

Exploring the Efficacy of Multisensory Stimulation Therapy in Addressing Communication Challenges and Social Isolation in Individuals with Transcortical Aphasia: A Hybrid Methodological Approach

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Abstract

The study aims to delve deeply into the communication challenges faced by individuals with specific language disorders caused by brain damage, such as Transcortical Aphasia. These disorders not only serve as an obstacle to these individuals' social and personal adjustment but also lead to further complications like social isolation due to mispronunciation and feelings of embarrassment. This research posits that the challenges these individuals face are not only their own but extend to those around them who wish to communicate effectively with them. Employing a hybrid methodology that integrates both qualitative and quantitative analyses, the research scrutinizes the effectiveness of Multisensory Stimulation therapy as a learning method for individuals with language disorders. The study is framed as classroom action research, designed to evaluate the real-world implications of implementing such a therapy in a learning environment. The overarching conclusion of the study suggests that Multisensory Stimulation therapy has a considerable positive impact on improving language abilities and social interactions for people with Transcortical Aphasia. However, the research also underscores the need for further refinement in the implementation strategies, tactics, and learning models based on Multisensory Stimulation therapy. It calls for the adaptation and coordination of these learning methodologies to adhere to principles of effectiveness and efficiency rigorously. By doing so, the study aims to contribute to a more nuanced understanding of language disorders and offer tangible solutions for improving the quality of life for affected individuals and their social circles.

Keywords

Multisensory stimulation; therapy; communication; social; isolation; efficacy



I. Introduction

Communication serves as the bedrock of human interaction, a vital necessity in the tapestry of human experience. It is not merely an optional part of our lives but an integral one that enables us to express ourselves, understand others, and participate fully in society. Ideal communication relies on a seamless interplay among articulators, auditors, and the acoustic media through which sound travels. When any of these elements are compromised be it the mental processes governing speech or the physical apparatus enabling it communication can become challenging, frustrating, and at times, virtually impossible (Indriati, 2011, p. 22).

This predicament is especially poignant for individuals suffering from specific language disorders triggered by neurological impairments. These people are no different from the general population in terms of their inherent desire to communicate and be

understood. They face not only their internal struggles with language but also the secondary consequences of these impairments, such as social isolation and emotional difficulties.

These specific language disorders can manifest as various types of speech abnormalities, from mispronunciations to more severe language deficits, which inevitably affect the individual's personal and social life. These obstacles extend beyond the individual to their social circles, as the inability to communicate effectively often leads to feelings of embarrassment and social withdrawal. Over time, this can culminate in the individual becoming increasingly isolated, reticent to engage in conversations, reluctant to ask questions, or even participate in simple social interactions.

It's a problem that extends far beyond mere inconvenience, complicating the lives of those who suffer from it and demanding an effective treatment approach. One of the strategies that have shown promise in addressing these complex issues is Multisensory Stimulation Therapy. This therapy is a specialized approach designed to harness the less commonly understood but crucial sensory systems: the tactile (touch), vestibular (balance), and proprioceptive (body position) systems. While these sensory systems may not be as well-known as sight or hearing, they play a critical role in how individuals interpret and respond to their surroundings (Siregar, 2016, p. 33).

Multisensory Stimulation Therapy has the potential to offer a new avenue for tackling the intricate problems of speech and communication disorders, particularly among those with conditions like transcortical aphasia. By targeting these often-overlooked sensory systems, the therapy aims to create a more comprehensive treatment that could offer hope for improved communication and, by extension, a better quality of life for these individuals and those who interact with them.

This research project aims to delve into the effectiveness of a specialized learning approach centered on Multisensory Stimulation Therapy for patients diagnosed with Transcortical Aphasia. Specifically, the study evaluates the outcomes generated by applying this innovative therapy to improve the language skills of children who are impacted by this neurological disorder. These children, who serve as the primary subjects of this research, often struggle with substantial deficits in their language capabilities, resulting in pronounced difficulties in everyday communication. The barriers they face are not just limited to their immediate families but extend to interactions with broader society, particularly with those who are not versed in alternative modes of communication such as sign language.

One of the most glaring issues faced by these children is a distinct lack in articulatory proficiency, especially when it comes to the formation of consonants. This often manifests as soft or unclear articulation, which considerably hampers their ability to pronounce words correctly. As a result, not only is their speech compromised, but the overall intelligibility of what they are trying to convey becomes a significant barrier to effective communication.

The study employs a multi-faceted approach to evaluate how Multisensory Stimulation Therapy impacts these language skill deficits. It explores the ways in which the therapy employs tactile, vestibular, and proprioceptive sensory systems to enrich the children's interpretative and responsive interactions with their environment. By focusing on these oft-neglected sensory pathways, the research hopes to unveil how Multisensory Stimulation Therapy can offer a more comprehensive treatment strategy, specifically aimed at improving both the language skills and overall quality of life for children suffering from Transcortical Aphasia.

In summary, this research seeks to provide an in-depth analysis and subsequent evaluation of the effectiveness of Multisensory Stimulation Therapy as a viable learning method for children struggling with severe language deficits due to Transcortical Aphasia. The ultimate goal is to shed light on 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 research endeavor is focused on delivering a comprehensive, objective assessment of the consequences of utilizing a pedagogical approach grounded in Multisensory Stimulation Therapy for treating individuals afflicted with Transcortical Aphasia. The motivation for this research direction is of particular importance given that Multisensory Stimulation Therapy represents a novel therapeutic intervention, distinct in its strategic, tactical, and instructional components when compared to more traditional forms of treatment.

By employing a robust evaluation framework, the study aims to offer an impartial and systematic appraisal of the effectiveness of implementing Multisensory Stimulation Therapy techniques. Specifically, it seeks to determine whether the therapeutic adjustments and modifications embedded in this innovative approach result in a statistically and clinically significant improvement in the language and communication skills of individuals diagnosed with Transcortical Aphasia.

The broader aspiration emanating from this research is to contribute not just a critical evaluation of a new treatment modality but to pave the way for more effective, evidence-based therapies in the future. If the Multisensory approach proves to be effective, this study could be a cornerstone in the advancement of the therapeutic landscape for language disorders precipitated by neural damage.

Ultimately, the study is committed to enhancing the quality of life for people affected by specific language disorders stemming from neurological impairment, as well as improving the communicative interactions between these individuals and their social networks. By doing so, it addresses a critical gap in our understanding and management of such disorders, aiming for more than just clinical improvement but also striving for an elevation in the social and emotional well-being of these individuals and those with whom they interact.

II. Review of Literature

The human brain is the central hub that significantly influences an individual's linguistic capabilities. Any form of disruption or damage to this crucial organ will invariably lead to impairments in the ability to communicate effectively. As delineated by Johan in his 2018 publication, there are generally four specific types of neurological disorders that can adversely affect different regions of the brain and consequently impede language functions. These are aphasia, agnosia, apraxia, and dysarthria.

The underlying factors that contribute to language disorders can differ markedly from one individual to another. As articulated by Ahmadi in his 2015 research, these

causative elements are broadly categorized into two key domains. The first domain encompasses medical factors, such as neurological injuries or genetic predispositions that directly affect the brain's capacity for language processing. The second category involves social and environmental variables, such as lack of exposure to language-rich environments or social settings that may contribute to language delay or impairment.

High pressure in the dome can be fatal. Some of the causes that attack the brain include:

2.1 Strokes

Stroke is usually defined as a disease that makes a person paralyzed. A stroke is an attack on the brain. This condition happens due to a lack of oxygen, and anyone can have a stroke. Usually, many adults have a stroke. However, this can also happen to young people. A stroke is a sudden damage to nerve function due to not smooth blood circulation to the brain. This condition occurs when a blood vessel in the brain becomes blocked or bursts. The brain must get enough oxygen. Otherwise, it will inhibit, and the brain will be deprived of oxygen which causes nerve cell death (Pinzon, 2010, p. 1).

2.2 Head bump

For someone who accidentally gets into an accident, the part that is most prone to injury is the head. Although the skull protects the brain and the outside of the skull, skin, and hair cover it, possible damages to the head and brain can occur; the injury can be minor or fatal afterward. After a minor injury, there will be marked loss of neurological function and no structural damage.

2.3 Infection

Infections that can cause a person to experience a specific language disorder are bacterial meningitis caused by infection of the meninges. According to Ginsberg (2005, p. 122), there are three organisms in the epidemic: *Neisseria meningitidis*. The second is *Haemophilus influenzae*, which often affects children and even adults, and the third is *Streptococcus pneumoniae*, which occurs in the elderly and is associated with alcohol. This infection spreads to the meninges from adjacent structures (ears) or the lungs via the bloodstream.

2.4 Tumor

Brain tumor grades are divided into grades one to four. This classification is based on the nature of the tumor, such as the speed of spread. Brain tumors that are benign and non-malignant are ranked one and two, then tumors that can become cancer are ranked third and fourth. According to Satyanegara (2013, p. 263), the first type of tumor is a glioma in the connective tissue between nerve cells and spinal nerve fibers. Second, meningiomas, these tumors are in the membrane that protects the brain and spinal cord. Third, hemangioma, a tumor located in the blood vessels of the brain, this tumor can cause partial paralysis and convulsions, which is very susceptible to aphasia. Fourth acoustic neuroma is a tumor located on the auditory nerve that helps control the balance of a person's body. Fifth is the pituitary adenoma, a small gland located in the brain's lower area. This tumor is benign but affects the effects of hormones throughout the body.

III. Research Method

To achieve research objectives effectively and efficiently, a researcher must carefully select the most suitable methodology, as emphasized by Siregar in 2021. This particular study employs a hybrid approach that seamlessly integrates both qualitative and quantitative research methods. Specifically, the research falls under the umbrella of "classroom action research," a form of investigative inquiry aimed at improving classroom learning practices. This concept is supported by multiple scholars; for instance, Kunandar asserts that the goal of classroom action research is to enhance the quality of educational acquisition within the classroom setting. Similarly, Luthfi Diah AW describes classroom action research as a pedagogical action research carried out in a classroom context, with the primary aim of improving academic achievement and quality.

The assessment is based on the achievement indicators in the scoring system as follows:

1. Score 5: if the object can respond to the test clearly and corrects the sound.
2. Score 4: if students can respond to the test through repetition and clear sound.
3. Score 3: if students can respond to the test by subtracting or adding letters and clear sounds.
4. Score 2: if students can answer the test in doubt, their voice is unclear.
5. Score 1 if the student cannot answer the question and his voice is unclear.

IV. Result and Discussion

In this research endeavor, a stratified classification system was implemented to categorize the conditions exhibited by the subjects of the study. While each subject within a given stratum received a similar therapeutic approach grounded in Multisensory Stimulation therapy techniques and strategies, certain procedural steps were occasionally modified either added or omitted to enhance the overall efficacy and efficiency of the research.

While it is commonly understood that humans have five primary senses—sight, hearing, touch, taste, and smell this study emphasizes the critical importance of two additional senses, namely the vestibular sense related to balance and proprioception associated with movement and spatial orientation.

The first sense scrutinized in the study is the tactile sense, a complex system of receptors that allows humans to perceive various forms of touch-based stimuli, such as pressure, temperature, and pain. This intricate network of tactile receptors is spread throughout the body, from the tips of the hairs down to the toes. Disruptions in the tactile sense can lead to perceptual inaccuracies in interpreting touch-based information. These disturbances manifest in three principal ways: hypersensitivity, hyposensitivity, and seeking behaviors. For instance, a child with tactile hypersensitivity might exhibit an aversion to being touched, avoid specific textures in foods, or refuse to wear certain materials, all of which could interfere with their overall developmental progress. Conversely, tactile hyposensitivity poses dangerous risks, such as a child touching a hot surface without sensing the heat, potentially leading to severe burns.

Next, the study focuses on the vestibular sense, an intricate system located within the inner ear that governs balance, spatial orientation, and movement coordination. Disturbances in this sense can be categorized as either hypersensitivity or hyposensitivity. Individuals experiencing hypersensitivity may exhibit an irrational fear of basic movements such as swinging or being carried and may avoid elevators or escalators due to

their heightened sense of imbalance. Those with hyposensitivity might not perceive the sensation of falling and therefore may not engage in protective behaviors like bracing for impact, potentially resulting in injury.

Lastly, the study delves into the proprioceptive sense, a system crucial for body awareness and spatial orientation. This sense informs an individual about the position of their limbs in space, their own position within their environment, and the force required for particular movements. Effective proprioception is essential for accomplishing intricate motor tasks such as writing, eating, or buttoning a shirt. A disruption in this sensory system might make it challenging for a person to gauge the appropriate muscle force necessary for holding a pencil, for instance. Whether the grip is too tight or too loose, the affected individual may struggle to differentiate between the two.

By exploring these various sensory disturbances, this study aims to understand their implications better and investigate how Multisensory Stimulation therapy can serve as a viable treatment option.

The steps that are observed and used as a reference for data collection are limited to the following stages:

4.1 Observing

- a. Using the sense of sight to read lips, see writing through picture cards and the teacher's report, and the child can say words from the word/picture cards shown by the teacher.
- b. Optimizing the sense of hearing to hear while optimizing the sense of sight in observing lip movements, then the child says the words he hears from the teacher while seeing the teacher's lips move.
- c. Optimizing the sense of hearing to hear the words spoken by the teacher without reading lips, and the child can say the words he hears without seeing the teacher's lips move.
- d. Say the word according to the teacher's example, and the child can repeat the word exemplified by the teacher.
- e. Optimizing the sense of touch to feel the vibration of the speech organ due to sound, for example, the cheek, neck, and chest area, then the child says the word according to the teacher's example model while feeling the cheek, neck, and chest.
- f. Optimizing tactile to search for words with their fingers, then the child can say the word after tracing the word with their fingers.

4.2 Asking

- a. Motivate sufferers by asking about learning materials.
- b. Encourage sufferers to respond to answers to their questions.

4.3 Reasoning

- a. Directs the patient to analyze the words spoken by the interlocutor.
- b. Directs the patient to analyze the articulation of the interlocutor when pronouncing words.

4.4 Try

- a. Guiding students to carry out exercises according to the existing work stages and reminding students to record the results of the experiment.
- b. Guiding students to focus on practical activities.

This study also collects and evaluates data formulated into the classification of student speech, the research object. The formulation is carried out qualitatively.

A. 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.

B. 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.

C. 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.

D. 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 by researchers during the learning activities that took place showed essential things as follows:

- a. Objects 2 and 5 looked very enthusiastic about participating in the therapy process. Objects follow the entire learning sequence even though the two subjects fight over the same paper. Subject 2 often took the identification card belonging to subject 5, so the two subjects often joked and made a fuss during the lesson. These two objects often appear impatient and compete to start first when asked to pronounce consonant variables and stick cards before being given instructions by the therapist.
- b. During the learning process, object one was initially confused about following the therapist's instructions, so he was often late when sticking cards and got the last queue when he practiced pronouncing the consonants in words listed on the cards. Object 1 was still confused when following the learning series at the first and second stage meetings. Meanwhile, the objects were enthusiastic about playing puzzles and asking questions at the third and sixth meetings.
- c. Object 5 is the most easily directed in learning. Object 5 also often helps the teacher when other things have difficulty following instructions and improving pronunciation. Object 5 is very enthusiastic about participating in education. Object 5 was able to follow instructions and speak words and string questions, although some errors still occurred. Object 5 also on its initiative to practice pronunciation during the grace period.
- d. All objects experience saturation after meeting the 3rd stage. The enthusiasm for following the new therapy process emerged after revisions and material variations were carried out in the following steps. Modifications and interpretations made in principle only change the figure or place presented in the learning material. At the same time, the classification and orientation of the material were not changed or corrected at all.
- e. All objects are seen to identify the therapist's sincerity and patience. In many cases, therapists who claim to be physically or mentally exhausted do not seem to respond positively to all objects. Although the way of speaking and gestures has been tried to be changed to be more gentle and pleasant, things still react negatively to the interactions made by the therapists.

V. Conclusion

Drawing from the findings and data analysis of the research project, the conclusion articulates a noteworthy positive impact stemming from the utilization of learning methods centered on Multisensory Stimulation therapy. One of the key factors influencing both the treatment process and its ultimate outcomes is the level of enthusiasm exhibited by the student participants. This enthusiasm, however, can be tempered by a potential saturation point in the therapeutic process, making it crucial to continually engage students in a meaningful way.

In this context, the role of the teacher or therapist is absolutely pivotal. Their ability to inject innovation and conceptual depth into the therapy sessions largely dictates the quality and efficacy of the treatment. The teacher's skill in adapting the curriculum and therapeutic exercises according to the students' needs can either uplift or diminish the benefits derived from the Multisensory Stimulation therapy.

Furthermore, the research emphasizes the critical importance of precise calibration in the timing, frequency, and intensity of the therapy sessions. This meticulous adjustment not only optimizes the engagement and participation of the students but also significantly influences the overall effectiveness of the therapeutic intervention.

Given these findings, this study strongly advocates for prioritizing learning methods that rely on Multisensory Stimulation therapy as a frontline strategy in the rehabilitative treatment for individuals diagnosed with Transcortical Aphasia. Nevertheless, the study also stresses the ongoing need for refinement and development in the associated strategies, tactics, and educational models that underpin this type of therapy. There is an imperative to continually adapt and innovate these frameworks in line with the principles of effectiveness and efficiency to ensure that the therapeutic intervention is as impactful as possible.

References

- Ahmadi, Anas. 2015. *The foundations of psycholinguistics*. Jakarta: The Achievement of the Jakarta Library.
- Aribowo, Luita. (2018). *Neurolinguistics: Applying Linguistic Concepts and Theories*. *Journal Language Description*. 01(1), 46.
- Anjani, S. D., & Siregar, I. (2023). *Health Vitality of the Betawi Language in the Future in Jakarta: A Sociolinguistic Study*. *Formosa Journal of Sustainable Research*, 2(3), 623–640. <https://doi.org/10.55927/fjsr.v2i3.3521>
- Anjani, S. T., & Iskandarsyah Siregar. (2023). *The Existence of Palang Pintu Culture in the Opening Procession of Betawi Traditional Weddings (Case Study: George Herbert Mead's Symbolic Interactionism)*. *Formosa Journal of Sustainable Research*, 2(3), 641–666. <https://doi.org/10.55927/fjsr.v2i3.3517>
- Bambang Setyono S.PTh. (2000). *Speech Therapy for Education and Health Practitioners*. Jakarta: Medical Book Publisher
- Batticaca, Fansisca. 2008. *Nursing Care of Clients with Nervous System Disorders*. Jakarta: Salemba Medika.
- Bernadeta Tumirah. (2012). *Speech Learning for Deaf Children. The BinteK Development of Substances of the SLB Curriculum Materials for the Speech Development Program*. Semarang: Department of Education and Culture of Central Java Province
- Chaer, Abdul. 2012. *Psycholinguistics Theoretical Studies*. Jakarta: Rineka Cipta.
- Chaplin, J.P. (1997). *Complete Dictionary of Psychology*. Translator Kartini Kartono. Jakarta: Raja Grafindo Persada.

- Daniel P. Hallahan, James M. Kauffman, and Paige C. Pullen. (2009). *Exceptional Learners: An Introduction to Special Education*. USA: Pearson.
- Dharmaperwira – Prins, Reni. 1985. *Dysarthria – Verbal Apraxia and TEDYVA*. Jakarta: Indomedika.
- Dudung Abdurachman and Moch. Sugiarto. (1996). *Speech Teaching Guidelines for Deaf Children*. Jakarta: CV. Prosperous Works.
- Edja Saadjah & Dardjo S. (1995). *Build Perception of Sound and Rhythm*. Jakarta: Director General of Higher Education.
- Endang Supartini. (2003). *Speech Pathology*. Yogyakarta: Yogyakarta State University
- Eriyanti, R. W. (2017). Coherence of Teacher Questions on Learning. *TOUR: Journal Science of Language, Literature, and Its Teaching*, 2(1), 77-89.
- Ghifari, H., & Siregar, I. (2023). The Effect of Service Quality and Promotion on Visiting Decisions at Betawi Cultural Villages. *Formosa Journal of Sustainable Research*, 2(3), 607–622. <https://doi.org/10.55927/fjsr.v2i3.3516>
- Ginsberg, Lionel. 2005. *Lecture Notes: Neurology*. Translation by Indah Retno. 2007. Jakarta: Erlangga.
- Herawati Susilo et al. (2009). *Classroom action research*. Malang: Bayumedia Publishing.
- Hurlock, Elizabeth B. *Developmental Psychology* Jakarta: Erlangga, 2004.
- Indah, Rahmani. 2017. *Language Disorders Introductory Study*. Malang: UIN-Maliki Press.
- John, Mhd. (2018). Language Disorders in Stroke Patients A Study: Neurolinguistics. *Journal of SNISTEK* (1), 114.
- Indriati, Ety. *Speech and Language Difficulties in Children: Parental Therapy and Strategies*. Jakarta: Prenada, 2011.
- Kirana, C., & Sulisty, E. T. (2018). *Expressive Speech in Republican Political Humor*
- Kunandar. 2008. *Easy Steps for Classroom Action Research as Teacher Professional Development*. Jakarta: Rajawali Press.
- Lucky Ade Sessiani. (2007). *Effect of Multisensory Method in Improving Early Reading Ability in Kindergarten Children*. Research Report. Semarang: Faculty of Psychology, Diponegoro University.
- Lumbantobing, S. M. *Clinical Neurology: Physical and Mental Examination*. Jakarta: FKUI Publishing Agency, 2014.
- Lutfi Diah A.W. (2015) *Improving Articulation Skills Through the Peer Tutorial Method for Deaf Children in Elementary Grade IV at SLB Wiyata Bhakti Kulon Progo*. Essay. Yogyakarta: Yogyakarta State University.
- Marsono. (1993). *phonetics*. Yogyakarta: Gadjah Mada University
- Nasution. (2010). *Integrated Quality Management*. Jakarta: Ghalia Indonesia.
- Miftakhul Huda. (2014). *Teaching and Learning Models*. Yogyakarta: Student Library.
- Mohammad Efendi. (2005). *Introduction to Psychopedagogy of Children with Disabilities*. Jakarta: Earth Literacy
- Mujianto, G. (2018). Analysis of Critical Discourse on Reporting About Islamic Organizations on Online News Sites. *KEMBARA: Scientific Journal of Language, Literature, and Its Teaching*, 4(2), 155-172.
- Mujianto, G. (2018). Cohesion Tools in Written Discourse for Teachers of SMA/SMK Muhammadiyah Malang Regency *KEMBARA: Scientific Journal of Language, Literature, and Their Teaching*, 3(2), 210-233.
- Mukhtar. *Practical Methods of Qualitative Descriptive Research*. Jakarta: Reference, 2013.
- Mulyono Abdurrahman. (2003). *Education for Children with Learning Disabilities*. Jakarta: Rineka Cipta
- Munawir Yusuf. (2005). *Education for children with learning problems*. Jakarta: Ministry

of National Education

- Musaffak, M. (2015). Discourse Analysis of Food and Beverage Advertisements on Television Based on the Structure and Function of Language. *KEMBARA: Scientific Journal of Language, Literature, and Its Teaching*, 1(2), 224-232.
- Ngalim Purwanto. (2012). *Teaching Evaluation Principles and Techniques*. Bandung: PT. Remaja Rosdakarya
- Nur Indah D.M (2014). *Improvement of Velar Consonant Pronunciation Ability Through VAKT Method in Deaf Children in Taman 3 Class at Karnnamanohara Special School*. Essay. Yogyakarta State University of Yogyakarta.
- Permana, G. I., Saiful, A., Siregar, I., & Zulkarnain. (2022). The Contravention and Community Alteration Relationship. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4418>
- Pinzon, Rizaldy. 2010. *Beware Stroke! Definition, Symptoms, Action, Treatment & Prevention*. Yogyakarta: Publisher Andi.
- Robbins, Stephen P. and Judge, Timothy A., (2009). *Organizational Behavior*. 13th Edition. Pearson Education, Inc., Upper Saddle River, New Jersey.
- Sabrina, A., Siregar, I., & Sosrohadi, S. (2021). Lingual Dominance and Symbolic Power in the Discourse of Using the PeduliLindungi Application as a Digital Payment Tool. *International Journal of Linguistics Studies*, 1(2), 52–59. <https://doi.org/10.32996/ijls.2021.1.2.8>
- Salsabila, Siregar, I., & Sosrohadi, S. (2021). Analysis of Code Mixing in Jerome Polin Youtube Content “Nihongo Mantappu”. *International Journal of Linguistics, Literature and Translation*, 4(12), 01–08. <https://doi.org/10.32996/ijllt.2021.4.12.1>
- Saputra, A. S., & Iskandarsyah Siregar. (2023). Implementation of DKI Jakarta Provincial Regulation Number 4 of 2015 Concerning the Preservation of Betawi Culture (Case Study: Education Curriculum). *Formosa Journal of Sustainable Research*, 2(3), 591–606. <https://doi.org/10.55927/fjsr.v2i3.3518>
- Siregar, I. & Sabrina, A. (2021). Representation of Religious Values in Gurindam Twelve and Their Relevances with Modern Era. *International Journal of Cultural and Religious Studies*, 1(1), 50–57. <https://doi.org/10.32996/ijcrs.2021.1.1.7>
- Siregar, I. & Salsabila. (2021). Acts of Illocutionary Speech by Ganjar Pranowo in the "One Hour Closer" Talkshow. *International Journal of Arts and Humanities Studies*, 1(1), 95–100. <https://doi.org/10.32996/ijahs.2021.1.1.14>
- Siregar, I. & Siregar, R. (2021). The Relevances between Poda Na Lima Philosophy with Islamic Perspective. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v4i4.3240>
- Siregar, I. (2020). *Exploration and Implementation of the Cultural System as a Solution to National and State Problems*. <http://repository.unas.ac.id/id/eprint/811>
- Siregar, I. (2020). *Geografi Leksikon Betawi*. Jakarta: LPU Unas
- Siregar, I. (2021). Analysis of Betawi Language Interference on the Morphology of Adolescent Speech in Jakarta. *Journal of Humanities and Social Sciences Studies*, 3(8), 54-60. <http://doi.org/10.32996/jhsss.2021.3.8.7>
- Siregar, I. (2021). Epistemological Challenges Against Sociolinguistics. *International Journal of Linguistics Studies*, 1(2), 37–42. <https://doi.org/10.32996/ijls.2021.1.2.6>
- Siregar, I. (2021). The Existence of Culture in its Relevance to the Dynamics of Globalization: Bahasa Indonesia Case Study. *International Journal of Cultural and Religious Studies*, 1(1), 33–38. Retrieved from <https://www.al-kindipublisher.com/index.php/ijcrs/article/view/2285>

- Siregar, I. (2021). Verbal Communication of Schizophrenic Patients Due to Neurotransmitter Distortion. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, 13(2), 543-556.
- Siregar, I. (2022). Correlation and Logical Consequences between Pancasila and the Perspective of Tradition. *Lakhomi Journal Scientific Journal of Culture*, 3(4), 170-181. <https://doi.org/10.33258/lakhomi.v3i4.864>
- Siregar, I. (2022). Criticism of Philosophical Approaches to Sociolinguistics. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4233>
- Siregar, I. (2022). Cyber Library Auditorium Acoustic Evaluation in Acoustic Phonetic Perspective. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4234>
- Siregar, I. (2022). Effective and Efficient Treatment of Regional Language Preservation Strategies in the Nusantara. *Journal of Humanities and Social Sciences Studies*, 4(2), 16–22. <https://doi.org/10.32996/jhsss.2022.4.2.3>
- Siregar, I. (2022). Implications of Learning Methods Based on Multisensory Stimulation Therapy in Patients with Transcortical Aphasia. *I T A L I E N I S C H*, 12(1), 809–818. <https://doi.org/10.1115/italienisch.v12i1.252>
- Siregar, I. (2022). Islamic Values in Palang Pintu Procession in Semiotic Perspective. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4239>
- Siregar, I. (2022). Language Response as a Cultural Element to Globalization. *Lakhomi Journal Scientific Journal of Culture*, 3(1), 8-18. <https://doi.org/10.33258/lakhomi.v3i1.619>
- Siregar, I. (2022). Papuan Tabla Language Preservation Strategy. *LingLit Journal Scientific Journal for Linguistics and Literature*, 3(1), 1-12. <https://doi.org/10.33258/linglit.v3i1.620>
- Siregar, I. (2022). Semiotic Touch in Interpreting Poetry. *Britain International of Linguistics, Arts, and Education (BioLAE-Journal)*, 4(1), 19-27. <https://doi.org/10.33258/biolae.v4i1.618>
- Siregar, I. (2022). Semiotics Analysis in The Betawi Traditional Wedding "Palang Pintu": The Study of Semiotics Roland Barthes. *International Journal of Linguistics Studies*, 2(1), 01–07. <https://doi.org/10.32996/ijls.2022.2.1.1>
- Siregar, I. (2022). The Effectiveness of Linguistics in Studying Fiscal and Monetary Policy Issues. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4235>
- Siregar, I. (2022). The Effectiveness of Multisensory Stimulation Therapy in People with Specific Language Disorder. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4238>
- Siregar, I. (2022). Viewpoints and Perspectives of Batak Migrants on Dalihan Na Tolu: The Exposition Revision. *Lakhomi Journal Scientific Journal of Culture*, 3(4), 182-193. <https://doi.org/10.33258/lakhomi.v3i4.865>
- Siregar, I. (2023). Basic Techniques and Approaches in Preserving the Endangered Betawi Language. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v6i2.7603>
- Siregar, I. (2023). Democratic Liberal Theory Based on Literature Review. *Konfrontasi Journal: Culture, Economy and Social Changes*. <https://doi.org/10.33258/konfrontasi2.v10i1.265>

- Siregar, I. (2023). Description of the Condition of the Betawi Language in Future Developments. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*. <https://doi.org/10.33258/birle.v6i2.7557.g7494>
- Siregar, I. (2023). Determination of Aesthetic Acts as Resistance by Social Society. *Konfrontasi Journal: Culture, Economy and Social Changes*. <https://doi.org/10.33258/konfrontasi2.v10i1.266>
- Siregar, I. (2023). Phenomenological Analysis of Consumer Shopping Behavior in Asia and Europe. *Konfrontasi: Jurnal Kultural, Ekonomi Dan Perubahan Sosial*, 10(1), 25-33. <https://doi.org/10.33258/konfrontasi2.v10i1.264>
- Siregar, I. (2023). The Dynamics of Communication Forms in the Betawi Language in Community Implementation. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*. <https://doi.org/10.33258/birle.v6i2.7556.g7493>
- Siregar, I. (2023). The Re-Evaluation of Function Hall Acoustic Phonetic Condition. *LingLit Journal Scientific Journal for Linguistics and Literature*, 4(1), 49-58. <https://doi.org/10.33258/linglit.v4i1.867>
- Siregar, I. (2023). The Role of Language in a Dynamic Situation of Globalization. *Britain International of Linguistics, Arts And Education (BIO LAE) Journal*. <https://doi.org/10.33258/biolae.v5i1.868>
- Siregar, I. (2023). The Technical Essence of Poda Na Lima as the Foundation of Public Health Philosophy. *Lakhomi Journal Scientific Journal of Culture*, 4(1), 1-11. <https://doi.org/10.33258/lakhomi.v4i1.866>
- Siregar, I., & Yahaya, S. R. (2022). Betawi Speech Shift in Internal Family Communication. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i4.7511>
- Siregar, I., & Yahaya, S. R. (2022). Semiotic Exploration of Roti Buaya as a Cultural Ornament. *British Journal of Applied Linguistics*, 2(1), 06–13. <https://doi.org/10.32996/bjal.2022.2.1.2>
- Siregar, I., & Yahaya, S. R. (2023). The Betawi Lexicon of Kinship and Greeting. *Formosa Journal of Sustainable Research*, 2(3), 667–680. <https://doi.org/10.55927/fjsr.v2i3.3522>
- Siregar, I., & Zulkarnain. (2021). CSR-Based Corporate Environmental Policy Implementation. *British Journal of Environmental Studies*, 1(1), 51–57. Retrieved
- Siregar, I., & Zulkarnain. (2022). The Relationship between Conflict and Social Change in the Perspective of Expert Theory: A Literature Review. *International Journal of Arts and Humanities Studies*, 2(1), 09–16. <https://doi.org/10.32996/bjahs.2022.2.1.2>
- Siregar, I., (2021). *Research Methodology*. Jakarta: Uwais Inspirasi Indonesia
- Siregar, I., Anjani, S. D., & Yahaya, S. R. (2023). Projection of the Vitality of the Betawi Language in the Future Time in Jakarta. *International Journal of Linguistics, Literature and Translation*, 6(3), 39–46. <https://doi.org/10.32996/ijllt.2023.6.3.4>
- Siregar, I., Rahmadiyah, F., & Siregar, A. F. Q. (2021). Auditorium Model Assessment with Corrected Acoustic Function. *British Journal of Physics Studies*, 1(1), 01–06. Retrieved from <https://al-kindipublisher.com/index.php/bjps/article/view/2610>
- Siregar, I., Rahmadiyah, F., & Siregar, A. F. Q. (2021). Linguistic Intervention in Making Fiscal and Monetary Policy. *International Journal of Arts and Humanities Studies*, 1(1), 50–56. <https://doi.org/10.32996/ijahs.2021.1.1.8>
- Siregar, I., Rahmadiyah, F., & Siregar, A. F. Q. (2021). The Impact of Multisensory Stimulation of Biological Organs in Dysarthria Patients as Articulation Skills Rehabilitation. *British Journal of Nursing Studies*, 1(1), 20–29.

- <https://doi.org/10.32996/bjns.2021.1.1.3z>
- Siregar, I., Rahmadiyah, F., & Siregar, A. F. Q. (2021). Therapeutic Communication Strategies in Nursing Process of Angry, Anxious, and Fearful Schizophrenic Patients. *British Journal of Nursing Studies*, 1(1), 13–19. <https://doi.org/10.32996/bjns.2021.1.1.3>
- Siregar, Iskandarsyah. (2016). *Eksposisi General Psikolinguistik*. Jakarta: LPU Unas
- Siregar, R., Zulkarnain., & Siregar, I. (2022). Analysis of Naturally Hospitable Alternative Energy Cultivation Regulations. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*. <https://doi.org/10.33258/birci.v5i1.4422>
- Somad & Tati Herawati's play. (1995). *Orthopedagogics for Deaf Children*. Bandung: Ministry of Education and Culture Director General of Higher Education.
- Sukadi. (2012). *Improving Reading Ability Through a Multisensory Approach for Mild Mentally Impaired Children Class V SLB-C Ma-Arief Muntilan Academic Year 2011/2012*. Essay. Yogyakarta: Yogyakarta State University
- Sumanto. *Developmental psychology*. Yogyakarta: CAPS, 2014.
- Wurianto, Budi. 2019. Literacy of Indonesian Language and Literature Towards Professional Entrepreneurship in the Era of the Industrial Revolution 4.0 and Society 5.0 (Opportunities and Challenges). *Proceeding SENASBASA*. Issue 1, 11.