

Investigating language disorders with particular focus on dyslexia and stammering: a psycholinguistic approach.

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Abstract

This research article is an attempt to scrutinize the applicability of psycholinguistic approach to providing investigative frame for understanding the underling nature of two language disorder phenomena, namely dyslexia and stammering. It *argues* that psycholinguistic models such as Stackhouse & Wells' model (1997), and the Competition Model by Elizabeth Bates and Brian MacWhinney (1989, 2008), are appropriate and effective methods to diagnose, depict, describe and treat language disorders pertinent to speech and reading difficulties among Sudanese school children and adults as well. It also *presumes* that this approach, when accurately and carefully implemented, is capable to provide linguistic and cognitive signs that can be used for the improvement of the children's phonemic awareness, phonological and orthographic awareness and the development of the overall skill of literacy and language use. Additionally, such signs can be used, when cases are severe, for clinical intervention and medical treatment. However, this approach might need to make good use of principles and practices that have been introduced by other disciplines especially linguistics, psychology, education, medicine, and technology in order to create a comprehensive model to deal with the two-mentioned examples of language disorders. At the end, the paper concluded with some recommendations and suggestions for further research on the topic of dyslexia and stammering.

Keywords: language disorder; psycholinguistics; clinical linguistics; dyslexia; stammering.

Introduction

In recent years there has been a shift in focus in the approach to the classification, assessment and remediation of child and adult language disorder. A psycholinguistic approach has been adopted by many linguists and clinicians. Within the field of psycholinguistics, an attempt is made to interpret the phenomena of both normal and disordered language according to models of language processing. Phenomena of disordered language, then, are interpreted as being due to deficits in the language processing system. The language processing system is considered to be the means by which the speaker-listener expresses himself/herself verbally, and comprehends the expressions of others. A language processing model is a theorist's representation of this system. Psycholinguistically based research into the language of aphasics has led to advances in the understanding of normal language processing, on the assumption that the phenomena of aphasic speech, as the manifestation of a disturbed language processing system, are directly related to the structure and function of an intact system. In other words, a system that malfunctions in a certain way can do so only if it has a certain structure and function in the first place. As Berndt (1991) notes, "studies of aphasia can contribute to our understanding of how syntactic processes function in the normal speaker-listener".

Language-disordered patients have been classified according to their medically diagnosed etiology or site of lesion, for example, a Broca's aphasic is someone who has sustained damage to Broca's area. Patients have also been classified according to their symptom complex, for example, a Wernicke's aphasic is someone who exhibits fluent speech with intact function words and syntactic structure but little meaning.

This traditional approach to the classification of language disordered patients does not focus on each patient as an individual, with a unique deficit in his/her language processing system. Rather, the focus is on grouping patients with similar etiologies and/or similar symptoms. In clinical practice, such groups of patients are then subject to similar assessment and remediation methods, with little attention to the specific needs of individual patients. Garman (1990) mentions a further shortcoming of such an approach to the classification of language disorder, namely that the focus on the surface manifestation of linguistic impairment (i.e. the symptom) does not allow a hypothesis to be proposed about the causal deficit in the language processing system. Without such insight into the possible underlying deficit, appropriate assessment and remediation are difficult to plan. The need for and the advantages of a shift in focus from the traditional approach to the classification, assessment and remediation of language disordered patients, to a psycholinguistically based approach.

Importance

Owing to the fact that, language disorder was thought to be a consequence of education, rather than a neurological disability. As a result, people may often misjudge those with the disorder, causing stigma and negative attitude towards those with such language disorders, such as dyslexia and stammering. If the instructors of a person with dyslexia lack the necessary training to support a child with the condition, there is often a negative effect on the student's learning participation.

Objectives

- 1- To get enlightened with language disorder and how is manipulated.
- 2- To point out how to deal with language disorder from psycholinguistic perspective.
- 3- To identify the connection between dyslexia and stammering.

Definition of Terms

- **Language Disorder:** A child may have a language disorder due to difficulty in getting meaning through speech, writing, or even gestures. Difficulty expressing meaning to other people is called an expressive language disorder.

- **Psycholinguistic Approach:** Is a model used by speech and language therapists to investigate the underlying nature of children's speech, language and target intervention accordingly. (Baker, E., Croot, K., McLeod, S., & Paul, R. (2001).

Literature Review

Psycholinguistics is the study of language with reference to human psychology. It has a very broad scope but is frequently used with specific reference to processes of language acquisition, especially of one's first language. In the more general psycholinguistics covers the following areas: (Chiat & Jones, 2019).

- **Neurolinguistics** (the study of language and the brain): This has a physical dimension to it and is the domain of neurologists concerned with impairments of language due to brain lesions, tumors, injuries or strokes. It also has an observational domain which is the concern of linguists. Here certain phenomena like slips of the tongue, various performance errors (due to nervousness, tiredness for instance) are examined for the insights which they might offer about the structure of the language faculty in the human brain.

- **Language pathology:** The breakdown of language has been studied intensively from at least two main angles. The first is that of medicine where attempts are made to help patients regain at least partially the ability to use language normally. Such patients are typically older people who have had a stroke (a burst blood vessel in the brain, in this case affecting the Broca or Wernicke areas) or younger people who have been involved in an accident and have thus an impairment of the brain due to external injury. A third group is formed by patients who have had a tumor (cancerous growth) in the brain which impairs their speech pressing on either of the speech areas (fairly rare as a medical phenomenon though). Language disorders are known in linguistics and medicine as aphasia. There are many different types depending on the impairment which a patient shows. Broca's area A part of the brain — approximately above the left temple — called after its discoverer the French doctor Paul Broca and which is responsible for speech production. Wernicke's area A part of the brain which is taken to be responsible for the comprehension of language. It is located just above the left ear. Named after Karl Wernicke, the German scientist who discovered the area in the second half of the 19th century (Lerner, 1997).

Dyslexia which is a language disorder characterized by difficulty in reading, it often occurs in children with normal vision and intelligence. Treatment can help, but this condition cannot be cured, and its symptoms include: late talking, learning new words slowly, and a delay in learning to read. Most children with dyslexia can succeed in school with a specialized education program. Dyslexia, also known until the 1960s as word blindness, is a disorder characterized by reading below the expected level for one's age. Different people are affected to different degrees. Problems may include difficulties in spelling words, reading quickly, writing words, "sounding out" words in the head, pronouncing words when reading aloud and understanding what one reads. Often these difficulties are first noticed at school (Alpermann & Zuckner, 2008). The difficulties are involuntary, and people with this disorder have a normal desire to learn. People with dyslexia have higher rates of attention deficit hyperactivity disorder (ADHD), developmental language disorders, and difficulties with numbers. Dyslexia is believed to be caused by the interaction of genetic and environmental factors. Some cases run

in families. Dyslexia that develops due to a traumatic brain injury, stroke, or dementia is sometimes called "acquired dyslexia or alexia. The underlying mechanisms of dyslexia result from differences within the brain's language processing. Dyslexia is diagnosed through a series of tests of memory, vision, spelling, and reading skills. Dyslexia is separate from reading difficulties caused by hearing or vision problems or by insufficient teaching or opportunity to learn. Treatment involves adjusting teaching methods to meet the person's needs. While not curing the underlying problem, it may decrease the degree or impact of symptoms. Treatments targeting vision are not effective. Dyslexia is the most common learning disability and occurs in all areas of the world. It affects 3–7% of the population; however, up to 20% of the general population may have some degree of symptoms. While dyslexia is more often diagnosed in boys, this is partly explained by a self-fulfilling referral bias among teachers and professionals. It has even been suggested that the condition affects men and women equally. Some believe that dyslexia is best considered as a different way of learning, with both benefits and downsides. (Nickels, Bing & Black, 1991).

Dyslexia and Its relation to stammering

Language is the most powerful means of communication. It can manifest as spoken and/or written form. The damage on any aspect of human speech, a part of tongue movement, including (1) the production of verbal sounds, (2) speech speed, and (3) phonemes, can lead to verbal disorder. Likewise, damage to the written and spoken abilities of an individual affects his/her educational and social life. Though language disorder and dyslexia are quite different concepts (e.g., in DSM-IV), some scholars consider them as a continuum of language disorders. Some theories refer to the motor deficit in dyslexia and language disorders for most children, the multiword language development stage show that dyslexic children suffer from such problems as motor skill problem too. The results of the study by Wolf indicate that dyslexic individuals suffer from damages in accomplishing the tasks that require integrity of hand fingers. They argue that poor performance of dyslexic subjects could be due to cognitive inefficiency, the ability to form inner reflection which is necessary for making a movement. Lerner states that 70% of dyslexic children suffer from motor deficits. Few studies have been carried out to investigate stuttering and dyslexic children. Stein, John (2014), believe that the findings of studies on stuttering and dyslexic children are controversial. The majority of these children have a verbal-motor problem which is an index of their language performance. In addition, there are studies that prove stuttering people spend more time to improve the speed of their motor activities. Studies on stuttering people's verbal and motor learning show a low rate of learning meaningless words and slower acquisition of consecutive finger tapping task and syllable reading (Namasivayam & van Lieshout, 2008), in their study, detected verbal-motor deficit among stuttering adults. The results of their study show that chronic stuttering adults showed less movements and flexibility compared to the control group in the absence of visual feedback. To investigate the dyslexic children, researchers attempted to find out dyslexic children are different from normal ones in speech production. The results of their study show that there is a meaningful difference between dyslexic and normal is the onset of stuttering as speech and other motor skills develop. At the age of 2–4, children are able to produce longer and more complex sentences. The rate of speech production increases and their speech rhythm becomes similar to grownups. Simultaneously, their fine and gross motor skills develop. Thus, the ability to acquire new motor skills is vital for this earlier rapid development in language. Children who have a problem in performing complicated motor skills (e.g., speaking) might not be efficient enough in acquiring motor skills. Perhaps, stuttering is because of child's problem in acquiring verbal-motor skill similar to adults (Bishop & Rosenbloom, 2016).

In terms of dyslexia, nowadays this problem is considered beyond pure reading disorder, and the results of most studies show that dyslexic children suffer from such problems as motor skill problem too. The results of the study by Wolf indicate that dyslexic individuals suffer from damages in accomplishing the tasks that require integrity of hand fingers. They argue that poor performance of dyslexic subjects could be due to cognitive inefficiency, the ability to form inner reflection which is necessary for making a movement. Lerner states that 70% of dyslexic children suffer from motor deficits. Among the studies that support his findings are those of (Namasivayam & van Lieshout, 2002). The results of their studies show motor problems, especially in performing fine movements.

Language Disorders in Sudan-An Overview

There is still no accurate statistics regarding the prevalence of language disorders owing to psychological origins, however dyslexia and stammering are the most common in children over different parts of the country. Specific language impairment and dyslexia are frequent childhood disorders which appear to be related. They affect between 5 and 8% of pre-school children.

Stuttering can cause psychological effects in sufferers. From the interview, the researcher concludes that his stuttering makes him feel inferior. He mentioned that he did not want to go to elementary school because he felt insecure. He often got bullied by his friends. His friends always imitated him, and he often fought with his friends because of it. Then he decided to go out of school. This fact shows that people with stuttering are very vulnerable to experiencing psychological disorders because they get negative responses from the surrounding environment. By bullying someone who stutters, the person who stutters will feel more depressed, and the stuttering will get worse. This is because of not only physical and genetic factors that cause stuttering, but psychological factors also have the greatest influence on the occurrence of stuttering.

Methodology

The authors have adopted a documentary methodology in this paper, which is a way of collecting data by reviewing existing documents. The main purpose of a documentary approach, is to assess various documents related to topic of the study. Researchers and authors conduct documentary methodology to verify multiple documents surroundings events or individuals.

Results

(i) A language disorder can arise from impairment(s) at many distinct levels of a processing hierarchy composed nominally of input, output, and word meaning. For example, failure to name an object (i.e., anomia) might result from perceptual deficits in visual object identification (i.e., agnosia), degradation of the core concept that underlies object meaning (i.e., semantic impairment), or failure to accurately link a word form to a target concept (i.e., lexical retrieval deficits).

(ii) One way of isolating the particular cause of a language disorder is to first pursue a broad, psycholinguistic modeling approach.

(iii) Most researchers and clinicians approach language disorders by reducing global impairments into a set of receptive and expressive components.

Discussion

A psycholinguistic perspective on reference focuses on the mental representations and processes that underlie people's ability to use language, both as speakers and writers and as listeners and readers. Mental representations mediate references to things in real, imaginary, and abstract worlds. Linguistic and philosophical analyses bring to light some of the complexities that psychological theories must take account of. A major concern within psycholinguistics has been to explain second and subsequent anaphoric references to the same person or thing. A variety of factors have been identified as influencing this process, and more recently the more unified approaches of centering theory and the informational load hypothesis have been suggested. These approaches are best located within a mental model's framework that stresses the importance of representations of situations in the world as mediating language processing.

Conclusion: Recommendations and Suggestions

This paper has made use of the psycholinguistic framework developed by Stackhouse and Wells (1997, 2001) to investigate the relationship between Jarrod's spoken and written language difficulties and to start planning intervention for him. To do these other perspectives were needed; in particular the linguistic one to select and design appropriate targets. Implementing this program is a dynamic interaction between listener and child, and analysis by a trained listener is essential. Thus, a psycholinguistic approach is a particular way of thinking about a child's speech and literacy difficulties and ensures active questioning about how and why we do what we do.

The study of language disorders represents a nexus among many disciplines, both theoretical and applied. The development of effective treatments for language disorders requires a mechanistic understanding of the problem at hand. Thus, Language Disorders emphasize applied clinical disciplines that address language disorders often dovetail with classically theoretical fields such as developmental psychology, cognitive psychology, and linguistics. More recently, the study of language disorders has also fallen under the purview of biological psychology, cognitive neuroscience and neurobiology. Thus, the contemporary study of language disorders is highly multidisciplinary with psychological methods and psycholinguistic theories offering prominent and essential contributions.

Recommendations

- 1- Efforts should be exerted to adopt programs enhancing psycholinguistic approach.
- 2- Special education specialists should be more aware of dealing with language disorders.
- 3- Psycholinguists have to be trained enough through modern technology.

Suggestions

- 1- To study other language disorder using a different model of diagnosing.
- 2- To conduct a study that examines the significance of spreading of language disorder.
- 3- To study psycholinguistic theories that reveal the etiology of dyslexia.

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