



Research Article

Volume-07|Issue-04|2026

Developed Yorùbá Language Braille Code Package for Fast Reading and Comprehension of Yorùbá Literature Among Learners with Visual Impairment in Nigeria

Akinbode Paul OLAOYE¹, Wasiu Kolapo AMUSAT Ph.D.²¹Department of Visually Impairment, Federal College of Education (Special), Oyo²Department of Yorùbá, Federal College of Education (Special), Oyo**Article History**

Received: 23.03.2026

Accepted: 27.04.2026

Published: 30.04.2026

Citation

OLA OYE, A. P. & AMUSAT, W. K. (2026). Developed Yorùbá Language Braille Code Package for Fast Reading and Comprehension of Yorùbá Literature Among Learners with Visual Impairment in Nigeria. *Indiana Journal of Arts & Literature*, 7(4), 29-33.

Abstract: this study examines how yorùbá language braille code can enhance fast reading and comprehension of learners with visual impairment in nigeria. The study employed quasi experimental design of the pretest, posttest and control group. The total population for the study was 50 learners with visual impairment in junior secondary school for the blind and inclusive junior secondary school in southwest nigeria. Purposive sampling technique was used for the selection of 23 respondents where 13 respondents from commercial grammar school oke-iho in oyo state were used as experimental group and 10 respondents from ondo state school for the blind were used as control group. The instruments used for the study were Yorùbá Language Braille Code (YLBC), Yorùbá Literature Achievement Test (YLAT) and Yorùbá Lesson Plan (YLP). Kuder Richardson formular (KR20) was used for the reliability, and the coefficient $r=0.97$ was obtained. The data collected were analyzed using ANCOVA. The study revealed the significant effects of braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets. It was revealed that there is a significant effect of braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets ($F(2, 23) = 1.822$; $p < 0.05$, partial $\eta^2 = 0.002$). It also revealed the significant main effect on onset visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets ($F(1, 24) = 5.16$; $p < .05$, partial $\eta^2 = .27$). The study recommended that training and retraining programs such as seminars, workshops and symposia, should be organized to train teachers of students with visual impairment and how to teach with it.

Keywords: Yorùbá language, Braille code and visual impairment

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0).

INTRODUCTION

Braille, a universal system of reading and writing for and by the blind is highly dynamic and require consistent update to ease readability, readers' speed and conform to the changing rules in every language. Abilu and Adebisi (2019) defined Braille as an embossed mode of reading and writing by those having blindness. It is a universally accepted means of reading and writing for the blind. Braille Authority of North America (n.d) asserted that Braille itself has been instrumental in making possible the integration of blind people into society, and, in turn, this increased integration has driven developments in the use and production of braille. The more integrated that blind people have become, the greater are the demands placed on sources of literacy. Braille was invented in the 1829 and by 1837, a more complete elaboration was also published to make room for improvement in its readability and conformity with language rules (Diaz, Shasteen & Larwin, 2016). This process reformation continued to keep up with changing written language (Braille Authority of North America, n.d). Today, braille as a means of reading for and by the blind is now available in many languages of the world including Yorùbá.

Yorùbá language has twenty-five (25) alphabets which consist of eighteen (18) consonants and seven (7) vowel letters. Each of the vowel letters has the possibilities of receiving three different tonal marks: high tone, middle tone and low tone; giving the possibilities of twenty-one (21) tones. There also exist five (5) nasal vowels in Yorùbá. Occasionally, two other consonants, "n" and "m" do take tonal mark making twenty-seven (27) possible tones in Yorùbá language. When writing Yorùbá words, the tonal mark is placed above the letter receiving it.

Braille code in Yorùbá language was published by Nigerian Educational Research Development Council (NERDC) in 1982. The said code which is still the current Yorùbá Braille code was developed as part of a broader effort to create standard Braille codes for the major languages in Nigeria. As published by the NERDC, the code has braille symbol for each of the twenty-five (25) Yorùbá alphabets and three difference braille symbols for the three (3) tonal marks. The braille sign for tonal mark is brailled behind the letter receiving it. (Abilu, 2015). With the two consonant letters that sometimes receives tonal mark, and seven vowel letters, Yorùbá letters could then be to twenty-seven (27) differentiated tonal possibilities.

In English braille, there is Grade I braille, and there is Grade II braille. While Grade I is written letter-for-letter translation from ink print to braille, Grade II braille has a lot of contractions, short forms/abbreviation. Contractions are simply shorthand for words and part-words. A contraction, by requirement, always uses fewer cells than the corresponding uncontracted form. Braille uses contractions to facilitate reading—the speed of reading by touch is strongly correlated to the number of characters in a text and also to reduce the bulk of embossed transcriptions. In other words, the use of contraction enhances the speed of reading in braille and reduces bulkiness of braille documents which would eventually increase the amount of space required for storing braille materials (dotlessbraille.org n.d. & Mboshi, 2018). For instance, when braille was adopted as the predominant mode of reading and writing for the blind in 1876, it was having a few hundred contractions and abbreviations – braille coded symbols that fused more than one letter or an entire word into one braille symbol.

It was put in place to reduce the amount of dots readers would be interacted with but have a complete flow of thought. In 1902, Britain was not satisfied with those contractions; she revised and coded the revised version “grade two braille”. This revised version was also adopted by commonwealth countries. Similarly in 1918, Britain adopted partly contracted English braille called grade 1½. In 2005, another major revised edition that unified braille code for all English speaking countries was adopted. All the revisions were done to ease reading stress, increase speed while reading and conform to changing language rules, (Wikipedia 2023). Yorùbá braille code unlike its English counterpart has remained unchanged till this moment.

When writing the Yorùbá braille with its tonal mark, each letter of the words is spelt out with the braille

symbol for the tonal mark brailled in a separate braille cell right before the letter receiving the mark. This marks braille symbols to be read by a Yorùbá braille reader to become lengthier and more complex; thereby making Yorùbá braille documents reading slower and books quite bulky. This is due to the tonal marks needed to accurately represent the language. Each of the tonal marks takes a braille cell which takes up more space, making books and documents larger and harder to handle and more time to explore.

Braille code for Yorùbá language has never been revised since its first publication. The code made use of several characters which makes reading tiring for learners with visual impairment. Hence, many learners with visual impairment only learn the code but do not use it. This eventually makes learning Yorùbá language very difficult for many Yorùbá learners with visual impairment. Whereas, UNESCO (2022) established that education in the mother tongue is a key factor for inclusion and quality learning, and it also improves learning outcomes and academic performance. This is crucial, especially in primary school to avoid knowledge gaps and increase the speed of learning and comprehension. It is on this note that this study intends to develop Yorùbá braille code with reduces the number symbols learners would relate with to decode the written expression.

Braille in Yorùbá language came later with the braille of Bibles. Ajuwon and Sykes (2023) submitted initial transcription to braille was without some drawbacks for blind readers. He also mentioned that tonal marks were not appropriately represented. On this note, this study developed Yorùbá Language Braille Code that will cater for all the tonal marks with a view to be able to write clear and concise Yorùbá language without tonal marks forming their own independent character. The efficacy of this code was compared with the initial Yorùbá braille code.

Yoruba Language Braille Code (YLBC) with toned alphabets												
a	b	d	e	ẹ	f	g	gb	h	ì	j	k	l
⠁	⠃	⠑	⠅	⠇	⠋	⠎	⠎⠃	⠏	⠔	⠗	⠘	⠙
m	n	o	ọ	p	r	s	ş	t	u	w	y	
⠚	⠜	⠕	⠕⠔	⠕⠗	⠞	⠝	⠝⠚	⠟	⠥	⠞⠽	⠞⠮	
and Yoruba Alphabet with tonal marks such as												
a	à	á	e	è	é	ẹ	è	é	ì	ì	í	
⠁	⠁⠗	⠁⠎	⠅	⠅⠗	⠅⠎	⠇	⠇⠗	⠇⠎	⠔	⠔⠗	⠔⠎	
o	ò	ó	ọ	ò	ó	n	ṅ	ń	u	ù	ú	
⠕	⠕⠗	⠕⠎	⠕⠔	⠕⠗	⠕⠎	⠞	⠞⠎	⠞⠎	⠥	⠥⠗	⠥⠎	

Statement of the Problem

Learners with visual impairment do not read YLBC which is not unconnected to the fact that there are too many braille symbols to interact with for Yorùbá expressions to be deciphered. Each of the twenty-seven different tonal sounds in Yorùbá language has not less than two braille symbols, making Yorùbá braille literature to be too bulky, difficult to move about and store, and also takes a longer time to read. This makes Yorùbá learners distance themselves from reading in literature and other materials written in Yorùbá language. This is against the spirit of the National Policy on Education published by the Federal Government of Nigeria which state that government must see to it that the medium of instruction in the primary school is initially in the mother-tongue or the language of the immediate environment and, at a later stage, English. Non-use of YLBC by learners with visual impairment is making them to become alien to their own mother’s tongue and losing out its benefit. This study therefore will develop revise YLBC, taking into account, and those twenty-seven tonal sounds with a view to reducing each of the sounds to one braille symbol.

Objective of the Study

The main objective of this study is to develop YLBC that improve learners’ reading speed and less confusing. Specifically, this study will:

1. determine if the developed YLBC with toned alphabets has effect on the reading speed of learners with visual impairment.
2. determine whether braille code for Yorùbá toned alphabets has effects on gender among visual impairment students.
3. find out whether onset of visual impairment has effect on the effectiveness of YLBC.

Hypotheses

The following questions would guide this study.

- H01: There is no significant effect on reading speed of visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.
- H02: There is no significant effect on genders of visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.
- H03: There is no significant effect on onset visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets

METHODOLOGY

This study examines how Yorùbá Language Braille Code Strategy can enhance fast reading and comprehension of Learners with Visual Impairment in Nigeria. The study employed quasi experimental design of the pretest, posttest and control group. The total population for the study was 50 Learners with Visual Impairment across the secondary schools in southwestern Nigeria. Purposive sampling technique was used for the selection of 23 respondents. The instruments used for the study were Yorùbá Language Braille Code (YLBC), three research questions were formulated and tested. Data were analyzed using ANCOVA.

Analysis/ Results Presentation

H01: There is no significant effect on reading style and comprehension of visual impairment students taught with code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.

Table 1: Analysis of Covariance (ANCOVA) showing main effect effects on reading style and comprehension of visual impairment students taught with code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.

Source	Type III Sum of Square	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3558.074	3	1186.024	1.240	.000	.711
Intercept	956.213	1	956.213	2.576	.001	.002
Pre Achievement	371.172	1	371.172	1.768	.002	.017
Treatment	209.881	1	209.881	1.822	.100	.022
Gender	115.197	1	115.197	4.346	.000	.115
Onset Visual Impairment	26.504	1	26.504	5.16	.000	.271
Error	1011.122	22	45.960	0.169		

R. Squared = .80 (Adjusted R Squared = .66) Denotes Significant p < .05
Source: Fieldwork, 2024

H01: There is significant effect of braille code for Yorùbá toned alphabets on those taught with conversional Yorùbá alphabets. It was revealed that there is a significant main effect of braille code for Yorùbá toned alphabets on those taught with conversional Yorùbá alphabets. ($F_{(2, 23)} = 1.822$; $p < 0.05$, partial $\eta^2 = 0.002$). The indicated the effect size of 2.0%. This means that 2.0% of the total 66.0%

variation observed (Adjusted $R^2 = .80$) in students’ with visually impairment post-achievement scores in braille code for Yorùbá toned alphabets in this ANCOVA model was due to the significant main effect of the treatment. Therefore, hypothesis 1 was accepted.

H02: There is no significant effect on genders of visual impairment students taught with braille code for

Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.

Table 2: Analysis of Covariance (ANCOVA) showing main effect treatment of Yorùbá toned alphabets on Gender Visual Impairment Students taught with code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets

Source	Type III Sum of Square	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3558.074	3	1186.024	1.240	.000	.711
Intercept	956.213	1	956.213	2.576	.001	.002
Pre Achievement	371.172	1	371.172	1.768	.002	.017
Treatment	209.881	1	209.881	1.822	.100	.022
Gender	115.197	1	115.197	4.346	.000	.011
Onset Visual Impairment	26.504	1	26.504	5.16	.000	.271
Error	1011.122	22	45.960	0.169		

R. Squared = .80 (Adjusted R Squared = .66) Denotes Significant $p < .05$

Source: Fieldwork, 2024

Table 2 revealed that there was no gender effect on visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets ($F_{(1, 22)} = 4.346$; $p < 0.05$, partial $\eta^2 = 0.511$). The indicated the effect size of 51.0%. This means that 26.0% of the total 66.0% variation observed (Adjusted $R^2 = .80$) in students' with visually impairment post-achievement scores in with braille code

for Yorùbá toned alphabets in this ANCOVA model was due to the significant main effect of the treatment. Therefore, hypothesis 2 was not accepted.

H03: There is no significant effects on onset visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets

Table 3: Analysis of Covariance (ANCOVA) showing main effect treatment of Yorùbá toned alphabets on onset Visual Impairment Students taught with code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets

Source	Type III Sum of Square	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3658.074	3	1186.024	1.24	.000	.711
Intercept	956.213	1	956.213	2.576	.001	.002
Pre Achievement	371.172	1	371.172	1.768	.002	.017
Treatment	209.881	1	209.881	1.822	.100	.022
Gender	115.197	1	115.197	4.346	.000	.011
Onset Visual Impairment	26.504	1	26.504	5.16	.000	.271
Error	1011.122	22	45.96	0.169		

R Squared = .80 (Adjusted R Squared = .80) Denotes Significant $p < .05$

Source: Fieldwork, 2024

Table 3 indicated that there was a significant main effect on onset visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets ($F_{(1, 24)} = 5.16$; $p < .05$, partial $\eta^2 = .27$). Hence, hypothesis 3 was rejected. This means that there was significant effect on onset visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets.

Therefore, the hypothesis 3 was upheld.

DISCUSSION OF FINDINGS

The finding of the study in table 1 revealed a significant effect of braille code for Yorùbá toned alphabets on those taught with conversional Yorùbá alphabets. This corroborates the finding of Diaz, Shasteen and Larwin (2016) who emphasis that there

must be a room for improvement on readability and conformity with language rules. This is slightly contradicted with the finding of Mboshi (2018) who agrees that English language braille code and Yorùbá braille alphabets should be based on revising and releasing new edition of their code.

In table 2, the study revealed that there was no genders effect on visual impairment students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets. This corroborates the finding of UNESCO (2022) who established that education in the mother tongue is a key factor for inclusion and quality learning, and it also improves learning outcomes and academic performance.

Also, table 3 indicated that there was a significant main effect on onset visual impairment

students taught with braille code for Yorùbá toned alphabets and those taught with conversional Yorùbá alphabets. This buttresses the finding of Abilu and Adebisi (2019) who defined Braille as an embossed mode of reading and writing by those having blindness. Also, it is supported by Abilu (2015) that code has braille symbol for each of the twenty-five (25) Yorùbá alphabets and nine (9) tonal sounds with each having three possible tones.

CONCLUSION

This study underscores the effectiveness of braille code for Yorùbá toned alphabets on visually impairment students' achievement in Yorùbá Literature. It was clearly stated in the findings that braille code for Yorùbá toned alphabets play a substantial role in learning outcomes of Yorùbá literature by students with visually impairment. Also, gender was found to have no effect on learning of literature among visual impairment, it was also stressed that gender differences did not affect performance when effective instructional strategies were employed.

Additionally, the study showed that onset visual impairment do have significant effect on the learning of Yorùbá literature among students with visual impairment regardless of the instructional method employed. The negligible influence of onset visual impairment highlights the importance of focusing on effective instructional design and delivery to support students' learning and mitigate potential onset visual impairment.

Based on these findings, it is hereby concluded that braille code for Yorùbá toned alphabets enhance the fast reading and comprehension of Yorùbá literature among learners with visual impairment in Nigeria.

RECOMMENDATIONS

The following recommendations are made based on the findings:

- Students with visually impairment should be taught braille code for Yorùbá toned alphabets.

- Teacher should ensure that mother tongue should be totally employed to teaching Yorùbá literature to students with visually impairment.
- Training and retraining programs, such as seminars, workshops and symposia, should be organized to train teachers of students with visually impairment braille code for Yorùbá toned alphabets and how to employ it to teach them.

REFERENCES

1. Abilu, R. A. (2015). Renewing and Refreshing the Knowledge base of the Field of Visual Impairment: A call to action. *Journal of Visual Impairment & Blindness*, 109(2), 159-162. doi: 10.1177/0145482X1510900213.
2. Abilu R.A. and Adebisi B. A. (2019). *A Guide to Braille Reading and Writing*. Ibadan. Symphony Books.
3. Ajuwon P.M. and Sykes K. C. (2023). *The Standardisation of Braille Codes for Hausa, Igbo and Yorùbá Languages in Nigeria*, 2(18). Retrieved from <https://www.readingassociationnigeria.org>
4. Braille Authority of North America, (n.d) The Evolution of Braille: Can the Past Help Plan the Future? A three-part article from the Braille Authority of North America. Retrieved from https://www.brailleauthority.org/article/evolution_of_braille-part1.pdf
5. Diaz, H., Shasteen, S., & Larwin, D. (2016). Perspective of the Educational Experiences of Students with visual impairments. *British Journal of Visual Impairment*, 36(2), 152-162
6. Mboshi, N. (2018). Teaching learners with visual impairment in an inclusive education setting: The Cameroon perspective. *International Journal of Education and Research*, 6 (2), 65-69.
7. UNESCO (2022) Why mother language-based education is essential? Retrieved from <https://www.unesco.org> on 13/04/2023
8. Wikipedia Encyclopedia Online (2023) English Braille. Retrieved from <https://www.wikipedia.org> on 13/04/2023.
9. Dotlessbraille.org (n.d) Braille Contractions. Retrieved from <https://www.dotlessbraille.org> on 13/04/2023