations, what Johnson-Laird calls "models"²³.

Intelligent machines are believed to carry out their function by means of language. Hence, "there exists today what is called "computational linguistics or machine linguistics which studies the language of computers"²⁴.

The relationship between these representations or models and the intelligent functions of intelligent machine is that computer is "a general symbol processing device, capable of performing any well-defined information"²⁵. It is a symbol-

²² B. I. Ewelu., *Language and Thought: A Problematic in African Philosophy*, 160.

²³ J. Laird. *Mental Models: Towards a Cognitive Science of Language*. (Cambridge: Cambridge University Press, 1983),199.

²⁴ H. Putman, *Mind, Language and Reality*. (Cambridge: Cambridge University Press, 1975), 382

²⁵ E. A. Feigenbaum & J. Feldman (ed) *Computer and Thought*. (New York McGraw-Hill Book Company, 1963), 1

processing device. Can computer accomplish this task without some form of language? Computer can only do this job through the language that has been programmed into it, the machine language. It is by means of this that it manipulates and transforms information which it receive in the first place in form of language, be it coded or natural.

In its "input" function, the intelligent machine transforms symbolic (or coded) information external to it into a form that is suitable for internal computation. In the internal computation, there are the symbols (languages) which the machine manipulates in order to accomplish a required task. Finally, there is need to have the result of calculation. Thus, the machine has to communicate to external world the result of its internal computation. It has to carry out certain "output" function. The machine, as it were, has to "express" to other result of the internal computation. It has to transform the internal symbols back to external form. This is generally done in two ways: either through the computer printer (writing), or through the taped message (voice) installed in the computer. In all these three forms of computer function, language (symbol) is involved. Symbol is "not only needed for the output function, but it is equally needed for the input and internal computation functions"²⁶. The same is the case as regard the "memory" functions where the machine stores the "symbols before, during and after processing"²⁷. It is the task of the artificial intelligencers to design the language that is adequate for the type of problem that a given machine is meant to serve. From the above investigation, one can see that even though computer and other intelligent machines are designed as an imitation of human intelligent, the role of language in performing such task is quite indispensable, just as it is among humans. It is also clear that language does not just come into play when the machine is in need of putting out the result of its internal computation. It is by means of language that machine computes.

The Pathologists' Approach

Pathology is the science of the causes and effects of diseases, especially the branch of medicine that deals with laboratory examination of samples of body tissue for diagnostic or forensic purposes. It is "primarily concerned with the cause, origin and nature of disease that involves examination of tissue, organs,

²⁶ Ibid.

²⁷ Ibid, 2

bodily fluids and autopsies in order to study and diagnose diseases”²⁸. Many pathologists have carried out experiments with the deaf and dumb and aphasia patients in order to find out whether they are capable of thinking in spite of the defect in their language faculty. They want to find out “what element of thought remains when a person has lost the language ability or when this faculty is gravely hampered”²⁹. The basic problem here, however, is that of establishing whether the deaf, aphasia or dumbs are completely deprived of language in their cognitive activities.

The Aphasia and Cognitive Activities

The term “Aphasia” literally means without speech. In the strict sense it means “without speech production”³⁰. Among psychologists and pediatricians, however, it is used to refer to “severe” impairment of previously established language function”³¹. Any defect in language ability due to accident is commonly referred to as aphasia, and it is in this sense that the term is generally used. Some specialist in language disorder distinguish between “congenital aphasia” (lack of language faculty from birth) and “development aphasia”, (the impairment of previously established language function). In the context of this research, we shall be using the term “aphasia” in its common sense, that is, as the impairment of language ability.

The study of aphasia is said to date back to 460 BC when Hippocrates observed that damage in the brain can result in disturbances of language capacities. The studies, later was championed by some scholars like Paul Broca, Carl Wernike. In their studies, the symptoms associated with Broca’s experiment popularly known as Broca’s aphasia involves articulatory or *expressive* aspects of language – a reduction of speech output, distorted articulation (called *speech apraxia*), slow, effortful, and dysprosodic speech.

The symptom associated with Wernike’s experiment on aphasia patients is primarily sensory or *receptive* in nature. Patients of Wernike’s aphasia experience a profound failure to understand written and oral language. According to Zurif,

²⁸ R. Sally, *What is Pathology?* Available (online): <https://www.news-medical.net> > Accessed December 13, 2017.

²⁹ S. Auroux, *La philosophie du langage*. (Paris: PUF, 1996), 205

³⁰ T. A. Harley. *The Psychology of Language: From Data to Theory*.(Erlbaum UK: Taylor & Francis, 1995), 266.

³¹ H. G. Furth, *Thinking without Language*, (New York: Free Press, 1966),54.

“while Broca’s aphasia affects motor function, Wernike’s impairs auditory sensory function”³². Simply put, Broca’s aphasia goes with difficulty in speaking, while Wernike’s aphasia goes with difficulty in understanding speech.

Other forms of aphasia, in addition to the Broca and Wernike aphasia according to Rosenberg are:

“Conduction Aphasia which is inability to repeat orally presented materials.

Anomic Aphasia is a general difficulty in word-finding and in naming objects and pictures of object”³³. In this type of aphasia “neither the comprehension nor the expression, nor even the repetition of oral material is affected”³⁴.

Transcortical Motor Aphasia is a speech disorder in which the patient’s major difficulty appears to be in the initiation of speech, but once initiated, verbalizations are well articulated. In this type of aphasia, there is very little spontaneous speech output.

Transcortical Sensory Aphasia is a situation in which comprehension is impaired in a patient. Alexia: acquired reading disturbance.

Agraphia (or dysgraphia), is the inability to write words, although the patient can perfectly speak, read and draw pictures.

Global Aphasia refers to the condition in which virtually all language functions are seriously impaired. Even in this type of aphasia, “the patients are said to be able to recognize differences between their native language and foreign languages and to have some sense of when a response is required”³⁵.

From the above descriptions, no forms of aphasia patients are incapable of cognitive activities and in no forms of aphasia as presented above is language reported to be totally absent. According to Caramazza and Berndt study, “damage to the left hemisphere does not result in unitary language deficit or in

³² E. B. Zurif, *Language and Brain* in Osherson, D. N. & Lasnik, H. *Language: An invitation to Cognitive Science*. Volume 1 Cambridge, Massachusetts, (London: A Bradford Book: The MIT Press), 184

³³For different kinds of Aphasias, consult: S. Rosenberg (ed.), *Handbook of Applied Psycholinguistics*, (New Jersey: Lawrence Erlbaum Associates Publishers, 1982), 477 – 88. See also Ben Ike Ewelu, *Language and Thought; A Problematique in African Philosophy*, 178 – 179.

³⁴ T. A. Harley. *The Psychology of Language: From Data to Theory*, p. 272 – 3.

³⁵ S. Caramazza & B. Berndt., In Rosenberg (ed.), *Handbook of Applied Psycholinguistics*, 488.

complete disruption of language function"³⁶. Since it is a scientific fact that no patient of aphasia is totally deprived of language faculty, then cognitive activities in aphasia patients cannot be forwarded as instances of thought without language. Basing on aphasia, therefore, one cannot conclusively deny the role of language in thinking.

Cognition in the Deaf

Cognitive activities observed in the deaf are another argument some people put forward to challenge the possibility of thought without language. According to Furth: there are three kinds of deaf people:

- (a) Those who right from birth have never had any auditory contact with the world. That is to say people who have never in their life heard any language spoken: "the profoundly deaf
- (b) those who lost their power of hearing after establishment of language faculty and,
- (c) Those who are hard-of-hearing, who have some level of functional reception of auditory communication"³⁷.

On whether the deaf are capable of cognitive activities or not, Furth carried out series of different experiments in order to find out whether the deaf are they really inferior to the normal person in different intellectual task. Here are some of the experiments and their results.

- (a) Test on Sameness, Symmetry and opposition: The test shows that hearing children seem to have performed poorer than deaf in the test for sameness and symmetry. But hearing children performed by far better than deaf children in opposition test. Of the 180 children in each camp, 173 hearing children were able to notice opposition while 139 deaf children were successful with the opposition test.
- (b) Test on the discovery of similarities: with picture sorting, words sorting, picture verbalization and word verbalization. Verbalization tests, obviously, are only for the normal children. Result: at the age of 8, the hearing children performed better than the deaf in the discovery of similarities. But at 16 the two groups performed roughly equally well, the

³⁶ Ibid, 478.

³⁷ For different experimental tests and their result: H. G. Furth, *Thinking without Language: Psychological Implication of Deafness*. (New York: The Free Press. A Division of Macmillan Publishers, 1966),7.

deaf being slightly better. This shows that the deaf children are slower in developing the sense of similarity. Once they reach the mental age for it they are as good as the normal persons.

- (c) Test on conceptual discovery and control: this is on the logical ability. Result: roughly the same, with the hearing performing slightly better.
- (d) Visual memory span: here Olosson and Furth tested for what they called memory span for digits (MSD) and memory span for forms (MSF). Result: in MSD the hearing performed by far better than the deaf. In MSF, however, the two groups performed roughly equal, with the hearing still slightly better.
- (e) Gestalt Laws in Visual Perception: The experiment tests the candidates' ability to complete the whole. Result: the deaf performed better than the hearing³⁸.

In all these tests, there is none in which the deaf are totally incapable of cognitive activities. In most cases they perform as well as the hearing. The pertinent question however, is: to what extent are the deaf free from language. Furth's in his work narrated what happened in the late 16th century, of how "the profoundly deaf son of the Spanish nobleman was able to learn to read, write and even speak under the tutelage of the Benedictine monk Pedro Ponce de Leon"³⁹. This for Furth is a clear indication that the deaf are not incapable of language. Furth himself even wrote on the language of the deaf which he includes manual symbols, finger spelling and language of the signs. According to Furth "deaf people have language, but it is nonverbal"⁴⁰. He is even more explicit in another passage where he attributes the power of learning single words like

³⁸ For different experiments in order to find out whether the deaf are they really inferior to the normal person in different intellectual task, see H. G. Furth & J. YOUNISS, "Formal operations and language: a comparison of deaf and hearing adolescent". In Morehead and Morehead (eds.), *Normal and Deficient Child Language*, (Baltimore: London, University Park Press, 1976), 387-410. Here the author want to prove that the deaf are capable of cognitive activities and that they are not deprived of language as some people think. This is because many deaf people are known to be very good in sign languages and can even to a great extent understand natural languages by reading the movement of the lips of the interlocutor. To think that the deaf are deprived of language is to reduce language to the verbal level alone of which is against our working definition that held language to be all means of getting myself and my interlocutor informed. (Emphasis mine)

³⁹ H. G. Furth, *Thinking without Language: Psychological Implication of Deafness*, 8.

⁴⁰ *Ibid*, 10

the names of colours to deaf children around the age of six. On “learning these words the deaf children are able to behave as the hearing”⁴¹.

On the practical basis, every deaf person who follows the normal training learns to understand sign language and reads and understand normal written language, and writes as well. Owing to this, therefore, we can say that even though the deaf are deprived of some elements of language like comprehension of oral speech, oral articulation and expression. There is still the possibility of cognitive activities of the deaf carried out through signs, gestures, writing etc.

Conclusion

The analysis of the different approaches on the influence of language on thought and thought on language points to the fact that language and thought are not one and same but two different entities inseparable from one another in their function and being. The result of the experiments shows that language is a means of getting oneself informed and of informing others about ideas in the mind. It is by means of language that one is able to abstract, from the particular objects in the external world, the universal concepts which the mind thinks. This does not mean that thinking begins only after the perception and the formation of concept. Neither does it mean that the role of language ends after formation of concept. Man is able to form concepts because he thinks and he is able to think over the concept formed because he is endowed with language. Language is ‘language’ because it is sound, mark, or sign accompanied by thinking. Without this accompaniment, it becomes nothing more than a mere sound, mark or sign. It is in language that thought is formed. Language gives meaning to thought.

⁴¹ Ibid.

Bibliography

Auroux, S. *La philosophie du langage*. Paris: PUF, 1996.

Ananya, M. *What is Genetics?* Available (online): <https://www.news-medical.net>
> Accessed March 19, 2018.

Caramazza, S. & Berndt. B. In Rosenberg (ed.), *Handbook of Applied Psycholinguistics*,

Carroll, J. (ed), *Language, Thought and Reality, selected writings of Benjamin Lee Whorf*. Cambridge, Massachusetts: The MIT Press, 1956.

Crider, A. B. *Psychology*: New Jersey: Scott, Foresman and Company, 1983.

Ewelu, B. I. *Language and Thought: A Problematic in African Philosophy*, Enugu: Delta Publications, 2010.

Feigenbaum, E. A. & Feldman J. (ed) *Computer and Thought*. New York McGraw-Hill Book Company, 1963.

Furth, H. G. & YOUNISS, J. "Formal operations and language: a comparison of deaf and hearing adolescent". In Morehead and Morehead (eds.), *Normal and Deficient Child Language* Baltimore: London, University Park Press, 1976.

Furth, H. G. *Thinking without Language: Psychological Implication of Deafness*. New York: The Free Press. A Division of Macmillan Publishers, 1966.

Hardy, W. G. *Language, Thought, and Experience: A Tapestry of the Dimensions of meaning*. Baltimore: University Park Press, 1978.

Harley, T. A. *The Psychology of Language: From Data to Theory*. Erlbaum UK: Taylor & Francis, 1995.

Heidegger, M. *Time and Being*, tr. by J. Glenn Gray. New Haven: Yale University Press, 1956.

Laird, J. *Mental Models: Towards a Cognitive Science of Language*. Cambridge: Cambridge University Press, 1983.

Leibniz, G. W. *New Essay on Human Understanding*, Ed. P. Remnant and J. Bennett Cambridge: Cambridge University Press, 1996.

Moss, L. S, Endruliss, J, Grabmayer, C, Hendricks, D, and Klop, J. W. Automatic sequence and zip specifications. In N. Dershowitz (Ed) *Proceedings of the (2012)27th Annual ACM/IEEE Symposium on Logic in Computer Science*. Los Alamitos, CA: IEEE, 335 – 344.

Piaget, J. *The Psychology of Intelligence*. London: Routledge and Kegan Paul, 1950.

IGWEBUIKE: An African Journal of Arts and Humanities. Vol. 6. No. 3. ISSN: 2488-9210 (Print) 2504-9038 (Online) 2020.

Department of Philosophy and Religious Studies, Tansian University

Putman, H. *Mind, Language and Reality*. Cambridge: Cambridge University Press, 1975.

Sally, R. *What is Pathology?* Available (online): <https://www.news-medical.net>
> Accessed December 13, 2017.

Zurif, E. B. *Language and Brain* in Osherson, D. N. & Lasnik, H. *Language: An invitation to Cognitive Science*. Volume 1 Cambridge, Massachusetts, London: A Bradford Book: The MIT Press, 1984.