

***A Critique of the Yorùbá Section in Vocabulary of  
Primary Science and Mathematics in Nine Nigerian  
Languages***

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**Abstract**

In response to the National Policy on Education which states that children should be taught in the first three years of education in the language of their immediate environment, NERDC (1980) published *A Glossary of Technical Terminology for Primary Schools in Nigeria*. The book is a glossary of terms in mathematics, science and technology in nine Nigerian languages, one of which is Yoruba. However, not only are the terminologies presented in the book insufficient for science terms in the lower primary, some of them are not precise enough to capture the notions and ideas encapsulated in the existing English terms. This paper takes a critical look at the aforementioned publication and propose adequate terms for the observed imprecisions. In addition to making reference to dictionary of science, teachers of science at the primary school level were consulted for opinions based on their teaching experiences on the definition of terms to formulate adequate and precise Yoruba language terms that will portray the exact meaning of the existing English terms. It is hoped that the proposed terms will serve as guides to teachers and learners of science subjects using Yoruba as the language of instruction.

**Keywords:** Terminology; science terms; Yoruba language; formulation.

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### **Introduction**

This study is a critique of the Yorùbá section of NERDC (1980) *Vocabulary of Primary Science and Mathematics in nine (9) Nigerian languages*. After carefully reading and understanding the aforementioned work, it was discovered that there are a number of shortcomings in the compilation. One, some of the Yorùbá terms developed are imprecise. As such, they do not aptly convey the notion expressed in existing English terms. Two, the terms are no longer in line with the present curriculum on basic science and technology as approved by the Federal Ministry of Education. Therefore, there is the need to ameliorate the terms to suit the present curriculum. This study shall focus mainly on the attempt to provide more precise terms for the observed imprecision and a general critique of the work.

The terminologies workshop which took place at the then University of Ifè (now Obaḷemi Awolowo University) in November of 1974 was sponsored by the Federal Ministry of Education (National Language Centre) in collaboration with the Institute of Education, University of Ifè. The text under study resulted largely from the effort of the small group of Yorùbá speaking participants present at the workshop. According to NERDC (1980), The Yorùbá group succeeded in completing only the section on mathematics and since there was no means of reconvening the group, the rapporteur had to carry the responsibility of producing a final report by consulting some other speakers of the language although, the consultation was greatly limited. Prior to this workshop that births the work been criticised was a committee of experts set up by the government of now defunct West Region in 1954, the result of which did not see the light of the day. Other works include terminology list of six-year primary project (SYPP) which was carried out by the Institute of Education, University of Ifè (Fafunwa, 1974; Armstrong. 1962; and Armstrong & Bamgboṣe, 1964).

The work under study was able to drink from the lake of the works before it as mentioned above but the workshop which produced the large part of the result did not have a very impressive machinery for conveyance of group members as explained in the preface of the work

yet, it deserves to be applauded being the only surviving effort in the attempt to provide guide for the use of Yorùbá language as the language of instruction in primary schools especially teaching of science and mathematics. This paper opines that as a way of encouraging the implementation of the policy aforementioned, there is the need for development of a guide tailored after the government approved curriculum for basic science and mathematics. This paper is set to amend the work under critique to meet this need.

### **Methodology**

The principles for devising Yorùbá terminologies used in the work being critiqued are:

- Adopt Yorùbá equivalent of foreign terms where the former exists
- Where borrowing is unavoidable, ear-loan is to be preferred to eye-loan
- Where it is inevitable to borrow a form, which belongs to a paradigm or is a member of a morphological series, it may be futile to borrow it in isolation. This means that, we either borrow the entire series or find equivalent for all members of the series.

NERDC (1990:217-218)

In as much as I agree with the principles above, I feel that one important principle that should be considered before loaning or borrowing is missing. This principle is *coinage*:

- Develop or coin terms where the foreign term has no traditional equivalent. This is one major aspect of word formation and language engineering (Linda, 2015).

The critique shall be done systematically. The analysis of the work under critique is in sections with a number of sub-headings which we think are unnecessary. Firstly, we will identify the overlapping sections or sub-headings and attempt a rearrangement. Secondly, identify the imprecise terms and also attempt a development of an assumed more precise one.

The terms are divided into two parts which are:

- Mathematical Terms
- Scientific Terms

Each of these parts has sections some of which in turn have sub-headings. Here are the sections under each part:

Mathematical Terms:

- Set
- Number
- Operations
- Geometry
- Measurement

Scientific Terms:

- Physical science.
- Soil and plant including Agricultural science.
- Animals including health science.
- Some animals that live in water and on land.

### **The Critique**

Two or three of the sub-headings could actually go for one. An example is in the section for *soil and plant including agricultural science*. In the section mentioned above, there are two different sub-headings for ‘fruit’, one is ‘fruit’ and the other is ‘common fruit’. Our concern is that, after the ‘fruit’ sub-heading, there are other sub-headings like ‘the stem’, ‘pollination’ and ‘agent’ before the ‘common fruit’. One would expect that ‘common fruit’ will be under ‘fruit’ where ‘fruit’ will be the broad umbrella and ‘common fruit’ a form of it.

Also, in the same section, there is ‘storage’ as a sub-heading and ‘storage of some of these farm products’ as another sub-heading with other sub-headings between them. It would have been better if ‘storage’ is used to capture what was broken into two sub-headings. In the same section, there is a sub-heading as ‘uses or nutritive values’ and there is another as ‘vegetable nutrients’. These two sub-headings have the same content, one of the points under ‘uses or nutritive values’ is: they supply rich vitamin A, vitamin C and iron. *sòkò*, a variant of

vegetable is particularly rich in iron, while beans is rich in vitamin B. One point under ‘vegetable nutrient’ is: they keep the nerves, blood eyes and skin in good condition. We suggest that ‘uses or nutritive values’ be sustained as the only sub-heading with all the points under the two earlier mentioned sub-headings.

The second part of our critique is consequent upon the rate of word-loaning strategy employed in the text under study. We realise that loaning which is supposed to be the last resort in term development received too much attention in the text. The most alarming is the loaning of the days of the week and the months of the year which the target language (Yorùbá) originally have. The table below shows the content in the work.

Days of the week.

<b>ENGLISH</b>	<b>YORÙBÁ</b>
Monday	Móndè
Tuesday	Túsideè
Wednesday	Wésideè
Thursday	Tòsideè
Friday	Furaidee
Saturday	Satide
Sunday	Sònde

<b>ENGLISH</b>	<b>YORÙBÁ</b>
Sunday	Ojò Àlà Ojò Àikú Ojò Aṣẹ̀dà
Monday	Ojò Ajé

	Ojò Oriṣà-oko
Tuesday	Ojò Iṣégun Ojò Ògún Ojò Orò
Wednesday	Ojòrùú Ojò Ogbón
Thursday	Ojò Iná Ojò Ojòbò Ojò Sàngó
Friday	Ojò Ètì Ojò Yemoja
Saturday	Ojò Abáméta Ojò Aṣèdá Ojò Ìyanu m éta

Source: (Ajikobi, 2002, pp. 11-12)

The table above shows the original terms in the target language.

The table below shows the months of the year as loaned in the work.

**Months of the year**

ENGLISH	YORÙBÁ
January	Jánúári
February	Fébúári
March	Máàṣì
April	Eépiri
May	Mée
June	Júùnù
July	Júlái
August	Ogòòsì
September	Sèténbà
October	Òtóbà
November	Nòfém̀bà
December	Dísénbà

This table shows the original terms in the target language

<b>ENGLISH</b>	<b>YORÙBÁ</b>
January	Şeře
February	Èrèlé
March	Irenà
April	Igbe
May	Èbibí
June	Òkùdù
July	Agemo
August	Ògún
September	Owèrè
October	Òwàrà
November	Belu
December	Òpe

Source: (Ajikobi, 2002, pp. 12-14)

One can say that there is a reason for loaning these concepts that exist traditionally in the language. But it is not justified since there is no documented explanation in the text. On this note, we consider this strategy simplistic and we propose that the traditional terms be retained for teaching of pupils.

On the issue of the mathematical terms, they are very tasking to develop; as such there is an outrageous number of loaning in the text. However, we must say that it was an overwhelming effort that was put into the documentation of the text under study. This effort is therefore commended.

We will attempt development of terms for the loan-words to reduce the rate of loaning as much as possible. The first set of terms we will consider are the mathematical terms.

Under set:

<b>English</b>	<b>Yorùbá</b>
Mathematics	matimatiiki/maasi
Set	sèètì

Under number:

<b>English</b>	<b>Yorùbá</b>
Number	iyéó
Zero	òfo
Number line	ila iyeò
Numeral	ami iyeó
Numerator	numẹ́rẹ̀tò
Denominator	nọ́mínẹ̀tọ
Decimal fraction	ìdà onídẹ̀símà
Decimal point	ojú dẹ̀símà
Decimal place	àyẹ̀ dẹ̀símà

Mathematics is a study of numbers, shapes and space using reason and usually a special system of symbols and rules for organising them as such, developing term that will encapsulate its entire compartment will be too long and not economical. Therefore, we support the loaning of the term *matimatiiki*. Instead of loaning *sẹ̀tì*, we propose *òwọ* which refers to the notion of group, the collection of certain things or objects. *Iyeó* was used to refer to number, but we fault that owing to the fact that *iyéó* was derived by two word derivation processes, compounding and deletion (Awobuluyi, 2016).

Consider the set below:

Iye	‘number’
Owó	‘money’
Iye+owó iyeowó	‘amount’

This word following the phonological rule of deletion became *iyéó*. Consider this:

Iye wó Vowel [o] deletion  
 Iyéó consonant [w] deletion



We therefore suggest that *iyé* be used for number in every position where it occurs as against *iyéó* which is ‘amount’. We also suggest that decimal remain loaned as in the text.

Under operations:

<b>English</b>	<b>Yorùbá</b>
Factor	fátò
Product	pódòtì
Distributive rule	ilànà àtúnpín

Instead of loaning ‘factor’ as ‘fátò’ we propose *gbéetan*. Our proposal is drawn from the definition of the term ‘factor’: any whole number which is produced when you divide a larger number by another whole number. That is, after the division, there is no remainder i.e. two, three and six are factors of twelve. The term ‘product’ need not be borrowed at all, *ohun àsejádé*, *irè-oko*, *àmújádé*, *èso* are possible equivalents of the term. For ‘distributive rule’, our concern is with the *àtúnpín* ‘redistribution’. We think that *ilànà ifónká* should be adopted.

Geometry and measurement are not covered in this critique because they are two broad aspects of mathematics that will be considered separately.

The second part of our critique is the scientific terms. We adopt the table below for the critique for clarity and to avoid unnecessary repetitions.

#### **Physical Science**

<b>English Term</b>	<b>Yorùbá Term Adopted</b>	<b>Remarks and Observation</b>	<b>Yorùbá Term Suggested</b>	<b>Rationale</b>
Asbestos	Àsibètò/ Abesito	Loan	To be retained	A newly suggested term may be imprecise
Balloons	Bàlúù	Loan	Kòbékòbè	Suggested by a large percentage

				of our respondents
Batteries	Bátiri	Loan	To be retained	Borrowed and domesticated. Already in use by almost all speakers of the Yorùba language
Bicycle	Básìkù	Unnecessary loaning	Kèkè	Coined from the sound made by the wheels of the bicycle. Already in use by the speakers of the language.
Brakes	Bírèèkì	Unnecessary loaning	Ìjánu	It is precise. It puts a stop to an ongoing action.
Carbohydrate	Kaboháíd- éètì	Unnecessary loaning	Èròjà ounje afúnnilókun	It is Precise. It is the Properties that supply energy
Cement	Símèntì	Loan	To be retained	A new term may be uneconomic al
Chemical	Èròjà oògùn	Term development	To be retained	The term is precise

*A Critique of ... Vocabulary of Primary Science*

Circuit	Sákíiti	Loan	To be retained	A new term may be too long and not economical
Electric	Léńtíríkí	Loan	Oníná/ Ajemona	Associated with electricity
Fire extinguish -er	Ìgbaná, gbajú	Term not precise. Ìgbaná could mean to catch fire. And, this is not the meaning of the English term	Ìpaná/ paná-paná	Fire killer/ fire fighter. What it does is to fight and kill (extinguish) the fire.
Float	Fó	Imprecise term	Léfòó	Precise. What happens is that the object does not sink.
Gas	Gààsi	Loan	To be retained	Term may not be precise
Granite	Òkúta akọ	Some stones are referred to as 'òkúta akọ' and they are not granite	To be retained	Term may be uneconomic al
Microscope	Máíkro	Unnecessary loaning	Awo-amóhungbò òrò	Precise. The lens enlarges objects

				placed under it.
Nature	èdá	Not precise. 'èdá' is creature.	Àdáyébá	It is more precise
Particle	Pátíkù	Unnecessary loaning	Èérún/ èrùn-ún	Either of the terms is precise.
Photograph	Fótò	Loan	To be retained. 'Àwòrán' is a very possible option but it could also refer to a diagram.	Largely in use by the speakers of the language.
Relative	Ìbátan	Adaptation	To be retained	Precise.
Solid	_____	No precise term found	Aṣeédímú	Precise.
Solidify	Dì	Adaptation	To be retained	Precise.
Steering wheel	Síàrìn	Unnecessary loaning	Atukò	Precise. It controls the direction of the object.
Sugar	sùgà	Loan	To be retained	Term may not be precise.
Telescope	Télikóbù	Loan	Awònjínjìn	Precise.
Theory	Tíòrì	Loan	To be retained	Borrowed and

*A Critique of ... Vocabulary of Primary Science*

				domesticate d. Already in use by a number of the speakers of the language.
Torchlight	Tòṣi	Loan	Atànmólẹ̀/ Itana	Precise.
Variable	—	No precise term found	Oríṣi	Precise.
Visible	Rírí	Not precise. It means Seeing.	ṣeérí	Precise. That which Can be seen.
Wire	Wáyà	Loan	To be retained	Already in use by speakers of the language.
Wire gauze	Wáyà gòṣi	Loan	Asẹ̀ onírin	Precise. It sieves dirt and prevent blockage.

The terms suggested are subject to further logical criticism  
A sub-heading under the soil and plant including agricultural science section is *agents* under which ‘insects: e.g. bees, butter-flies and ant’ were grouped. The Yorùbá equivalent given was simply *kòkòrò*. We feel that the insects should be indicated just as it is in the source language, *kòkòrò: b.a. oyin, labalábá àti èèrà*.

**Other identified areas under this section are:**

Calcium for bones *kásìòmù fún egungun*  
Help the eyes function well *won dára fún ojú.*  
*Won n ran ojú lówó láti mólẹ̀ kedere*

Some are cooked, e.g. pepper...a máa se díẹ̀ (*àwọn kan*) ninu wọn b.a. ata ... We feel that *díẹ̀* depict a small quantity out of a larger quantity. And this is not the case here. The characters in italics are my contributions.

### **Conclusion**

This study has critically examined the only major existing work on the development of scientific terms in Yorùbá language. Apart from pointing out some of the inadequacies in the work, it presented useful suggestions on the terminologies involved, bearing in mind possible avoidance of loaning. It submitted that loaning without any attempt to develop indigenous terms is a very weak method of language engineering and development.

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*A Critique of ... Vocabulary of Primary Science*

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