

PERCEIVED EFFECTIVENESS OF COGNITIVE-LINGUISTIC APPROACHES IN SCHOOL-BASED APHASIA REHABILITATION IN NIGERIA

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Abstract

This study assessed the impact of integrating cognitive linguistics principles into aphasia rehabilitation programs at Government Comprehensive Special School, Lafia, Nasarawa State, Nigeria. Aphasia, a language disorder often resulting from brain injury or stroke, significantly impairs communication and comprehension. While cognitive-linguistic approaches have shown promise globally, evidence from Nigerian special education contexts remains limited. A quantitative research design was adopted, using total population sampling of all 18 teachers directly involved in aphasia rehabilitation at the school. Data were collected through structured questionnaires with closed-ended items on a 5-point Likert scale. Descriptive statistics, including frequency tables and charts, were employed to analyze responses. The findings revealed strong teacher agreement that cognitive linguistics integration significantly improved students' communication (77.8% strongly agree) and comprehension skills (61.1% agree, 16.7% strongly agree). Teachers also reported consistent use of Speech and Language Therapy (SLT) and Melodic Intonation Therapy (MIT), while Augmentative and Alternative Communication (AAC) tools received neutral responses, suggesting inconsistent application. The majority acknowledged the incorporation of Individualised Educational Plans (IEPs) tailored to learners' needs. These results affirm the effectiveness of cognitive-linguistic principles in aphasia rehabilitation and underscore the need for improved AAC training. The study contributes context-specific evidence supporting innovative, tailored rehabilitation strategies for Nigerian special education settings.

Keywords: Aphasia, Aphasia rehabilitation, Cognitive linguistics, Speech and language therapy, Melodic intonation therapy; Individualised educational plans (IEPs); Nigeria Special Education.

Introduction

Aphasia is an acquired impairment of language production and/or comprehension following a brain injury (Ali et al., 2025). It is often considered a major cause of long-term disability that undermines communication, social participation, and educational access for affected individuals (Akabogu et al., 2019). Rehabilitation approaches for aphasia have traditionally combined speech-language therapy with psychosocial interventions; more recently, cognitively informed linguistic interventions that target underlying language processing (lexical access, syntax, phonology, and semantic networks) have shown promise in improving

functional outcomes (Akabogu et al., 2019). In multilingual and resource-limited contexts such as Nigeria, the complexity of aphasic speech including language mixing, segmental and suprasegmental deviations, calls for rehabilitation approaches that explicitly account for cognitive-linguistic organization across a patient's languages (Sunday, 2013). Government Comprehensive Special School, Lafia established to provide specialized services to children with disabilities in Nasarawa State, represents a relevant local site to examine whether integrating cognitive linguistics principles into rehabilitation can impact therapy effectiveness for pupils with aphasia (The State House, Abuja, 2018).

Recent studies provide significant evidence supporting the use of cognitive-linguistic approaches in aphasia rehabilitation. Boyle et al. (2022) evaluated cognitive-linguistic interventions using the Rehabilitation Treatment Specification System (RTSS) framework and demonstrated that targeting underlying language processes such as semantic mapping and phonological retrieval produces measurable improvements in communication. Similarly, Eley et al. (2024) conducted a systematic review on cognitive-linguistic interventions administered within the first 90 days post-stroke. Their findings revealed that early, structured cognitive-linguistic therapy can enhance recovery trajectories, particularly when therapy intensity and patient-specific language profiles are considered.

In Nigeria, Lawal and Isah (2022) examined the effects of cognitive styles on the academic performance of primary school pupils with aphasia in Sokoto State. They found that pupils with field-independent cognitive styles achieved higher academic outcomes, highlighting the importance of considering individual cognitive differences in rehabilitation. Suleiman and Manir (2019) explored cognitive styles and emotional status, revealing a relationship between emotional well-being and cognitive style among primary pupils with aphasia, suggesting that socio-emotional factors influence therapy outcomes. Earlier studies describing phonological and prosodic patterns among Nigerian aphasics highlight characteristic deviations (deletion, substitution, epenthesis) that are likely to interact with bilingual language systems and influence response to therapy (Sunday, 2013).

Akabogu et al. (2019) demonstrated that CBLT significantly improved speech production and comprehension in post-stroke aphasic patients, underscoring its efficacy in low-resource settings. Otu et al. (2021) supported these findings, reporting clinically relevant improvements in aphasic stroke patients following CBLT interventions. Collectively, these studies indicate that cognitive-linguistic approaches are effective across diverse settings, including resource-constrained environments. They also emphasize the importance of tailoring interventions to

individual cognitive and emotional profiles, as well as implementing therapy early in the rehabilitation process. These insights inform the present study's focus on integrating cognitive linguistics principles into school-based aphasia rehabilitation in Government Comprehensive Special School, Lafia. The primary objective is to assess teachers' perceptions of the effectiveness of a cognitive-linguistically informed rehabilitation protocol.

Conceptual Review

Cognitive Linguistics

Cognitive Linguistics is a theoretical framework that views language as an integral part of human cognition, emphasizing the relationship between linguistic structures and conceptualization processes (Evans & Green, 2006). Rather than treating grammar as an autonomous system, cognitive linguistics argues that language is shaped by general cognitive abilities such as categorization, perception, and memory. Core concepts include metaphor, image schemas, and embodied meaning, which explain how abstract ideas are understood through concrete experiences (Lakoff & Johnson, 1980). In applied contexts, cognitive linguistics offers insights into how learners conceptualize and process language, making it relevant for understanding language breakdowns in aphasia and for designing therapies that align with cognitive processes. By highlighting the interaction between language and thought, this framework provides a valuable foundation for interventions that aim to rebuild disrupted linguistic networks in individuals with brain injuries. Its emphasis on meaning-making aligns well with rehabilitative goals.

Aphasia

Aphasia is an acquired language disorder resulting from brain damage, commonly caused by stroke, traumatic injury, or neurological disease. It affects a person's ability to produce, comprehend, read, or write language without impacting intelligence (Kiran & Thompson, 2019). Aphasia can present in various forms, such as Broca's (non-fluent), Wernicke's (fluent), and global aphasia, each reflecting specific impairments in speech production or comprehension. In Nigeria, studies

note the additional challenge of bilingualism or multilingualism, where code-switching and cross-linguistic interference may complicate diagnosis and therapy (Sunday, 2013). Aphasia not only limits communication but also disrupts social relationships, educational opportunities, and quality of life. Early diagnosis and culturally tailored interventions are critical, particularly in resource-constrained contexts where specialized speech-language services may be scarce. Understanding aphasia within Nigeria's sociolinguistic environment underscores the need for innovative rehabilitation strategies that address both cognitive and linguistic dimensions.

Aphasia Rehabilitation

Aphasia rehabilitation refers to structured interventions designed to restore or compensate for impaired language functions. Traditionally, speech-language therapy has been the primary approach, emphasizing repetitive practice and functional communication tasks (Brady et al., 2016). More recent developments incorporate cognitive-linguistic principles, focusing on the mental processes underlying language, such as semantic mapping, phonological retrieval, and syntax reorganization (Akabogu et al., 2019). Rehabilitation may include individual or group therapy, computer-assisted exercises, and family or community-based programs to improve participation. In Nigeria, limited access to trained speech-language pathologists poses significant barriers, making schools and community centers vital sites for intervention (Sunday, 2013). Effective rehabilitation not only improves linguistic performance but also enhances social integration and emotional well-being. Integrating cognitive-linguistic approaches in school-based settings, such as Government Comprehensive Special School, Lafia holds promise for improving outcomes for children with aphasia, particularly in multilingual contexts where conventional methods may fall short.

Theoretical Framework

This study adopts Coltheart's (1985) Cognitive Neuropsychological Model, which explains language processing as a network of interconnected components, including phonological input, semantic interpretation,

syntactic organization, and phonological output. Damage to any of these pathways may result in distinct patterns of language impairment, such as those observed in aphasia. The model emphasizes that understanding the cognitive processes underlying language breakdown can guide the development of targeted rehabilitation strategies (Coltheart, 1985).

By aligning with this model, the present study applies cognitive linguistics principles to address specific deficits in learners with aphasia at Government Comprehensive Special School Lafia. Targeting underlying semantic and phonological processes rather than surface-level speech alone provides a structured approach for therapy. Nigerian contexts, characterized by multilingualism and code-switching, require frameworks that are sensitive to linguistic diversity and cultural factors (Sunday, 2013). Previous research suggests that cognitively informed interventions improve recovery and functional communication outcomes, reinforcing the relevance of this model for aphasia rehabilitation in resource-limited settings (Akabogu et al., 2019)

Methodology

This study adopted a quantitative research design to assess the perceived effectiveness of cognitive-linguistic approaches in school-based aphasia rehabilitation in Nigeria specially at Government Comprehensive Special School, Lafia. Quantitative designs are effective for measuring relationships and testing hypotheses using numerical data, ensuring objectivity and replicability (Creswell & Creswell, 2018). The study population comprised all 18 teachers directly involved in aphasia rehabilitation at Government Comprehensive Special School, Lafia. A total population sampling technique was employed, selecting every eligible participant to ensure comprehensive coverage of the small population and to eliminate sampling bias (Etikan & Bala, 2017). Data were collected using structured questionnaires administered to the teachers. Structured questionnaires are widely used in educational and rehabilitation research because they provide consistent data and facilitate statistical analysis (Bryman, 2016). The

instrument contained closed-ended items measured on a 5-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree,” enabling respondents to express varying degrees of agreement and improving reliability. To analyse the data, descriptive statistical techniques,

including frequency tables and charts, were used to summarize and present responses clearly. This approach allows for straightforward interpretation of trends and patterns, aligning with the study’s objective to assess the impact of cognitive-linguistic integration in aphasia rehabilitation.

Data Presentation and Analysis

Data in this study show teachers’ perspectives on the effectiveness of cognitive linguistics principles in improving students’ communication and comprehension skills, as well as the incorporation of tailored instructional strategies such as Individualised Educational Plans (IEPs) in aphasia rehabilitation.

Table 1: *Progress in Communication Skills*

	Frequency	Percentage (%)
Neutral	2	11.1
Agree	2	11.1
Strongly agree	14	77.8
Total	18	100.0

Table 1 shows that the majority of teachers (77.8%) strongly agreed and 11.1% agreed that students have made significant progress in improving their communication skills since the introduction of cognitive linguistics principles, while 11.1% remained neutral. This overwhelming agreement indicates that the integration of cognitive linguistics has been perceived as highly effective in enhancing students’ ability to communicate.

Table 2: *Progress in Comprehension Skills*

	Frequency	Percentage (%)
Disagree	2	11.1
Neutral	2	11.1
Agree	11	61.1
Strongly agree	3	16.7
Total	18	100.0

Table 2 shows that 61.1% of teachers agreed and 16.7% strongly agreed that students’ comprehension skills improved significantly, while 11.1% each either disagreed or remained neutral. This suggests strong support for the positive impact of cognitive linguistics on comprehension, though a small proportion of respondents remain unconvinced or uncertain about its effectiveness.

Table 3: Incorporation of Individualised Educational Plans (IEPs)

	Frequency	Percentage (%)
Disagree	1	5.6
Neutral	3	16.7
Agree	7	38.9
Strongly agree	7	38.9
Total	18	100.0

Table 3 shows that 38.9% of the teachers agreed and another 38.9% strongly agreed that IEPs tailored to students’ specific needs and abilities have been incorporated into the curriculum. Meanwhile, 16.7% were neutral, and 5.6% disagreed. This indicates that most teachers recognise the use of tailored educational strategies to enhance aphasia rehabilitation, though a few respondents appear unsure or believe such strategies are not consistently applied.

These findings indicate a highly positive perception of cognitive linguistics–based interventions among teachers. Further, Figures 1 to 3 provide further insights into specific therapies applied within the school’s rehabilitation program.

Speech and Language Therapy (SLT)

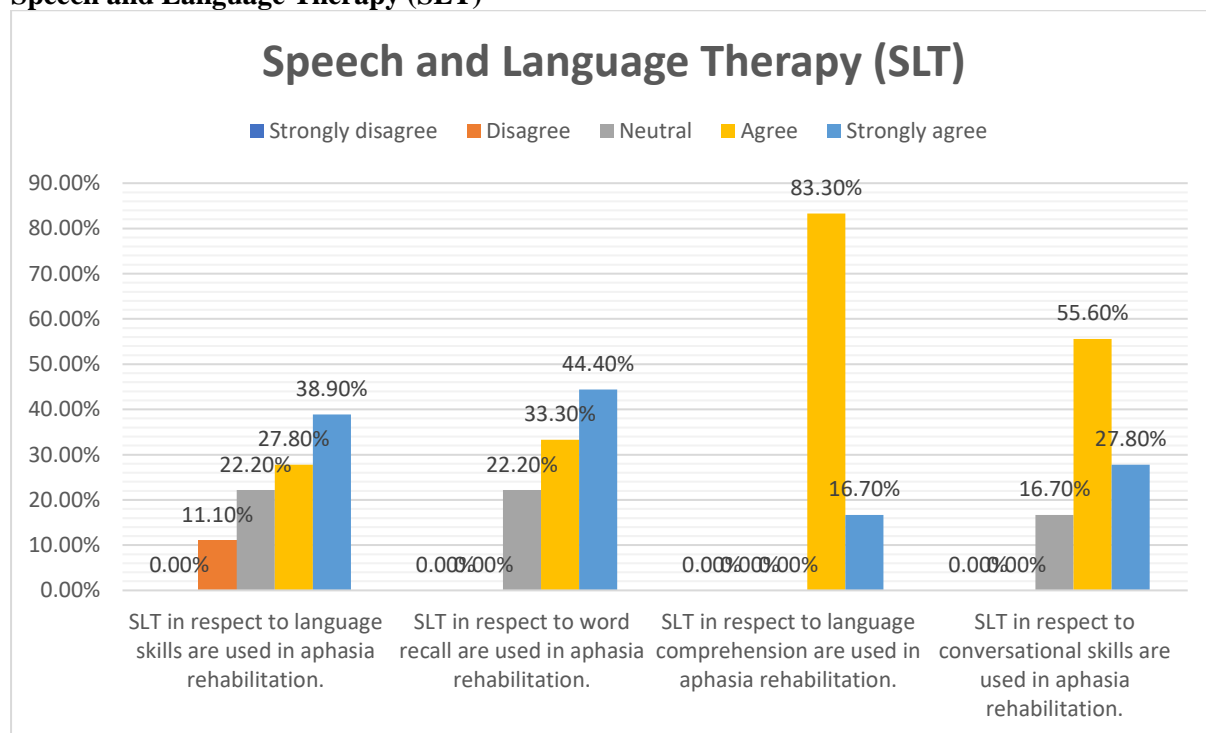


Figure 1: Aspects of Speech and Language Therapy (SLT)

Figure 1 shows a widespread use of SLT strategies across several areas. For language skills, 38.9% of teachers strongly agreed and 27.8% agreed that these are applied, while 22.2% were neutral and only 11.1% disagreed. For word recall, responses were even more positive, with 44.4% strongly agreeing and 33.3% agreeing, while 22.2% were neutral. Language comprehension received overwhelming support: 83.3% agreed and 16.7% strongly agreed, with no disagreement or neutrality, suggesting this area is consistently and effectively

addressed. Similarly, conversational skills were positively rated, with 55.6% agreeing and 27.8% strongly agreeing, while only 16.7% remained neutral. These results indicate that SLT techniques especially those targeting comprehension and conversational abilities are integral components of aphasia rehabilitation at the school.

Augmentative and Alternative Communication (AAC)

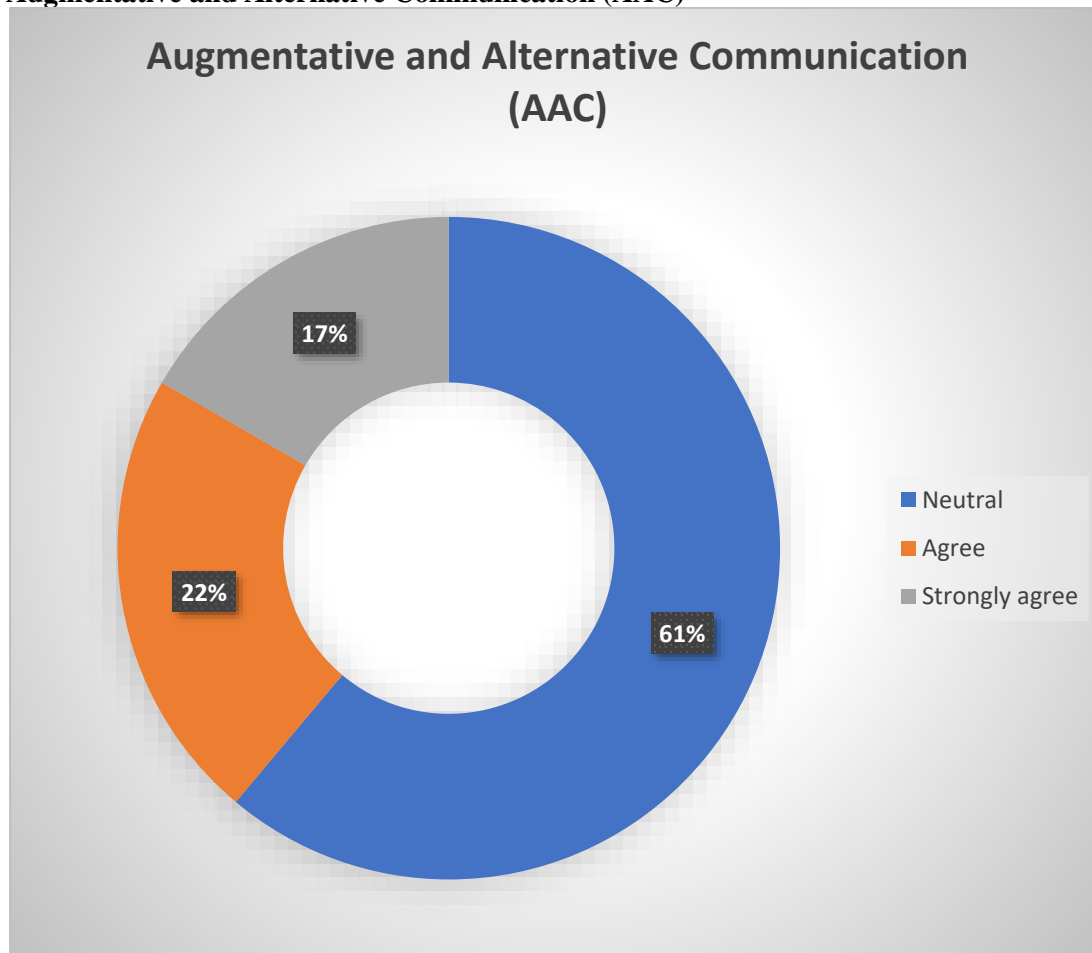


Figure 2: *Augmentative and Alternative Communication (AAC)*

The findings show that most teachers (61.1%) selected neutral regarding the use of AAC tools such as communication boards, PECS, or electronic devices, while 22.2% agreed and 16.7% strongly agreed. The high level of neutrality suggests either limited direct engagement with AAC strategies or inconsistent implementation within the school. Nevertheless, a combined 38.9% agreement reflects recognition of AAC as a valuable method for students with severe aphasia.

Melodic Intonation Therapy (MIT)

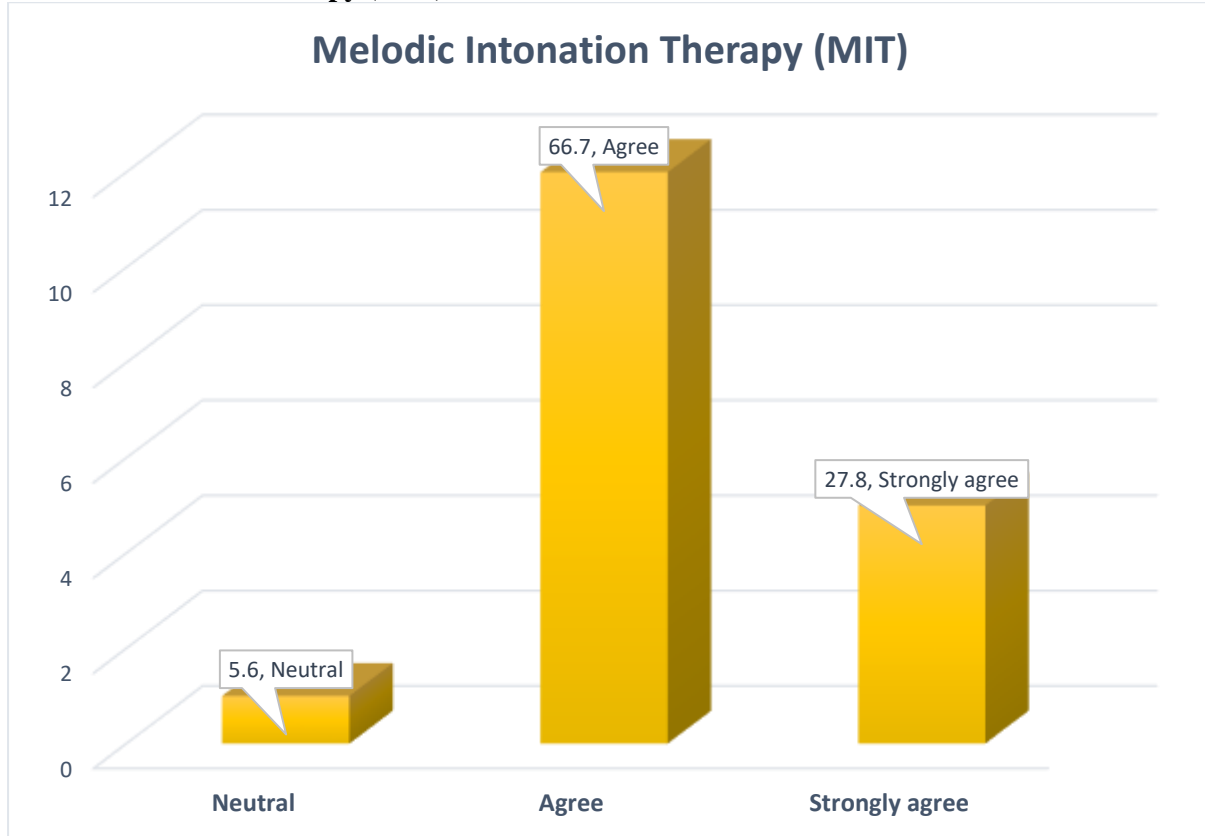


Figure 3: *Melodic Intonation Therapy (MIT)*

Figure 3 shows that a significant majority of teachers supported the use of MIT. Two-thirds (66.7%) agreed and 27.8% strongly agreed that this method, which involves melody and rhythm to stimulate less-affected brain regions, is employed at the school. Only 5.6% remained neutral, and no respondents disagreed. This demonstrates a strong endorsement of MIT as an effective approach for non-fluent aphasia rehabilitation. Overall, these findings underscore the broad application of cognitive linguistics-based therapies and speech-language interventions in Government Comprehensive Special School, Lafia. The particularly strong ratings for SLT techniques in language comprehension and MIT highlight these as highly valued strategies. However, the high neutrality concerning AAC suggests a potential gap in training or consistency of its use. This highlights that cognitive linguistics principles, when integrated with therapies like SLT and MIT, are perceived by teachers as significantly improving communication and comprehension outcomes for students with aphasia.

Discussion of Findings

The findings strongly align with previous empirical evidence highlighting the effectiveness of cognitive-linguistic approaches in aphasia rehabilitation. Most teachers (77.8%) strongly agreed that students' communication skills improved significantly (Table 1), echoing Boyle et al. (2022), who reported measurable gains in communication when therapy targeted underlying cognitive-linguistic processes. Similarly, the high

levels of agreement regarding comprehension skills (61.1% agree, 16.7% strongly agree; Table 2) support Eley et al. (2024), who found that early, structured cognitive-linguistic interventions enhanced comprehension outcomes post-stroke. The widespread recognition of Individualised Educational Plans (IEPs) (38.9% agree, 38.9% strongly agree; Table 3) reflects Lawal and Isah's (2022) emphasis on tailoring interventions to learners' cognitive styles to improve performance.

Teachers' endorsement of Speech and Language Therapy (SLT) techniques, especially for comprehension (100% agreement), is consistent with Akabogu et al. (2019), who demonstrated the efficacy of cognitively informed therapies in Nigerian contexts.

However, the high neutrality (61.1%) regarding Augmentative and Alternative Communication (AAC) suggests inconsistent use or limited familiarity with these tools, indicating an area for capacity building, an observation also raised by Suleiman and Manir (2019) regarding gaps in implementing diverse rehabilitative strategies. Strong support for Melodic Intonation Therapy (MIT) (94.5% agreement) further confirms Otu et al. (2021), who identified MIT as a valuable approach for non-fluent aphasia. These findings suggest that integrating cognitive linguistics principles with SLT and MIT significantly enhances communication and comprehension in Nigerian special education settings.

Conclusion

This study evaluated the impact of integrating cognitive linguistics principles into aphasia rehabilitation at Government

Comprehensive Special School, Lafia, Nasarawa State, Nigeria. The findings revealed overwhelmingly positive teacher perceptions regarding improvements in students' communication and comprehension skills following the adoption of cognitive-linguistic approaches. High levels of agreement on the effectiveness of Speech and Language Therapy (SLT) techniques and Melodic Intonation Therapy (MIT) confirm that these strategies are central to successful rehabilitation. The strong endorsement of Individualised Educational Plans (IEPs) highlights the importance of tailoring interventions to individual learners' needs, consistent with prior research on cognitive styles in Nigerian contexts. However, neutrality regarding Augmentative and Alternative Communication (AAC) suggests a potential gap in training or consistent application, indicating areas for professional development. Overall, the study underscores the value of integrating cognitive linguistics with evidence-based therapies to enhance communication outcomes for students with aphasia and supports broader adoption of such approaches in special education settings.

References

- Akabogu, J., Nnamani, A. P., Otu, M. S., Ukoha, E., Uloh-Bethels, A. C., & Obiezu, M. N. (2019). Efficacy of cognitive behaviour language therapy for aphasia following stroke: Implications for language education research. *Medicine*, 98(18), e15305.
- Ali, S. W., Badu, H., Luwiti, S. R., & Pakaya, U. (2025). Language Comprehension and Production Disorders In Aphasia: A Psycholinguistic Perspective. *International Journal of Teaching and Learning*, 3(4), 158-170.
- Boyle, M., Gordon, J. K., Harnish, S. M., Kiran, S., Martin, N., Rose, M. L., & Salis, C. (2022). Evaluating cognitive-linguistic approaches to interventions for aphasia within the rehabilitation treatment specification system. *Archives of physical medicine and rehabilitation*, 103(3), 590-598.
- Brady, M. C., Kelly, H., Godwin, J., Enderby, P., & Campbell, P. (2016). Speech and language therapy for aphasia following stroke. *Cochrane Database of Systematic Reviews*, 6, CD000425.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
- Eley, E., van den Berg, M., Rose, M. L., Pierce, J. E., Foster, A., Lamborn, E., ... & Baker, C. (2024). The effects of cognitive-linguistic interventions to treat aphasia in the first 90 days post-stroke: A systematic review. *Aphasiology*, 38(8), 1351-1376.
- Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 215–217. <https://doi.org/10.15406/bbij.2017.05.00149>
- Evans, V., & Green, M. (2006). *Cognitive linguistics: An introduction*. Edinburgh University Press.

- Kiran, S., & Thompson, C. K. (2019). Neuroplasticity of language networks in aphasia: Advances, updates, and future challenges. *Frontiers in Neurology, 10*, 295.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.
- Lawal, S., & Isah, A. M. (2022). Effects of cognitive styles on the academic performance of primary school pupils with aphasia in Sokoto State, Nigeria. *West African Journal of Educational Sciences and Practice, 1*(1), 51-61.
- Otu, M. S., Onyechi, K. C., Eseadi, C., & Folorunsho, R. O. B. (2021). Clinical Relevance of Cognitive Behavior Language Therapy in Treating Aphasia among Stroke Patients. *Indian Journal of Public Health Research & Development, 12*(1), 341-343.
- Suleiman, L., & Manir, H. (2019). Relationship between cognitive styles and emotional status of primary four pupils with aphasia in sokoto state, nigeria. *Journal of social Sciences and Management Studies, 11*(12), 80-93.
- Sunday, A. B. (2013). Segmental phonology of bilingual Nigerian adult Wernicke's aphasics. *World Journal of English Language, 3*(1), 50–58. <http://dx.doi.org/10.5430/wjel.v3n1p50>
- The State House, Abuja. (2018, February 6). President Buhari's remarks at the commissioning of Comprehensive Special School, Lafia, Nasarawa State. Retrieved from <https://statehouse.gov.ng/news/speech-president-buharis-remarks-at-the-commissioning-of-comprehensive-special-school-lafia-nasarawa-state-february-6-2018/>