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A Psycholinguistic Approach to Language Teaching and Learning: Problems and Prospects

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Abstract:

Psycholinguistics, otherwise called the psychology of language, studies the psychological and neurobiological factors that enable humans to acquire, process, understand and use language. This study investigates the psycholinguistic approach to language teaching and learning. In this paper, an analysis of the major branches and goals of psycholinguistics is made. The paper also dwells on psycholinguistic impact to English language study and its implications to language teaching and learning. The paper also examines the problems and prospects of psycholinguistics as a discipline. In concluding this paper, the writers evaluate the position of recent researchers who affirm that though psycholinguistics as a discipline lacks a clear distinct generative transformational approach to the study of linguistics, it however presents a better picture and widens the scope of studying language in general. Recommendations are made on further ways to study language psychologically.

Keywords: Psycholinguistics, English language, language teaching and learning

1. Introduction

In recent years, numerous circumstances have contributed to a great upsurge of interest in the study of language. This is based on the amazing discovery that language has interconnection and solid integration with science as a discipline. This is the domain of linguistics, which studies language scientifically. According to Akwanya (1999), the study of language is conventionally zoned out to: (a) syntax, the determination of the rules for the combination of linguistic elements, (b) semantics, the determination of the rules for interpreting linguistic structures, (c) pragmatics, the determination of the interactive context, the inter-relationship between the user and his language, between the language and cultural environment, and between the persons among whom the language is exchanged as message-bearing actions. Pragmatics actually opens out to other disciplines such as anthropology, sociolinguistics, ordinary- language philosophy, psycholinguistics, etc.

Psychology, we know, is the scientific study of the human mind. Psycholinguistics, then is the combination of both studies; psychology and linguistics. Psycholinguistics, otherwise called the psychology of language, studies the psychological and neurobiological factors that enable humans to acquire, use, comprehend and produce language (<https://en.wikipedia.org/wiki/Psycholinguistics>). Language understood here is strictly human language. For Akwanya (1999), other beings that perform one or other of the known linguistic functions do so by means of a system that falls outside what is defined as language.

Psycholinguistics is primarily concerned with the ways in which language is represented and processed in the human brain. It is part of the field of cognitive science. The term psycholinguistics was introduced by an American psychologist Jacob Robert Kantor, in his book "An Objective Psychology of Grammar" (1936). His student, Henry Pronko, popularized the term in his article "Language and Psycholinguistics: A Review" (1946). The emergence of Psycholinguistics as an academic discipline is generally linked to an influential seminar at Cornell University, New York in 1951 (Nordquist, 2019). At its heart, psycholinguistics asks four plausible questions as recorded in Wikipedia. They include (a) how do children acquire language (language acquisition)? (b) how do people process and comprehend language (language comprehension)? (c) how do people produce language (language production)? and (d) how do people acquire a new language (second language acquisition)? Nordquist (2019) however, argues that only two questions are of paramount importance to psycholinguists. They are: (a) What knowledge of language is needed for us to use language? (b) What cognitive processes are involved in the ordinary use of language? In his own submission, Carroll (2008), asserts that whenever we are listening or speaking, there is considerable number of cognitive processing going on during those activities. This is indeed how a psycholinguist studies language.

2. Major Branches and Goals of Psycholinguistics

The field of psycholinguistics is an extremely complex one in so far as it deals with the physical counterpart of the human mind: the brain. As an interdisciplinary field, psycholinguistics is studied by researchers from a variety of different backgrounds such as neurolinguistics, speech and language pathology, discourse analysis etc. Others study it based on the different components that make up human language; phonetics and phonology, morphology, syntax, semantics, pragmatics, etc. All these inform its complexity. However, its major branches are deduced from conscious emphasis on its goals, which is studying the psychological and neurobiological factors that enable humans to acquire, comprehend, use and produce language.

2.1. Language Processing

Here, psycholinguists study what happens in the human mind when we speak. It deals with speech production; what is going on from thought to output to the actual production of the sound outside. Also, it deals with comprehension; how we understand what is being said to us. Psycholinguists believe that there are two pathways in the human brain that connect the auditory cortex to the frontal lobe, each pathway accounting for different linguistic roles. The auditory ventral stream pathway is responsible for sound recognition, and is accordingly known as the auditory "what" pathway. The auditory dorsal stream in both humans and non-human primates is responsible for sound localization, and is accordingly known as the auditory 'where' pathway. In humans, this pathway (especially in the left hemisphere) is also responsible for speech production, speech repetition, lip-reading, phonological working memory and long-term memory.

The division of the two streams first occurs in the auditory nerve where the anterior branch enters the anterior cochlear nucleus in the brainstem which gives rise to the auditory ventral stream. The posterior branch enters the dorsal and poster ventral cochlear nucleus to give rise to the auditory dorsal stream. Language processing can also occur in relation to signed languages or written content.

2.2. Language Acquisition

Psycholinguists, here, study how children acquire language, the strategies and phases involved. Issues regarding the mother tongue and the L2 (second language) acquisition are analysed here. A lot of complexities characterize how children acquire or learn languages. Two schools of thought are debating as to which theory is the correct one. The first theory championed by Jean Piaget and Rudolf Carnap (2002) insists that all languages must be learned by the child. The second view pioneered by Noam Chomsky (2002) states that abstract system of language cannot be learned, but humans possess an innate language faculty, or an access to what has been called universal grammar. Chomsky (2002) believes humans possess an innate language faculty hard-wired in the brain. The school of thought that supports Chomsky's idea is classified as innatism. The emergentism however, is against this view claiming that Chomsky's ideology is scientifically unfalsifiable; that is to say, it cannot be tested.

However, with the amount of computer power increasing these days, researchers have been able to simulate language acquisition using neural network models. These models provide evidence that there may, in fact, be sufficient information contained in the input to learn language, even syntax. If this is true, then an innate mechanism is no longer necessary to explain language acquisition.

2.3. Neurolinguistics

Psycholinguists, here, study the physical counterpart of the human mind; which is the brain. They study the CNS (Central Nervous System) and the vocal tract, the brain centres and language disorders etc. Some of the pertinent questions asked here are: What is the central function of the right and left hemisphere of the brain? Are they equally both involved for natural languages? How does the brain develop human language, etc.? Neurolinguists study the neural mechanisms in the human brain that control the comprehension, production and acquisition of language. As an interdisciplinary field, it draws methods and theories from fields like neuroscience, linguistics, cognitive science, communication disorders and neuropsychology. (<https://en.wikipedia.org/wiki/Neurolinguistics>). They believe that the structures and uses of language are related to the formation of ontological insights (Mou Bo, 1999). They use the theory of semantic difference to exchange meaning and knowledge. They also focus on button press tasks and reaction time experiments to infer cognitive processes.

3. Psycholinguists and the Study of English Language

Roediger and Herman (1996) define language as a means of symbolic communication based on sounds, written symbols, and gestures. All languages have a grammar, a set of explicit or implicit rules that specify how sound, structure, and meaning are connected. In fact, there are two kinds of languages practiced in linguistics: genetic (or genealogical) and typological. Genetic classification groups languages into families according to their degree of diachronic relatedness while typological classification groups languages according to their structural characteristics (<https://www.britannica.com/science/.../Language-classification>). Linguistics is the study of the way language and its rules influence the ways people speak, write, read and think. The case here is of English Language.

The basic units of any language are its sounds, called phonemes. Phonemes include vowels, consonants, and blends. Each language has a certain number of phonemes. English, for example, has 46. Other languages have even more, and some have considerably fewer. Each language also has rules for acceptable combination of sounds. In English language, you are unlikely to hear the consonant sequence *pm*. but you will often hear *mp*. Thus, *thump* is consistent with

English sounds, but *pmet* is not. These rules of acceptability, called phonological rules, tell us how to combine the sounds of our language. They form part of our linguistic competence, our implicit knowledge about language.

In speaking, we produce each phoneme in a distinctive manner. In English, vowel sounds are created by a continuous airflow through the vocal tract while consonants are produced by stopping the airflow. Movements of the tongue, lips, and teeth modify the flow of air in the vocal tract to create the various sounds we hear. The lips are pressed together to form the sounds /p/ and /b/, for example, whereas /d/ and /t/ emerge when the tongue presses against the roof of the mouth or against the teeth.

Phonemes are the basic sounds of language, and morphemes are meaningful combination of phonemes. A morpheme is the smallest unit of meaningful language. Some morphemes are words, but some words consist of more than one morpheme. Consider the word 'sport'. It has one morpheme. Add 's' to form 'sports', and the result is two morphemes. Now add the morphemes *un*, *man* and *like* to generate unsportsmanlike. Many complex and compound words include several morphemes in combinations of stems, prefixes, and suffixes. As you are well aware, English rules often have exception or irregular forms that must be learned. "*He bringed me the car*" is wrong, even if it follows the rule of adding 'ed' to the verb to form the past tense. In fact, English is far less regular than many other languages.

On syntax, the classification of words is studied. Words are classified as nouns, verbs, adjectives etc. and numerous rules govern their combination in English language sentences. For examples, adjectives sometimes precede nouns in English sentences. Consider the sentence "*The wicked vampire bites the girl*". In this simple declarative sentence, articles precede nouns, the adjective precedes and modifies a noun, and the subject of the sentence comes before the verb. The sentence has two main components: a noun phrase and a verb phrase. A psycholinguist studying syntax would ask whether syntax can influence language processing. The answer is yes, since psycholinguistics can study both speed and accuracy of understanding. For instance, the effects of linguistic structure may be measured by giving people sentences to memorize and then determining which words they are likely to forget.

The meaning expressed in language is called semantics. A sentence can be formed from acceptable phonemes and morphemes and put together in proper syntactic order and yet still be meaningless. The famous statement "Colourless green ideas sleep furiously" defies semantic interpretation, but "*My cousin is an only child*" is interpretable. In terms of structure, some sentences can express the same meaning, like; "*The old professor dropped his notes*", "*The notes were dropped by the old professor*", "*The professor, who was old, dropped his notes*". A psycholinguist considering semantics would posit that language communicates meaning, but meaning is not inherent in the symbol systems known as words and sentences. Meaning is constructed in the mind; therefore, it is a cognitive product. Since language is a shared medium, it demands a consensus between users. This is the pragmatic aspect of language. Psycholinguists believe that the listener and the speaker must adjust communication so that both are speaking with terms whose meanings they know and agree upon. Without consensus, people would speak idiosyncratically (Carroll, 2005).

4. Implications to Language Teaching and Learning

Psycholinguistics has a whole lot of impact to language teaching and learning. However, we cannot consider psycholinguistic impact on language teaching and learning without studying it side by side socio-cultural implication. The current position of scholars in English language holds that though there are some marked differences between psycholinguistics and socio-cultural approaches to Language Learning (LL), no approach is better than the other. They suggest that research resulting from collaboration of the two schools of thought provides a clearer picture to English language studies and widens its horizons in the area of SLA (Second Language Acquisition).

Conceptually, the relationship between thinking and speaking, the view of interaction, and the understanding of learning differ greatly. Unlike psycholinguistic approaches that view language and thought as related but completely independent phenomena, socio-cultural approaches see language and thought as highly interwoven processes, in which, according to Lantolf (2007), "publicly derived speech completes privately initiated thought". Language mediates thinking and it is through language, either spoken or written, that people gain control over their mental processes. In turn, thought cannot be explained without taking language into account. Although both approaches view interaction as an essential component for language development, it plays a distinctive role. In the psycholinguistic approach, interaction helps learners activate the individual internal cognitive processes that allow them to access the comprehensible input they need to further advance in the acquisition of the L2 (Long, 2000). In the socio-cultural approach, social interaction allows interlocutors to organize their cognitive processes that assist them in the co-construction of knowledge about the second language (Lantolf, 2000).

When it comes to learning, for socio-cultural theorists, learning is viewed as first inter-mental, then intra-mental. That is, learning occurs first between people, then within the individual (Mitchell and Miles, 2004). Therefore, involvement in frequent and significant social activities with more competent language users is essential for learning to take place. On the other hand, learning in the psycholinguistic tradition is viewed as a cognitive individual process happening within the individual and then, eventually, if at all, moves to the social dimension. For psycholinguists such as Long (2000), exposure to comprehensible input and negative feedback leads to language learning. For socio-culturally oriented theorists, such as Swain and Lapkin (1998), language learning is a collaborative dialogue; hence, it does not happen outside performance, but in performance.

5. Problems and Prospects

The field of psycholinguistics is as broad as linguistics itself. As an extremely complex field, psycholinguistics lacks a clear generative transformational approach in linguistics. This has been its major drawback. Little wonder, it is often

criticized as an interdisciplinary study that is not well integrated (Osgood, 1960). Scholars like Chomsky (1957), in the past, saw no basis for fruitful collaboration between linguists and psychologists.

In more recent times, however, psycholinguistics is concerned with the nature of the computations and processes that the brain undergoes to comprehend and produce language. For example, the cohort model seeks to describe how words are retrieved from the mental lexicon when an individual hears or sees linguistic input (<https://cyberleninka.ru/.../current-trends-in-the-development-of-psycholinguistics-in-Russia>).

Recent research using new non-invasive imaging techniques seeks to shed light on just where certain language processes occur in the brain. Some psycholinguists believe that language is produced in the left hemisphere of the human brain. Others argue against this proposition.

There are a number of unanswered questions in psycholinguistics, such as whether the human ability to use syntax is based on innate mental structures or emerges from interaction with other humans, and whether some animals can be taught the syntax of human language (<https://www.en.wikipedia.org/wiki/psycholinguistics>). More so, upcoming studies in psycholinguistics study language alongside aphasiology (a field that deals with language defects, that arises because of brain damage). Studies in aphasiology can both offer advances in therapy for individuals suffering from aphasia, and further insight into how the brain processes language. More so, the psycholinguistic studies of the clinical syndromes of aphasia have provided a unique window into the neurobiology of language. Such studies offer insights that behavioural and neuroimaging studies alone cannot provide (<https://www.sciencedirect.com/topics/neuroscience/psycholinguistics>). Psycholinguistics recently investigates as subfields L1 and L2 acquisition processes. Developmental psycholinguistics studies children's ability to learn language. It is observed, for instance, that it is much more difficult for adults to acquire second language (L2) than it is for infants to learn their first language (L1). Even bilingual infants are able to learn both of their native languages easier than it is for adults to learn L2. It shows that the period of infancy to within 2 or 3 years, children are more sensitive to learning. Finally, since psycholinguistics investigates some language defects and brain disorder, it might not be a bad idea if teachers study it in order to assist students with such problems.

6. Conclusion

The study of psycholinguistics is important to second language acquisition in the sense that L2 acquisition is a sub discipline of applied linguistics, which receives research attention from a variety of many other disciplines including psychology and education. As we have already established, psycholinguistics cuts across most disciplines of modern research such as biology, neuroscience, linguistics and information science to mention but a few. It makes use of their hypothesis to study how the brain processes language. It aligns with social sciences to assess the relationship between language and its users.

Though psycholinguistics is generally criticized for lacking a clear generative transformational approach to the study of linguistics and that it exists as an inter-disciplinary approach which heavily depends on other disciplines to buttress its hypothesis, the fact remains that no field knows it all. Knowledge is diverse. The diversity of psycholinguistics necessitates and even presents a better picture to the study of language and widens its scope of learning.

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