



Impact of Jigsaw Instructional Strategy on Achievement Among Junior Secondary School Students in Lagos State

**Afoma Rosefelicia Okudo, Jennifer N. L. Ughelu*

**Department of Arts and Social Sciences Education, Faculty of Education, University of Lagos, Lagos, Nigeria*

*Correspondence: E-mail: aokudo@unilag.edu.ng

ABSTRACT

The Igbo language, one of Nigeria's major indigenous languages, plays a vital role in the lives of many Nigerians and their educational development. Recognizing its importance, the Nigerian government incorporated Igbo language teaching into the National Policy on Education (NPE), mandating its inclusion in the school curriculum. This study examined the impact of the Jigsaw Instructional Strategy (JIS) on the achievement of junior secondary school students in Igbo language and culture in Lagos State, Nigeria. Adopting a descriptive survey and quasi-experimental design, the study raised two research questions and tested one hypothesis. The sample consisted of 48 Junior Secondary School II students from a purposively selected school in Amuwo Odofin Local Government Area, Lagos State. Instruments included the Pre- and Post-test Igbo Language Achievement Test (ILAT) and Jigsaw Perception Assessment Questionnaire (JPAQ), with a reliability coefficient of 0.83. Data were analyzed using descriptive statistics and t-tests at a 0.05 significance level. Results indicated a significant positive impact of JIS on students' achievement in Igbo, with noticeable improvements compared to the conventional instructional method. Based on these findings, it is recommended that Igbo language curriculum developers incorporate JIS into teacher training programs and that educational stakeholders encourage its adoption to enhance classroom instruction and learning outcomes.

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1. INTRODUCTION

The Igbo people of Southeast Nigeria speak the Igbo language, one of the speech communities in the Kwa-sub family of the African continent. The ability to study and speak the Igbo language fluently creates significant opportunities for employment, self-reliance, and revenue generation (Anyanele et al., 2014; Gambo, 2023). Additionally, promoting the learning of the Igbo language and culture ensures its transmission to younger generations, offering opportunities to learn the language in schools while also providing job prospects. The Federal Government of Nigeria emphasizes the necessity of preserving Nigerian languages by mandating that every child in the country learn one of the three major Nigerian languages—Hausa, Igbo, or Yoruba (FGN, 2014). This policy underscores the production of Igbo language graduates required to meet labor market demands and fill gaps left in various sectors (Akinyoade, 2019; Ani, 2012).

Despite this recognition, the Igbo language faces challenges in development due to limited human and material resources and the apathy of the Igbo people toward their language (Nwadike, 2002). Efforts by stakeholders, such as organizing television, radio, and newspaper programs as well as school debates and quizzes, aim to address these issues. However, student performance in Igbo remains unsatisfactory, particularly in national examinations like the West African Examinations Council (WAEC) and National Examinations Council (NECO). The Chief Examiner's reports from 2010 to 2012 indicate that while performance in French and Yoruba fluctuated, performance in Hausa and Igbo steadily declined (WAEC, 2012).

The persistent underachievement of junior secondary school students in Igbo highlights a critical gap in instructional strategies used for teaching. Most Igbo language teachers rely on Conventional Methods of Instruction (CMI), which are teacher-centered and often fail to engage students actively in the learning process (Okudo, 2016; Okudo, 2023). Although the Igbo language curriculum recommends interactive methods such as demonstration, discovery, exploration, and cooperative learning (FGN, 2014), research shows that teachers predominantly use traditional and individualized techniques rather than student-centered strategies like cooperative learning (Okudo, 2016).

This study seeks to address this gap by exploring the impact of Jigsaw Instructional Strategy (JIS), an interactive teaching method, on students' achievement in Igbo. Unlike conventional methods, JIS emphasizes collaboration, allowing students with diverse abilities to work together in small groups to achieve shared goals (Akinbobola, 2009; Berger & Hänze, 2015). JIS has been shown to foster critical thinking, encourage positive attitudes, and improve learning retention by engaging students in cooperative learning environments (Slavin, 2011; Yimer & Feza, 2020).

The importance of the Igbo language for national unity, cultural preservation, and economic development cannot be overstated. As Garrison (2016) and Goodman (2016) argue, the instructional strategy employed by teachers plays a pivotal role in facilitating meaningful learning and skill acquisition. With Lagos State being a diverse urban area, teachers face unique challenges, such as accommodating varying proficiency levels and addressing the needs of large classes. This often results in active students thriving while passive students lag behind (Deci & Ryan, 2016; Lemov, 2020). Therefore, adopting strategies like JIS that promote inclusivity and active participation is critical.

The primary purpose of this study is to investigate the impact of Jigsaw Instructional Strategy on the academic achievement of junior secondary school students in Lagos State. By focusing on selected topics in Igbo, this research aims to demonstrate how interactive and

cooperative methods can enhance student engagement, foster meaningful learning, and improve performance in Igbo language education.

This research contributes to existing literature by providing evidence on the effectiveness of JIS in addressing the shortcomings of conventional teaching methods. It aligns with educational policies advocating interactive and learner-oriented instructional techniques while offering practical solutions for improving Igbo language teaching in urban settings. The findings aim to inform curriculum developers, policymakers, and educators about strategies to promote active learning, enhance student achievement, and sustain the relevance of the Igbo language in modern education.

2. METHODOLOGY

2.1 Research Design

The research utilized a combination of survey and quasi-experimental non-equivalent control group designs. This approach was selected because intact classes were used without randomizing the students. The quasi-experimental design enabled the comparison of pre- and post-test scores between two groups. While both the control and experimental groups completed the pre- and post-tests, only the experimental group received the research treatment. The experimental group was exposed to the Jigsaw Instructional Strategy (JIS), a cooperative learning approach, while the control group was taught using the traditional conventional method of instruction.

Purposive sampling was employed to select two Junior Secondary School II (JSS II) classes from Lagos Education District V. This sampling technique was chosen as it allowed the researchers to obtain in-depth information from schools offering Igbo as a subject, which is not uniformly available across all government-owned junior secondary schools (Cohen, et al., 2011). The experimental group consisted of 48 students, while the control group included 41 students.

2.2 Data Collection Technique

The study collected data using both pre- and post-test instruments as well as a self-developed structured questionnaire. The Igbo Language Achievement Test (ILAT) was designed to measure students' academic achievement in the Igbo language and culture. This test comprised 40 items adapted and partly modified from past Junior Secondary School Certificate Examination (JSSCE) questions. The topics assessed included Family (types, members, and their functions), the Numbering System, and Parts of the Human Body, as prescribed in the unified scheme of work for JSS II in Lagos State.

The pre-test was administered to all participants to establish baseline scores. Over a six-week period, the experimental group received instruction using JIS, while the control group was taught with traditional methods. At the end of the six weeks, the post-test was administered to determine differences in achievement.

Additionally, a structured questionnaire was used to gather perceptions from both teachers and students in the experimental group regarding the use of JIS. The questionnaire was designed on a four-point Likert scale with response options: Strongly Agree (SA), Agree (A), Strongly Disagree (SD), and Disagree (D). Respondents provided their opinions by selecting the option they deemed appropriate for each statement. Teachers in the experimental group were also oriented on how to implement JIS effectively in collaboration with the researchers.

2.3 Data Analysis Technique

The study employed both descriptive and inferential statistical techniques for data analysis. Descriptive statistics, including frequencies, percentages, mean, and standard deviation, were used to analyze participants' demographic information and responses from the questionnaire. Inferential statistics, specifically a t-test, were applied to compare pre- and post-test scores at a significance level of 0.05. This comparison assessed the impact of JIS on students' academic achievement in the selected Igbo topics. The reliability of the ILAT was confirmed through Pearson Product Moment Correlation Coefficient, yielding a reliability coefficient of 0.83, ensuring the instrument's validity and reliability.

3. RESULT AND DISCUSSION

3.1 Result

The impact of instructional strategies on students' academic achievement has been a focal point in educational research, particularly in language learning contexts. This study examines how the Jigsaw Instructional Strategy (JIS), an innovative learner-centered approach, influences the teaching and learning process in Igbo language instruction. The study focused on selected Igbo topics, including family (types, members, and their functions), the numbering system, and parts of the human body. JIS fosters cooperative learning and active student participation, addressing challenges associated with traditional teacher-centered methods. The findings aim to provide evidence-based insights into the contribution of JIS to improving student engagement, comprehension, and retention in the Igbo language curriculum.

Table 1. Impact of the Jigsaw Instructional Strategy on the Students' Achievement in some Selected Igbo topics

Test	N	Mean	Std. Deviation
Pre-test	48	19.6374	4.87514
Post test	48	22.3187	5.63497

Table 1 illustrates the pre-test and post-test scores of JSS II students in the experimental group. The mean pre-test score was 19.64 (SD = 4.88), while the post-test mean score increased to 22.32 (SD = 5.63) after a six-week period of implementing JIS. This improvement demonstrates a significant positive impact of the Jigsaw Instructional Strategy on students' academic performance in Igbo language topics.

The perceptions of teachers and students play a critical role in determining the effectiveness and acceptance of innovative teaching strategies. This study explores these perceptions regarding the use of JIS for teaching selected Igbo topics. By examining their views, the study uncovers the benefits, challenges, and overall receptiveness to this approach, providing valuable insights into its applicability in enhancing Igbo language education.

Table 2. Respondents Responses on the Perceptions of Using JIS for Teaching and Learning of Igbo topics

S/N	Items	SA	A	D	SA	Mean(\bar{X})
1	Students do better in Igbo when they take part in the classroom activities	15 30%	24 48%	6 12%	5 10%	2.9
2	Jigsaw gives the students opportunities to explain their own ideas	20 40%	18 36%	8 16%	4 8%	3.1
3	Jigsaw provides opportunity for creativity and innovation	30 60%	11 22%	6 12%	3 6%	2.9
4	Jigsaw allows the teacher to reach out to good as well as weak student	19 38%	26 52%	3 6%	2 4%	2.9
5	Jigsaw encourages dividing the students into group and does not have much impact as there will still be much differences among them.	18 36%	18 36%	10 20%	4 8%	3.1

Table 2 highlights that 40% of respondents strongly agreed and 36% agreed that students perform better in Igbo when actively participating in classroom activities, while 16% disagreed, and 8% strongly disagreed. Similarly, 82% (41 respondents) agreed that JIS fosters creativity and innovation, whereas 18% (9 respondents) disagreed. These findings suggest a predominantly positive perception of JIS among both students and teachers.

Implementing innovative teaching strategies, such as JIS, may face several challenges that affect its effectiveness. Identifying these obstacles is essential for optimizing its application in teaching culturally significant subjects like Igbo. The study examined potential challenges to using JIS, including teacher unfamiliarity, varying student proficiency levels, inadequate resources, and time constraints during lesson delivery.

Table 3. Challenges in Implementing JIS for Teaching Igbo Topics

S/N	Items	SA	A	D	SD	Mean (\bar{X})
6	Inadequate time for using Jigsaw instructional strategy hinders its usage during teaching and learning of Igbo	18 36%	24 48%	8 16%	5 10%	3.0
2	Unawareness of the benefits of Jigsaw instructional strategy poses a great challenge to using it in Igbo classroom instruction	14 28%	30 60%	6 12%	-	3.3
3	Students with different learning styles are not learning at the same time effectively poses a great challenge	5 10%	-	22 44%	23 46%	3.3
4.	Inability of some students to communicate in class using Igbo fluently is a great challenge	18 36%	14 28%	6 12%	2 4%	2.5
5.	Issues on responding to students individual needs during Igbo classroom instruction using Jigsaw instruction strategy is a great challenge	10 20%	5 10%	17 34%	18 36%	2.7

Table 3 indicates that 86% (42 respondents) agreed that inadequate time is a significant barrier to using JIS, while 14% disagreed. Similarly, 88% of respondents acknowledged a lack of awareness about the benefits of JIS as a challenge. Notably, 64% of respondents agreed that some students' inability to communicate fluently in Igbo affects the strategy's effectiveness. Despite these challenges, the findings underscore the potential of JIS to address individual learning needs and promote active engagement.

3.2 Discussion

This study highlights the significant positive impact of the Jigsaw Instructional Strategy (JIS) on the teaching and learning of selected Igbo topics, specifically Family, Numbering System, and Parts of the Human Body. The findings corroborate prior research demonstrating the effectiveness of JIS in improving students' academic achievement compared to conventional teaching methods. For instance, [Pratama & Christiani \(2023\)](#) reported that JIS fosters cooperative learning environments that actively engage learners, significantly enhancing their achievement scores. Similarly, [Wang \(2013\)](#) observed that JIS motivates students to tackle challenging tasks in their expert groups with enthusiasm, driven by their responsibility to share essential knowledge with their peers in the home groups. This dynamic process transforms the classroom into an interactive and collaborative learning environment where students construct knowledge together.

The present study affirms that JIS actively involves students in the learning process, encouraging them to take responsibility for their education. This aligns with [Rahim & Fauzi \(2023\)](#), who emphasized the role of active participation in fostering problem-solving skills and transforming prior knowledge into meaningful learning experiences. By facilitating equitable contributions from students of varying abilities, JIS supports the cultivation of both academic achievement and interpersonal skills, as noted by [Brown & Palincsar \(2018\)](#). These findings highlight the dual impact of JIS: academic enhancement and the promotion of holistic educational values.

Additionally, cooperative learning strategies like JIS enhance cognitive and metacognitive skills by engaging students in analytical thinking and collaborative problem-solving, as observed by [Quisaguano Pumacuro \(2023\)](#). This is particularly significant for culturally relevant subjects like Igbo, where language learning intersects with cultural preservation. The immersive nature of JIS allows students to engage deeply with the material, bridging linguistic education and cultural identity development.

However, the study also identified challenges in implementing JIS, particularly concerning students' linguistic proficiency in Igbo. Many students struggled with fluency, which impeded their ability to fully engage in the collaborative learning process. This contrasts with the findings of [Lara Nieto-Márquez \(2020\)](#), who posited that cooperative learning settings like JIS foster critical thinking and metacognitive strategies. The discrepancy may be attributed to the foundational language skills required for effective participation in JIS. As [Nwankwegu & Nwode \(2022\)](#) noted, leveraging native languages like Igbo to enhance students' critical thinking requires foundational linguistic support to bridge gaps in language proficiency. Addressing this issue is crucial to maximizing the benefits of JIS in culturally significant subjects.

To overcome these challenges, the study recommends integrating foundational language-building exercises into JIS sessions. These exercises would scaffold students' linguistic development, enabling them to participate effectively regardless of proficiency

levels. This aligns with the suggestions of [Wilson & Devereux \(2014\)](#), who advocated for scaffolding techniques to support learners in achieving both linguistic and cognitive competence simultaneously. Incorporating these strategies would enhance the inclusivity and effectiveness of JIS, ensuring that all students can benefit from its collaborative framework.

Furthermore, the findings align with [Slavin's \(2018\)](#) and [Masika & Jones \(2016\)](#) argument that cooperative learning strategies foster a sense of belonging and community within the classroom, enhancing motivation and confidence among students. This sense of community is particularly valuable in Igbo language education, as it not only improves academic outcomes but also contributes to the preservation of cultural heritage. By creating engaging and meaningful learning experiences, JIS provides an avenue for integrating cultural identity into academic instruction, which is critical in maintaining the relevance of indigenous languages in education.

Finally, the study underscores the importance of teacher training in the successful implementation of JIS. As [Ezema \(2016\)](#) and [Cohen et al. \(2011\)](#) noted, teachers must be proficient in managing group dynamics, designing collaborative tasks, and assessing group performance to maximize the benefits of cooperative learning strategies. Without adequate training, the potential advantages of JIS may be diminished, particularly in linguistically diverse classrooms where teachers need to address varying student needs effectively.

4. CONCLUSION

This study has demonstrated the effectiveness of Jigsaw Instructional Strategy (JIS) as a teaching method for the Igbo language and culture, particularly in enhancing student achievement in selected topics such as Family, Numbering System, and Parts of the Human Body. The significant improvement in students' performance highlights the potential of JIS to transform conventional teaching practices and foster deeper engagement and understanding among learners. By actively involving students in cooperative learning, JIS addresses diverse learning needs and cultivates critical thinking skills essential for academic success and cultural preservation.

To maximize the impact of this strategy, teacher training programs should prioritize equipping Igbo language teachers with the skills to implement JIS effectively. This can be achieved through in-service training, conferences, seminars, and workshops that focus on the application and benefits of JIS in classroom instruction. The quality of teacher training directly influences the quality of education, underscoring the need for a well-structured approach to professional development. Additionally, JIS should be applied selectively to topics where its collaborative and student-centered approach is most beneficial, ensuring its practical implementation aligns with the curriculum's objectives.

Textbook writers and publishers should incorporate JIS-oriented activities into Igbo textbooks, providing teachers with ready-made resources to facilitate its use. Furthermore, curriculum developers should integrate JIS as a core component of teacher education programs, ensuring that future Igbo language teachers are well-prepared to utilize this innovative instructional strategy.

Future research should explore the long-term effects of JIS on student retention and critical thinking in the Igbo language. Studies could also examine the scalability of JIS across other indigenous languages and diverse educational settings, as well as its adaptability to topics that require higher-order thinking and problem-solving skills. Addressing these areas

will further advance the understanding and application of JIS in language education, contributing to more effective and culturally responsive teaching practices.

REFERENCES

- Akinbobola, A. O. (2009). Enhancing students' attitude towards Nigerian senior secondary school physics through the use of cooperative, competitive and individualistic learning strategies. *Australian Journal of Teacher Education (Online)*, 34(1), 1-9. <https://doi.org/10.3316/informit.787923638764449>
- Akinyoade, A (2019). Nigeria: education, labour market, migration. *SEOA Economics*. [https://www.seo.nl/wp-content/uploads/2019/01/Annex A Nigeria.pdf](https://www.seo.nl/wp-content/uploads/2019/01/Annex_A_Nigeria.pdf)
- Ani, K.J. (2012). UNESCO prediction on the extinction of Igbo language in 2025: Analyzing societal violence and new transformative strategies. *Developing Country Studies*, 2 (8). Available on www.iiste.org
- Anyanele, S.U., Okoye, H.C. and Okanume, A.C. (2014). Igbo language education for job creation and sustainable national development in Nigeria. *Journal of Teacher Perspective*, 392-403.
- Berger, R., & Hänze, M. (2015). Impact of expert teaching quality on novice academic performance in the jigsaw cooperative learning method. *International Journal of Science Education*, 37(2), 294-320. <https://doi.org/10.1080/09500693.2014.985757>
- Brown, A. L., & Palincsar, A. S. (2018). Guided, cooperative learning and individual knowledge acquisition. In *Knowing, learning, and instruction* (pp. 393-451). Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Routledge.
- Deci, E. L., & Ryan, R. M. (2016). Optimizing students' motivation in the era of testing and pressure: A self-determination theory perspective. In *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 9-29). Singapore: Springer Singapore. https://doi.org/10.1007/978-981-287-630-0_2
- Ezema, I. J. (2016). Scholarly communication and authorship patterns in language research: evidences from citation analysis of language theses in Nigeria. *Ghana Journal of Development Studies*, 13(2), 1-25. <https://doi.org/10.4314/gjds.v13i2.1>
- Federal Government of Nigeria. (2014). *National policy on education (6th ed.)*. Abuja: Nigerian Educational Research and Development Council (NERDC).
- Federal Republic of Nigeria. (2014). *National Policy on Education*. 7th edition Lagos: NERDC Press, Yaba, Lagos- Nigeria.
- Gambo, F. (2023). *An exploratory examination of the cultural understandings of communication competence among Nigerian immigrant adult children* (Master's thesis, Old Dominion University).
- Garrison, T. C. (2016). *Identifying key strategies and practices to effectively teach critical service learning* (Doctoral dissertation, Capella University).
- Goodman, A. (2016). *The manifestation of student engagement in classrooms: A phenomenological case study of how teachers experience student engagement and*

- how it influences pedagogical decision making* (Doctoral dissertation, University of Nevada, Las Vegas). <http://dx.doi.org/10.34917/9302933>
- Lara Nieto-Márquez, N., Baldominos, A., & Pérez-Nieto, M. Á. (2020). Digital teaching materials and their relationship with the metacognitive skills of students in primary education. *Education Sciences*, 10(4), 1-18. <https://doi.org/10.3390/educsci10040113>
- Lemov, D. (2020). *Teaching in the online classroom: Surviving and thriving in the new normal*. John Wiley & Sons.
- Masika, R., & Jones, J. (2016). Building student belonging and engagement: Insights into higher education students' experiences of participating and learning together. *Teaching in higher education*, 21(2), 138-150. <https://doi.org/10.1080/13562517.2015.1122585>
- Nwadike, I. U. (2002). *Igbo language in education: A historical study*. Obosi, Anambra State: Pacific Publishers.
- Nwankwegu, J. A., & Nwode, G. C. (2022). Languaging the Igbo brand and image. *Ékwé Jonal*, 15(2), 58–69.
- Okudo, A. R. (2016). *Computer assisted language learning and impact of motivation and achievement in Igbo among Junior Secondary School Students in Lagos State, Nigeria* (Doctoral dissertation, University of Lagos (Nigeria)).
- Okudo, A. R. (2023). Teacher professional qualities and instructional strategies' impact on academic performance in Igbo among upper basic students in Education District IV, Lagos State, Nigeria. *Journal of Nigeria Languages' Studies (NILAS)*, 7(1), 37-49.
- Pratama, G., & Christiani, T. (2023). The Impact of the Jigsaw Type Cooperative Learning Model on Independent Learning and Social Studies Achievement. *Journal Basic Science and Technology*, 12(2), 58-65.
- Quisaguano Pumacuro, A. C. (2023). *Cooperative learning for developing reading comprehension skills among fourth-graders* (Master's thesis, Pontificia Universidad Católica del Ecuador).
- Rahim, F. R., & Fauzi, A. (2023). Fostering creative problem solving skills through integrated learning of volcanic eruption disasters. *ASEAN Natural Disaster Mitigation and Education Journal*, 1(1), 31-42. <https://doi.org/10.61511/andmej.v1i1.2023.176>
- Slavin, R. E. (2011). Instruction based on cooperative learning. In R. E. Mayer & P. A. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 17). Routledge. <https://doi.org/10.4324/9780203839089>
- Slavin, R. E. (2018). *Educational psychology: Theory and practice*. Pearson.
- Wang, M., Alavi, M., & Izadpanah, S. (2023). The impact of jigsaw cooperative learning on academic motivation, academic hardiness, and self-efficacy of English Foreign Language learners. *Learning and Motivation*, 84, 101940. <https://doi.org/10.1016/j.lmot.2023.101940>
- West African Examinations Council. (2012). *Annual Report 2012*. Accra, Ghana: WAEC.

- Wilson, K., & Devereux, L. (2014). Scaffolding theory: High challenge, high support in Academic Language and Learning (ALL) contexts. *Journal of Academic Language and Learning*, 8(3), A91-A100.
- Yimer, S. T., & Feza, N. N. (2019). Learners' conceptual knowledge development and attitudinal change towards calculus using jigsaw co-operative learning strategy integrated with GeoGebra. *International Electronic Journal of Mathematics Education*, 15(1), em0554. <https://doi.org/10.29333/iejme/5936>