

# INTERPRETERS' SIGN LANGUAGE PROFICIENCY AND RECEPTIVE SKILLS OF DEAF STUDENTS IN KADUNA POLYTECHNIC, KADUNA STATE, NIGERIA

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## ABSTRACT

In educational settings for deaf learners, the proficiency of sign language interpreters is a critical factor for effective knowledge transfer. To investigate the impact of interpreter proficiency on learning outcomes, a quasi-experimental study was conducted over an eight-week instructional period with 20 learners with hearing impairment at Kaduna Polytechnic. Participants were equally divided into an experimental group, which received instruction via a certified interpreter with high proficiency in Nigerian Sign Language (NSL) and a control group, instructed by an interpreter with lower, uncertified proficiency. The study, framed by Communication Accommodation Theory which posits that effective interpreters adapt their signing to learners' linguistic needs measured receptive skills using a validated 50-item Receptive Skills Assessment Test (Cronbach's  $\alpha = .82$ ). Pre-test and post-test scores were analyzed using independent samples t-tests. Results indicated a statistically significant difference in post-test gains: the experimental group ( $M = 42.1$ ,  $SD = 3.8$ ) outperformed the control group ( $M = 28.4$ ,  $SD = 4.2$ ) with  $t(18) = 7.34$ ,  $p < .001$ . The findings demonstrated that higher interpreter proficiency directly enhances the receptive skills of deaf learners with hearing impairment. Consequently, the study recommended institutional implementation of mandatory certification including proficiency testing in NSL and academic interpreting for all educational sign language interpreters.

**Keywords:** Sign Language Proficiency, Interpreters, Receptive Skills, Hearing Impairment, Kaduna Polytechnic, Deaf Education

## Introduction

Education, a fundamental human right, must be accessible to all learners including those with hearing impairment. Within inclusive education frameworks globally, the proficiency of sign language interpreters is established as a critical variable for academic success directly influencing comprehension, participation and achievement (Marschark et al., 2016). In Nigeria, the integration of deaf learners into mainstream institutions underscores the interpreter's role as an essential linguistic and pedagogical bridge (Adeoye, 2021). However, significant challenges persist in this national context. Learners with hearing impairment often face an information bottleneck when interpreters lack formal proficiency leading to unclear signing, inaccurate conveyance of technical terminology and hindered comprehension (Bature, 2022). In a classroom without a qualified sign language interpreter, learners with hearing impairment face profound isolation. The primary conduit of information, the lecturer's spoken word becomes inaccessible. Lectures, instructions, class discussions and crucial verbal announcements dissolve into silence or indecipherable noise, leaving the student disconnected from the core academic content. This forces them to rely solely on inadequate secondary sources such as trying to lip-read. This directly affects their receptive skills, which are defined as the ability to accurately receive and process information in Nigerian Sign Language (NSL), a complete linguistic system with its own grammar (Chima, 2023).

At the institutional level, Kaduna Polytechnic admits deaf learners into National Diploma programmes and provides interpretation support. A clear gap exists, however, as interpreters' skill levels are variable and often unstandardized, with many acquiring skills informally without rigorous assessment (Dauda, 2022). The specific impact of this proficiency variance on learner outcomes within the institution remains unmeasured. Therefore, this study investigates the impact of sign language interpreters' proficiency on the receptive skills of deaf students in Kaduna Polytechnic. It posits that higher interpreter proficiency will lead to significantly greater comprehension, while lower proficiency will create learning barriers.

## Statement of the Problem

Despite the provision of sign language interpreters to support deaf learners in Kaduna Polytechnic, there is a critical lack of empirical evidence measuring how variations in interpreter proficiency specifically affect student learning outcomes. While interpreter skill deficiency is recognized as a potential barrier, its direct effect on the receptive skills of learners within the Nigerian polytechnic context remains unquantified. This gap prevents a clear assessment of educational quality and hinders the development of evidence-based policies for interpreter training, certification, and deployment. Therefore, this study investigates the measurable relationship between interpreter proficiency and the receptive skills of learners with hearing impairment to address this fundamental gap in practice and research.

## Aim and Objectives of the Study

The aim of this study is to assess the impact of interpreters' sign language proficiency on the receptive skills of learners with hearing impairment in Kaduna Polytechnic. The specific objectives of the study are to:

1. determine the statistical significance of the difference in receptive skills scores between the two groups of learners.
2. compare the receptive skills development of learners taught by a highly proficient interpreter versus those taught by a less proficient interpreter.

## Research Questions

1. Is there a statistically significant difference in the mean scores of receptive skills between the experimental and control groups?

2. What is the difference in post-intervention receptive skills scores between learners exposed to a highly proficient interpreter and those exposed to a less proficient interpreter?

### **Hypotheses**

The following hypotheses were tested at a 0.05 level of significance:

**H<sub>01</sub>:** There is no significant difference in the pre-test receptive skills scores of learners with hearing impairment in the experimental and control groups.

**H<sub>02</sub>:** There is no significant difference in the post-test receptive skills scores of learners with hearing impairment taught by a highly proficient interpreter and those taught by a less proficient interpreter.

### **Literature Review**

#### **Review of the Concept of Sign Language Proficiency**

The concept of sign language proficiency for educational interpreters extends beyond basic vocabulary to encompass a multi-layered skill set. Synthesizing prevailing perspectives reveals a consensus that it requires grammatical accuracy, appropriate use of non-manual markers, clarity of articulation and the ability to convey complex and discipline-specific terminology (Garba, 2021). A key point of agreement is that proficiency is not a binary state but a continuum that directly affects interpretation accuracy. However, a significant point of divergence exists in the methods for assessing and ensuring this proficiency. While formal certification frameworks are established in some contexts, scholars like Hassan (2023) highlight the persistent challenge in settings like Nigeria where standardized systems are underdeveloped. This gap often leads to reliance on informally trained interpreters, who, despite practical experience, demonstrate higher rates of consequential errors such as omissions, substitutions, and additions that distort academic content. This disagreement underscores a critical operational concern: without standardized assessment, "proficiency" remains an inconsistently applied and unreliable metric in practice. In this study, these conceptual and practical perspectives directly informed the operationalization of the independent variable. Interpreter proficiency was operationalized through a dichotomous, outcome-focused measure based on the presence or absence of formal certification and a passing score on a standardized NSL skills assessment. This approach intentionally contrasts a "high proficiency" group (formally certified and assessed) with a "lower proficiency" group (uncertified, informally trained), thereby creating a clear experimental condition to measure the variable's impact on receptive skills as theorized by Hassan (2023). This design translates the theoretical consensus on the components of proficiency into a testable variable that addresses the practical gap in standardized assessment identified in the literature.

#### **Receptive Skills in Learners with Hearing Impairment**

Receptive skills in sign language refer to the cognitive-linguistic ability to accurately decode and comprehend a signed message by interpreting manual signs, non-manual markers and syntactic structures (Ibrahim, 2022). These skills form the critical foundation for classroom learning. However, their development is a complex, multivariate process influenced by both learner-internal and learner-external factors. Key learner-internal variables introduce significant variability. The age of sign language acquisition, prior educational background, and individual cognitive aptitudes are well-documented determinants of ultimate receptive skill proficiency. A student who acquired Nigerian Sign Language (NSL) early in a linguistically rich environment will typically possess a stronger baseline than a later learner. Nevertheless, within the formal classroom context, the quality of the linguistic input becomes the paramount external variable shaping real-time comprehension. As Jibrin (2021) notes, the educational interpreter serves as the primary and often exclusive, live language model during instruction. When interpreter input is grammatically flawed, inconsistently paced or lacking

in technical precision, it presents a degraded signal that all students, regardless of their baseline skills, must struggle to decode. This directly limits the functional application of their receptive abilities. Therefore, while acknowledging the foundational role of learner-level differences, this study focuses on interpreter input quality as the critical, modifiable factor in the institutional setting. It posits that high interpreter proficiency provides the clear and accurate linguistic signal necessary for learners to effectively employ their receptive skills whereas low proficiency corrupts the input, creating a uniform barrier to comprehension that compounds pre-existing learner variability.

### **The Role of the Educational Interpreter**

The role of an educational interpreter is operationally defined as providing a complete and accurate linguistic translation of classroom discourse to facilitate communication access. Core functions include conveying lecture content, student inquiries and group discussions while adhering to professional standards of neutrality and confidentiality. Effective performance demands not only linguistic proficiency but also the strategic management of communication flow such as requesting clarifications to ensure message fidelity (Kalu, 2022). However, empirical evidence from Nigeria indicates a significant gap between this defined role and on-the-ground practice, which critically impacts service quality. Muhammad (2023) documented widespread role confusion and overload among interpreters in tertiary institutions. Interpreters frequently report being tasked with ancillary duties such as tutoring, classroom discipline and providing personal care which directly conflicts with their primary function of impartial mediation. This empirical finding highlights a systemic issue that extends beyond individual skill deficiencies. This role conflict, compounded by a lack of professional recognition and standardized certification, contributes to low morale and high attrition creating a cycle where under-resourced institutions are less likely to invest in rigorous training. Such a divergent relationship between the ideal and real world thereby justifies the focus of this research and the goal of this undertaking is to provide empirical data regarding this specific and definable aspect of the role of the interpreter despite the overall relevance of such systemic influences as role conflict.

### **Communication Accommodation Theory**

Communication Accommodation Theory provides a robust framework for analyzing the dynamic between interpreter proficiency and learner comprehension. The theory posits that communicators adjust or accommodate their style to enhance mutual understanding, primarily through convergence (modifying behavior to align with the interlocutor) or divergence (maintaining or emphasizing differences) (Gallois et al., 2005). Within the context of educational interpreting, strategic convergence is a critical component of professional proficiency. A skilled interpreter accommodates the deaf learner by observable, measurable adjustments: modulating signing pace for complex information, simplifying syntactic structures without distorting meaning, and incorporating deliberate visual-gestural cues to clarify abstract concepts (Giles, 2016). Conversely, a lower-proficiency interpreter often demonstrates ineffective divergence; their output remains rigid, reflecting their own linguistic limitations rather than adapting to the learner's needs through a fixed signing pace, inconsistent use of non-manual markers, and a failure to seek or integrate clarification. In this study, the theory moves beyond a rhetorical backdrop to directly inform the operationalization and assessment of the independent variable. The high-proficiency condition is defined by the interpreter's capacity for strategic convergence, behaviours actively facilitated during the intervention phase. The control condition, by contrast, is characterized by an inability to enact such accommodation. Therefore, the learner's receptive skills score serves as the measurable outcome of successful or failed communicative accommodation. This explicit linkage makes the theory analytically relevant positing that higher post-test scores in the experimental group are not merely a function of vocabulary

accuracy but are the direct result of a proficient interpreter's accommodated and thus more comprehensible, linguistic output.

### **Theoretical Framework**

This study is analytically anchored on Communication Accommodation Theory (CAT), which explains how individuals adjust their communicative behaviour to manage social distance and facilitate understanding (Giles, 2016). The theory's core strategies of convergence adapting one's style to align with an interlocutor and divergence maintaining or accentuating differences provide a critical lens for examining the interpreter-learner dynamic. In this framework, interpreter proficiency is conceptualized as the capacity for strategic convergence. A highly proficient interpreter actively converges by making observable adjustments to their signing: modulating pace for complex material, simplifying syntactic structures without semantic loss and incorporating clarifying visual-gestural cues tailored to the learners' visual reception. These measurable behaviours constitute effective accommodation that reduces the cognitive load on the learner. Conversely, an interpreter with lower proficiency demonstrates an inability to converge effectively resulting in a form of passive divergence. Their output remains rigid and unmodified, characterized by a fixed signing speed, inconsistent use of grammatical non-manual markers and a lack of vocabulary adaptation which emphasizes a communicative gap rather than bridging it. In this study, CAT moves beyond a broad explanatory lens to directly inform the experimental design and variable measurement. The intervention for the experimental group explicitly involved training the interpreter in these accommodative behaviours (convergence strategies) while the control condition represented their absence. The Receptive Skills Assessment Test thus serves as the empirical measure of successful accommodation. Consequently, a significant difference in post-test scores is theorized not merely as a result of vocabulary accuracy but as direct evidence of the interpreter's accommodative capacity, making the theoretical linkage both operational and analytically central to the investigation.

### **Methodology**

This study adopted a quasi-experimental, non-equivalent control group design to quantitatively assess the impact of interpreter proficiency on the receptive skills of deaf students. The research was conducted in the Department of Special Education and Rehabilitation Sciences, Kaduna Polytechnic, Kaduna State, Nigeria. The target population comprised all National Diploma I learners with severe to profound hearing loss who rely on Nigerian Sign Language (NSL). A small, purposive sample of 20 learners was selected based on this criterion, resulting in 10 participants each for the experimental and control groups. This sample size is acknowledged as a limitation, constraining statistical power and the generalizability of findings but was necessitated by the specialized population available in the institution. The independent variable, interpreter proficiency was operationalized using a two-stage criterion. A "highly proficient" interpreter was formally certified by the Nigerian National Association of the Deaf and scored above 90% on a validated NSL Proficiency Test administered prior to the study. The "basic proficiency" interpreter lacked formal certification and scored between 60-70% on the same assessment. Both interpreters were assigned to deliver identical curriculum content over a four-week intervention period. The dependent variable, receptive skills was measured using a researcher-designed 50-item Receptive Skills Assessment Test. The instrument was validated by two experts in Special Needs Education, Federal University of Lafia. A pilot study (n=10) with a similar population yielded a Cronbach's alpha reliability coefficient of 0.82. The test was administered as a pre-test and post-test to both groups. To mitigate extraneous variables, scheduling was controlled to prevent cross-group contamination and lesson content was strictly standardized.

Ethical approval was obtained from the Kaduna Polytechnic Research Ethics Committee. Informed consent was secured from participants and confidentiality was maintained. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS). Given the small sample size, descriptive statistics (mean, standard deviation) and inferential statistics (independent samples t-test) were used to compare post-test gains between groups with findings interpreted cautiously within the study's constraints.

## Results

Data were tested for the assumptions of normality and homogeneity of variance. Shapiro-Wilk tests confirmed a normal distribution of scores in each group ( $p > .05$ ) and Levene's test indicated homogeneity of variances ( $p > .05$ ) supporting the use of parametric tests.

**Research Question One:** Is there a statistically significant difference in the mean scores of receptive skills between the experimental and control groups?

**Table 1: Pre-test Mean Scores for Experimental and Control Groups**

Group	N	Mean Score (Max=50)	Standard Deviation
Experimental	10	22.40	4.12
Control	10	21.90	4.05

To establish baseline equivalence, pre-test scores were compared. As shown in Table 1, the mean scores were low and similar between groups prior to the intervention with the experimental group ( $M = 22.40$ ,  $SD = 4.12$ ) and the control group ( $M = 21.90$ ,  $SD = 4.05$ ). An independent samples t-test confirmed no statistically significant difference in pre-test scores,  $t(18) = 0.275$ ,  $p = .786$ . This supports the initial comparability of the two groups on the dependent variable.

**Research Question Two:** What is the difference in post-intervention receptive skills scores between learners exposed to a highly proficient interpreter and those exposed to a less proficient interpreter?

**Table 2: Post-test Mean Scores for Experimental and Control Groups**

Group	N	Mean Score (Max=50)	Standard Deviation
Experimental	10	41.20	3.85
Control	10	25.10	4.20

Post-test results, presented in Table 2, revealed a substantial difference in mean scores. The experimental group, taught by a highly proficient interpreter, achieved a mean score of 41.20 ( $SD = 3.85$ ). The control group taught by an interpreter with lower proficiency, achieved a mean score of 25.10 ( $SD = 4.20$ ).

## Test of Hypotheses

**Hypothesis One ( $H_{01}$ ):** There is no significant difference in the pre-test receptive skills scores of learners with hearing impairment in the experimental and control groups.

**Table 3: Independent Samples t-test for Pre-test Scores**

Group	N	Mean	Std. Deviation	t-cal	df	p-value	Decision
Experimental	10	22.40	4.12	0.275	18	0.786	Retain $H_{01}$
Control	10	21.90	4.05				

The results in table 3 showed a statistically significant difference between the groups,  $t(18) = 8.942$ ,  $p < .001$ . The null hypothesis was which stated that there is no significant difference in the post-test receptive skills scores of learners taught by a highly proficient interpreter and those taught by a less proficient interpreter was rejected. To quantify the magnitude of this

difference, Cohen's  $d$  was calculated. The effect size was  $d = 4.01$  which is exceptionally large. This indicates that interpreter proficiency had a substantial impact on receptive skills scores in this sample.

**Hypothesis Two ( $H_{02}$ ):** There is no significant difference in the post-test receptive skills scores of learners with hearing impairment taught by a highly proficient interpreter and those taught by a less proficient interpreter.

**Table 4: Independent Samples t-test for Post-test Scores**

Group	N	Mean	Std. Deviation	t-cal	df	p-value	Decision
Experimental	10	41.20	3.85	8.942	18	0.000	Reject $H_{02}$
Control	10	25.10	4.20				

Table 4 presents the analysis post-test receptive skills scores of learners with hearing impairment showing the experimental group ( $N=10$ , Mean=41.20, Std. Deviation=3.85) and the control group ( $N=10$ , Mean=25.10, Std. Deviation=4.20) which produced a calculated  $t$ -value of 8.942 with 18 degrees of freedom and a  $p$ -value of 0.000. As this  $p$ -value is less than the 0.05 significance level, the null hypothesis is rejected confirming a statistically significant difference in post-test receptive skills scores in favour of the group taught by the highly proficient interpreter.

These findings provide preliminary evidence that higher interpreter proficiency is associated with significantly better receptive skills outcomes for deaf learners in this setting. The large effect size suggests a strong relationship within the experimental context. However, given the small, purposive sample, these results are exploratory and their generalizability is limited. The findings underscore the potential importance of interpreter proficiency as a critical variable in deaf education warranting further investigation with larger, more representative samples.

## Discussion

This study investigated the impact of sign language interpreter proficiency on the receptive skills of deaf learners. The findings are discussed in relation to the research hypotheses and existing literature, while acknowledging the study's limitations. The first null hypothesis, which stated there was no significant difference in the pre-test scores between groups, was retained ( $t(18) = 0.275$ ,  $p = .786$ ). This finding of equivalent, low baseline skills is consistent with literature documenting the academic challenges deaf students face upon entering mainstream tertiary education, often due to inconsistent early language access (Nwokike, 2022). It confirms the study's internal validity by establishing group comparability prior to the intervention, ensuring that subsequent differences can be more confidently attributed to the experimental manipulation.

The second null hypothesis, positing no significant difference in post-test scores was decisively rejected ( $t(18) = 8.942$ ,  $p < .001$ ; Cohen's  $d = 4.01$ ). The experimental group's mean score nearly doubled while the control group showed minimal improvement. This large, statistically significant effect provides empirical validation for the central premise that interpreter proficiency is a critical mediator of learning outcomes. The findings of Giles (2016) lend strong support to Communication Accommodation Theory. The skilled interpreter's ability to converge by modulating pace, clarifying syntax, and using deliberate visual cues created an accommodated linguistic signal that enhanced comprehension. Conversely, the lower-proficiency interpreter's rigid output represented a form of divergence, maintaining a communicative barrier. This also agrees with the findings of Salisu (2023) who showed that empirical evidence linking interpreter skill to measurable student outcomes is essential for advocating systemic reforms in training and certification. However, these compelling results must be interpreted in the study's constraints. The exceptionally large

effect size ( $d = 4.01$ ) may, in part, reflect the small, purposive sample rather than the true population effect. Furthermore, while the design controlled for the interpreter variable, other factors such as slight variations in teaching presence or unmeasured differences in learner motivation remain as plausible, though less likely, rival explanations for the observed disparity. The findings, therefore, should be viewed as providing strong preliminary evidence that warrants confirmation through larger-scale, longitudinal research. Despite its limitations, this study translates a widespread concern into quantitative evidence. The dramatic performance gap underscores that interpreter quality is not a peripheral support issue but a central determinant of educational access. As Tanko (2022) argues, investing in the professionalization of interpreters through rigorous training and certification is a direct and actionable strategy for advancing equity. For Kaduna Polytechnic and similar institutions, these findings create a clear mandate: establishing mandatory proficiency standards for educational interpreters is a necessary step toward fulfilling the promise of inclusive education.

### **Conclusion**

This study provides preliminary quantitative evidence that sign language interpreter proficiency is a significant factor influencing the receptive skills of deaf learners in Kaduna Polytechnic. Within the parameters of this quasi-experimental design, learners who received instruction via a highly proficient interpreter demonstrated a statistically significant and substantial improvement in comprehension whereas those with a less proficient interpreter showed minimal skills. The study's limitations such as its small sample size and single-institution context prevent general causal assertions regarding systemic consequences even if these results strongly imply that interpreter quality is a crucial component for academic access. The findings point to a powerful, changeable element in the educational setting but do not definitively show universal predictors of success. Consequently, for Kaduna Polytechnic and similar institutions, these findings underscore a clear, actionable imperative: the professionalization of interpretation services through standardized training and proficiency assessment is a necessary step toward mitigating a key barrier to equitable education. By matching institutional practice with the demonstrated needs of deaf learners, the implementation of such measures constitutes a targeted method for improving learning outcomes in this environment.

### **Recommendations**

Based on the findings, the following recommendations are made:

1. The management should mandate that all educational interpreters pass a validated proficiency test in Nigerian Sign Language and academic interpreting before assignment ensuring all deaf learners have access to a qualified professional.
2. To sustain and enhance interpreter quality, the polytechnic should institute regular workshops focused on advanced techniques and polytechnic-specific vocabulary. This development must be coupled with a systematic performance evaluation mechanism that formally incorporates feedback from deaf learners, directly linking interpreter practice to measurable student comprehension outcomes.

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