

## Effectiveness of Multisensory Therapy in Treating Communication Barriers and Social Isolation in Transcortical Aphasia Sufferers

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### Abstract

*This study aims to comprehensively explore the communication challenges faced by individuals with specific language disorders caused by brain damage, such as Transcortical Aphasia. In addition to hindering an individual's social and personal adjustment, this disorder also has the potential to cause social isolation due to difficulties in pronouncing words and feelings of embarrassment that may arise. This research confirms that the challenges faced by these individuals are not only their own personal problems but are also a concern for the people around them who hope to communicate effectively with them. By adopting a methodological approach that combines qualitative and quantitative analysis, the research This study explores the effectiveness of Multisensory Stimulation therapy as a learning tool for individuals with language disorders. This approach is packaged in the form of classroom action research which aims to evaluate the real-world consequences of implementing such therapy in the context of the learning environment. The overall results of this study show that Multisensory Stimulation therapy has a significant positive impact in improving language skills and social interactions for people with Transcortical Aphasia. However, this research also highlights the need for further improvements in the application of strategies, tactics and learning models based on Multisensory Stimulation therapy. Better adaptation and coordination of these learning methodologies is required to ensure strict adherence to the principles of effectiveness and efficiency. Through these measures, the aim of this research is to make a significant contribution to a deeper understanding of language disorders and to offer concrete solutions to improve the quality of life of individuals, including the context of the social circle of those affected*

### Keywords

Multisensory; Therapy;  
Communication; Social; Isolation



### I. Introduction

Communication is not just an additional element in human life; on the contrary, it is the main foundation in human interaction and is one of the basic needs in our daily experiences. The ability to communicate fluently allows us to express ourselves, understand others, and participate actively in social life. Ideal communication requires effective coordination between the articulator, auditor, and the acoustic medium that facilitates sound transmission. However, when any of these elements are impaired—whether due to a mental problem that regulates the speech process or a physical obstacle

that affects the supporting tools—communication can become difficult or almost impossible.

This difficult condition is especially distressing for individuals who experience language disorders caused by neurological disorders. They have the same natural drive as other people to communicate and be understood. However, they are often faced with internal challenges in using language, coupled with secondary negative impacts such as social isolation and emotional difficulties.

Specific language disorders can take various forms, ranging from difficulties in speaking to more serious language deficits, all of which can significantly impact an individual's life both personally and socially. This challenge is not only felt by the individual who experiences it, but also by their social environment, because communication difficulties often trigger feelings of embarrassment and limitations in social interactions. Over time, this can cause individuals to become increasingly isolated, withdraw from conversations, and even be reluctant to participate in simple social situations.

This problem is more than just an inconvenience; this complicates life for affected individuals and requires an effective treatment approach. One promising strategy for treating this complex problem is Multisensory Stimulation Therapy. This therapy is specifically designed to utilize sensory systems that are perhaps less well known, namely the touch, vestibular and proprioceptive systems. While perhaps not as popular as the visual or auditory systems, these systems play an important role in how individuals understand and respond to their surroundings.

Multisensory Stimulation Therapy has the potential to provide new solutions to address the complex challenges of speech and communication disorders, especially for individuals with conditions such as transcortical aphasia. By focusing on often overlooked sensory systems, this therapy aims to provide a holistic treatment approach, which is expected to improve communication abilities and, ultimately, improve the quality of life for the affected individual and also for the people who interact with them.

This study aims to investigate the effectiveness of a learning approach that focuses on Multisensory Stimulation Therapy in improving language skills in children suffering from Transcortical Aphasia. The specific focus of this study was to assess the impact of this innovative therapy on the language abilities of children affected by this neurological disorder. These children, who are the main subjects of this study, often experience significant deficits in their language skills, causing great difficulties in everyday communication. These challenges not only affect their relationships with their families, but also their interactions with the general public, especially with individuals who are not familiar with alternative means of communication such as sign language.

One of the most striking problems for these children is the lack of articulation skills, especially in terms of consonant pronunciation. It is often characterized by soft or unclear pronunciation, which hinders their ability to pronounce words correctly. The impact is not only felt on their pronunciation, but also on the overall clarity of the message being conveyed, which is a major barrier to effective communication.

This study used a multi-faceted approach to evaluate how Multisensory Stimulation Therapy affects language skill deficits. This research explores the ways in which this therapy utilizes the tactile, vestibular, and proprioceptive sensory systems to enrich children's interactions with their environment. By focusing on this often-overlooked sensory pathway, the aim of this study is to reveal the potential of Multisensory

Stimulation Therapy as a more holistic treatment strategy, especially in improving the language skills and quality of life of children suffering from Transcortical Aphasia.

In brief, this study aims to provide an in-depth analysis and further evaluation of the effectiveness of Multisensory Stimulation Therapy as a viable learning approach for children with severe language deficits due to Transcortical Aphasia. The primary focus is to explain how this innovative approach can better equip these children to overcome the significant challenges they face in communication and social interaction.

New research is worth undertaking if it touches on at least one of these two traits: urgency and interest (Siregar et al., 2021, p. 51). Indonesian linguists' research in specific language disorder neurolinguistics is limited, especially in education and learning. This field is very strategic and requires a linguist's role in making tests to diagnose particular language disorder sufferers from the point of view of the language. By researching and analyzing grammatically, it is hoped to develop a rule in treating people with Transcortical Aphasia.

This study aims to provide a comprehensive and objective evaluation of the impact of using a pedagogical approach based on Multisensory Stimulation Therapy in treating Transcortical Aphasia. Engagement in this research direction was sparked by the importance of Multisensory Stimulation Therapy as a new form of therapeutic intervention, distinguished by its strategic, tactical, and instructional approaches that differ from conventional therapy.

Using a solid evaluation framework, this study aims to provide an unbiased and structured assessment of the effectiveness of Multisensory Stimulation Therapy. The focus is to evaluate whether the therapeutic adjustments and modifications inherent in this approach result in statistically and clinically meaningful improvements in the language and communication abilities of individuals with Transcortical Aphasia.

Additionally, the broader aspiration of this research is to contribute to the critical evaluation of new treatment modalities and to pave the way for more effective, evidence-based therapies in the future. If Multisensory Stimulation Therapy proves successful, this research could lay the foundation for advances in the treatment of language disorders caused by nerve damage.

Ultimately, this research is committed to improving the quality of life of individuals suffering from language impairment due to neurological disorders, as well as to improving communicative interactions between them and their social environment. In this way, this research seeks to address gaps in the understanding and treatment of these disorders, with the aim of not only improving clinical conditions, but also improving the social and emotional well-being of individuals and those who interact with them.

## **II. Review of Literature**

A person's linguistic function is greatly influenced by the human brain, which is the control center for communication abilities. This disruption or damage to the brain can hinder the ability to communicate effectively. According to Johan's research in 2018, there are four specific types of neurological disorders that can interfere with language function, namely aphasia, agnosia, apraxia and dysarthria.

According to Ahmadi in his research in 2015, the factors that cause language disorders can vary from one individual to another. In general, these factors can be categorized into two main domains. The first domain includes medical factors such as neurological injuries or genetic predispositions that affect the brain's ability to process language. While the second domain involves social and environmental variables such as

lack of exposure to a rich language environment or a social environment that does not support language development.

The brain has an important role in cognitive and emotional function but is also susceptible to damage. According to Satyanegara research in 2013, brain injuries are often caused by blood vessel abnormalities, which can produce various negative impacts on body functions. For example, paralysis of the right side of the body can occur due to problems with muscle control in certain areas. This can disrupt visual perception, memory, and even the digestive system.

Neurological deficits can also occur due to decreased blood flow to the brain, resulting in decreased oxygen levels. Although it does not initially cause brain tissue death, it can disrupt the normal function of neural circuits. However, if the reduction in blood flow continues over a long period of time, it can cause irreversible death of nerve tissue. For example, in hemorrhagic stroke, the accumulation of blood in the skull cavity can increase intracranial pressure, making the situation worse.

In conclusion, the role of the brain in language and overall body function is very important and vulnerable to various disorders, both from a medical and environmental perspective. This emphasizes the importance of early diagnosis and intervention to reduce its negative impact on language development and body function.

High pressure inside the dome can be fatal and can be caused by various factors that attack the brain. One of them is stroke, which is often defined as an attack on the brain and can result in a lack of oxygen in the brain. Stroke can affect anyone, both adults and young people, and is caused by blocked or ruptured blood vessels. Head injuries are also another cause, where damage to the brain can occur as a result of an accident. Infections such as bacterial meningitis can cause language disorders due to infection of the meninges. Apart from that, brain tumors can also cause high pressure in the dome.

Strokes, head injuries, and infections are some of the common causes of language disorders caused by brain damage. These factors can have various impacts on a person's bodily functions. For example, in a stroke, lack of oxygen causes nerve cell death. In severe head injuries, the brain is bruised and the affected area bleeds. Infections such as bacterial meningitis can also cause language disorders because they spread to the meninges from adjacent structures.

Brain tumors, both benign and malignant, can also cause language disorders. This tumor can grow in various parts of the brain and can affect language function. Brain tumor grades are divided into several classifications based on their nature. Apart from that, brain degeneration can also occur due to various factors such as metabolic disease and poisoning.

In the field of therapy, Multisensory Stimulation Therapy (MST) is an innovative approach that utilizes three important sensory systems, namely touch, vestibular and proprioceptive. MST aims to rehabilitate various biological functions in the human body. Although this sensory system may be as little known as vision or hearing, it plays an important role in human interaction with the surrounding environment. MST can be a holistic and effective treatment option to improve language skills and quality of life for those who experience language disorders due to brain damage.

### **III. Research Method**

To achieve research objectives effectively and efficiently, it is important for a researcher to choose an appropriate methodology. This research uses a hybrid approach that seamlessly combines qualitative and quantitative methods. Specifically, this research

was carried out under the concept of “classroom action research,” which aims to improve learning practices. This is in line with the views of several other senior studies which emphasize the importance of classroom action research in improving the quality of education in the classroom.

Classroom action research is a controlled, cyclical, and introspective process led by teachers or prospective teachers to improve teaching methodology. This was explained by Herawati Susilo et al. as an effort to improve the effectiveness of learning and the overall learning environment. The data collection and analysis process was carried out carefully through recording objective documentation and comprehensive analysis tailored to research needs.

In the context of this research, five patients were randomly selected to become research subjects. The participant selection process is carried out in accordance with the wishes of the patients, their families, and the care institutions involved. This research also complied with ethical protocols relating to human subjects.

Learning outcome tests were used as the main measurement tool in this research. This test was specially designed by researchers and includes 20 questions related to the actions taken. This approach ensures that the research not only achieves its objectives but also provides meaningful insights that can be applied in the field.

Assessment is based on achievement indicators in a particular assessment system. Scores are given based on the subject's ability to respond clearly to the test and correct sounds, with a rating scale set from 1 to 5, according to the student's ability to respond to the test and the clarity of their sounds.

#### **IV. Results and Discussion**

In this research effort, a multilevel classification system was used to group the conditions displayed by the research subjects. Although each subject in a given group receives a similar therapeutic approach based on Multisensory Stimulation therapy techniques and strategies, certain procedural steps are sometimes modified—added or removed—to increase the overall efficacy and efficiency of the study.

Although it is generally known that humans have five primary senses—sight, hearing, touch, taste, and smell—this research emphasizes the importance of two additional senses, namely the vestibular sense related to balance, and proprioception related to movement and spatial orientation.

The first sense examined in this research is the tactile sense, which is a complex receptor system that allows humans to perceive various forms of touch-based stimuli, such as pressure, temperature, and pain. The network of touch receptors is spread throughout the body, from head to toe. Impairments in tactile perception can lead to inaccuracies in interpreting that sensory information. This disorder manifests in three main ways: hypersensitivity, hyposensitivity, and seeking behavior. For example, children who experience tactile hypersensitivity may exhibit discomfort when touched, avoid certain textures in foods, or refuse to wear certain clothing, all of which can hinder their overall development. On the other hand, touch hyposensitivity can be dangerous, as the child may not feel the heat when touching hot surfaces, potentially causing severe burns.

This research then focuses on the vestibular sense, a complex system in the inner ear that regulates balance, spatial orientation, and movement coordination. These disorders in the vestibular sense can be divided into two main categories: hypersensitivity and hyposensitivity. Individuals experiencing hypersensitivity may exhibit unreasonable fear of

basic movements such as swinging or being carried and may avoid using elevators or escalators due to an increased sense of imbalance. On the other hand, those experiencing hyposensitivity may not feel the sensation of falling and therefore may not take protective measures such as preparing for impact, which could potentially lead to injury.

Lastly, the study investigated proprioceptive feelings, a system important for body awareness and spatial orientation. This system informs individuals about the position of their limbs in space, their position in the environment, and the forces required for certain movements. Effective proprioception is essential for completing complex motor tasks such as writing, eating, or buttoning a shirt. Disorders of this sensory system can make it difficult for a person to measure the muscle strength needed to hold a pencil, for example. This may result in a grip that is too strong or too weak, so that individuals affected by the disorder may have difficulty distinguishing between the two.

Through investigating these various sensory disorders, this research aims to gain a deeper understanding of their implications. In addition, this study also aims to investigate the potential of Multisensory Stimulation therapy as an effective treatment option.

In an effort to achieve this goal, this research will explore in depth the sensory disorders that occur in individuals. By understanding the characteristics and impact of these disorders, this research hopes to identify their association with the patient's overall health condition.

Furthermore, this study will evaluate the effectiveness of Multisensory Stimulation therapy in treating the investigated sensory disorders. By combining findings about sensory disorders with results from implementing this therapy, this research will provide valuable insight into the potential of this therapy as a viable solution.

In addition, this research also aims to contribute to the development of more holistic and effective treatment strategies for treating sensory disorders. By evaluating Multisensory Stimulation therapy in this context, this study seeks to provide a foundation for the development of more comprehensive treatment approaches for patients with sensory disorders.

Overall, this research not only aims to better understand sensory disorders, but also to identify and evaluate therapies that could be appropriate treatment options for patients affected by these disorders.

This research outlines the steps used as a guide in data collection, which consists of several main stages. The first stage is observation, where children are observed using various senses such as sight, hearing and touch to see and respond to the words shown by the teacher. Then, the questioning step is used as a motivation method, where children are encouraged to actively participate in learning by answering questions and responding to lesson material.

Next, the reasoning stage is applied to develop children's analytical abilities. They are guided to analyze the words spoken by their interlocutors and pay attention to proper articulation when communicating. The final stage, trying, involves guidance in carrying out the exercises according to the established stages, as well as a focus on practical activities that can help strengthen the skills learned.

This research also evaluates the data collected, especially in the form of classification of student speech, which is the subject of the research. The approach in formulating and evaluating data was carried out qualitatively, allowing researchers to gain in-depth insight into student responses to various learning stimuli. Thus, this data collection and evaluation process makes a significant contribution to the understanding of the effectiveness of Multisensory Stimulation therapy in improving the language skills of children with neurological disorders.

#### 4.1 News Sentence

"Auk jalan, duduk sebelah pohon itu, alah."

"I was walking and sitting near a tree."

The sentence is a news sentence. There is a mission to inform the researcher that the object of the study walked to a tree next to a house and then sat there. As a reference, Kridalaksana (2008, p. 103) explains that news sentences contain news intonation and generally contain the meaning of 'state or give something,' and news sentences end with a period.

The findings of this study are also similar to the results of Dardjowidjojo's (2008, p. 158) study, namely the language of children with specific language disorder is not perfect because specific language disorder is a speech disease in the form of not being able to speak well because of a brain disorder.

#### 4.2 Interrogative sentence

"Apa ini pulak pulak"?

"What is this"?

The sentence is identified as an interrogative sentence. Because "What is this" uses a question word that indicates a question about the noun, namely "what." An interrogative sentence is a sentence that contains a question. This theory is supported by the opinion of Manaf (2009, p. 92), who calls interrogative sentences with interrogative terms, namely sentences that contain the basic meaning of questions.

According to the researcher's assumption, the context of this sentence occurs when the object of research is confused in identifying an object given to him. The thing given to the object is a pain relief patch. It was later discovered that the research object had never seen or used a pain reliever patch before.

#### 4.3 Imperative sentence

"Hoi sana, ngan ko, sana ngan."

"Huh there, don't you, go there."

This sentence is a command sentence because the sentence produced by the research object contains the above elements. It is a command sentence; the research object orders his younger brother to go in a particular direction.

Command sentences are also called orders, namely sentences containing an order's meaning. This opinion is like the opinion of Manaf (2009: 99), who calls command sentences imperative sentences, namely sentences with the command's primary purpose.

#### 4.4 Single Sentence

"Capek aku"

"I am tired. "

The sentence is a single sentence because there is only one independent clause. This follows the opinion of Kridalaksana (2008:106), which states that a single sentence consists of one independent clause.

The context of this sentence is when the researcher asks the resource person or the object of research regarding his willingness to continue the research session. The penalty is a verbal response from the thing of research.

Sentence patterns generated by the speakers or research objects can generally say sentences with the S-P, P-S, P-K marks. Research data related to sentence patterns found can be seen in the following description.

A. S-P Pola Pattern

The researchers found sentences with the S-P pattern in sentences produced by people with aphasia, such as "Aku duduk."  
The filler element of the subject is a noun. In contrast, the predicate filler element is a verb. The meaning of the sentence uttered by the child in the example above is to inform that he is tired.

#### B. P-S Pola Pattern

The researchers also found sentences with P-S patterns in sentences produced by people with aphasia, such as "Capek aku."

#### C. P-K Pola Pattern

The researchers also found sentences with P-K patterns in sentences produced by people with aphasia, such as "Sana ngan."

Observations made during learning activities presented several significant findings. Two subjects, namely subjects 2 and 5, looked very enthusiastic in participating in the therapy process. Even though both of them were fighting over the same paper, they still followed the entire learning series. Subject 2 often took subject 5's identification card, causing the two of them to often joke and make noise during the learning process. These two subjects also looked impatient and often competed to start first when asked to pronounce consonant variables and stick cards before receiving instructions from the therapist.

On the other hand, subject 1 was initially confused about following the therapist's instructions during the learning process. This makes him often late in attaching the cards and gets last in line when practicing pronouncing the consonants in the words written on the cards. Subject 1 also still experienced confusion when following the learning series at the first and second phase meetings. However, he showed enthusiasm in playing puzzles and asking questions in the third and sixth meetings.

Object 5, on the other hand, appears to be the easiest subject to navigate in learning. He also often helps teachers when other subjects have difficulty following instructions and improving pronunciation. Object 5 shows high enthusiasm in participating in education. Despite this, he still made some mistakes in pronunciation. Object 5 also took the initiative to practice pronunciation during the grace period.

After reaching stage 3, all subjects appeared to experience boredom. However, their enthusiasm for following the therapy process only emerged after revisions and variations of the material in the subsequent steps. Even though modifications and interpretations are made to the learning material, the basic principles of the material do not change. At the same time, responses to therapists are not always positive, especially when therapists admit to being physically or mentally exhausted. Even though efforts have been made to change the therapist's way of speaking and body movements to be softer and more pleasant, there are still negative reactions to interactions carried out by the therapist.

## V. Conclusion

Based on the findings and data analysis of the research project, the conclusion highlights the significant positive impact of using Multisensory Stimulation therapy-based learning methods. One of the main factors that influences the effectiveness of the treatment process and its final results is the level of enthusiasm shown by the student participants. However, it is important to recognize that this enthusiasm may be eroded by the possibility of a saturation point in the therapy process, which emphasizes the need for continued engagement with the student in substantial ways.



In this framework, the role of the teacher or therapist becomes very important. Their ability to integrate innovation and deep conceptual understanding into therapy sessions plays a key role in determining the quality and success of treatment. A teacher's ability to adapt curriculum and therapeutic exercises to individual student needs can significantly strengthen or weaken the benefits derived from Multisensory Stimulation therapy.

The involvement of teachers or therapists in the therapeutic process also suggests the importance of a student-oriented approach. They need to be able to understand students' individual needs and design therapy sessions that suit their level of understanding and comfort. Thus, flexibility in learning approaches is key to optimizing therapeutic outcomes.

Additionally, this research highlights the need for a holistic approach to Multisensory Stimulation therapy. This includes the use of a variety of learning methods and strategies designed to stimulate all relevant senses. By paying attention to the diverse sensory needs of each student, therapy can be more effective and relevant.

The success of Multisensory Stimulation therapy depends not only on the presence of appropriate techniques, but also on the active role of the teacher or therapist in designing and delivering interesting and meaningful therapy sessions. With a student-focused approach and the use of holistic methods, this therapy can provide significant benefits for student development and well-being.

This research highlights the importance of carefully adjusting the timing, frequency, and intensity of therapy sessions. These adjustments not only aim to increase student engagement and participation, but also have a significant impact on the overall effectiveness of the therapeutic intervention.

Based on these findings, this study recommends prioritizing the use of Multisensory Stimulation therapy as the main approach in the rehabilitation of individuals experiencing Transcortical Aphasia. However, it is important to recognize that further refinement and development of strategies, tactics, and related educational models that support this type of therapy are needed. Continuous adaptation and innovation are needed in accordance with the principles of effectiveness and efficiency so that therapeutic interventions can have maximum impact.

This research highlights the need to continue to develop a Multisensory Stimulation therapeutic framework. This includes improving the strategies, tactics, and educational models that support the therapy. With an adaptive and innovative approach, this therapy can continue to be improved to achieve optimal results for individuals undergoing rehabilitation.

In addition, this research emphasizes that the development of Multisensory Stimulation therapy must be in line with the principles of effectiveness and efficiency. This means that any changes or innovations must be based on evidence and careful evaluation, so as to ensure that the therapy provides maximum benefit to patients.

In conclusion, this study underscores the importance of continually developing and improving Multisensory Stimulation therapy approaches as a primary strategy in the rehabilitation of individuals with Transcortical Aphasia. By adapting this approach according to individual needs and effectiveness principles, it is hoped that this therapy can have a significant impact in improving the patient's condition.

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