

African Languages and Scientific Terminologies:**The Hausa Example**

By

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This paper presents a picture of how scientific and technological words can be created in Hausa through compounding and derivational processes. In compounding process, two words or bound morphemes of two different languages, Hausa on one hand, and English and Arabic, on the other hand are combined to generate new words to refer to scientific or technological concepts. As for derivational, Hausa bound morphemes such as 'maga', 'na', and 'ta' are used to derive new words in Hausa relating to science and technology

INTRODUCTION

In the past few months, there have been criticisms over the issue of adopting one or some of the indigenous Languages as national languages for Nigeria. Some Nigerians who opposed the issue, have expressed the fear that none of the indigenous languages have the qualities to be adopted as national languages for Nigeria, because the languages do not naturally possess the intelligence to express scientific terminologies necessarily needed in the modern world of today. The opposers continued to argue that, English is a rich language, and the only language that naturally carries scientific concepts. It is, therefore, a waste of effort, according to them, to replace English, a modern language, with unintelligible primitive and uncivilized Nigerian languages.

It is important to know that English did not by law of evolution naturally develop as a scientific Language. Many of the scientific terminologies of the language, have been artificially created, some were borrowed and adopted, and some have English extended meanings. Secondly, the critics tend to forget that science is a universal knowledge which no one single nation, in particular, can boast to have exclusive right of possession. To this therefore, no single language of a particular nation can be said to have exclusive preserve of science and its terminologies, as this has been erroneously associated with English language alone.

For centuries, science has been dynamically developing at various stages, by different nations and at different periods of time. The scientific terminologies have been, in like a manner, globally circulating and transferring themselves from one language to another through borrowing translation and adaptation. Sometime, a nation

absorbed not only the scientific ideas of another nation, but also the terminologies that described the sciences from the original language. It is through such intermingling and intermixing of languages, that English and indeed all advanced languages of the world flourished and developed terminologies, scientific and others.

English language, for example, the language that has been described by some Nigerians, as an evolutionary and naturally scientific Language, had borrowed and adopted scientific terms of potassium from the French protease, sodium from the Latin Soda, lithium from the Greek lithe. It has also directly borrowed and adopted as its own the Arabic scientific terms of algebra, alkali, alchemy, alcohol, chemistry, and zero, to mention but a few. This paper, intends to show how scientific terminologies can be created into Hausa, as English and other advanced languages do convert such terms into their languages.

CREATION OF SCIENTIFIC WORDS INTO HAUSA

Words can be created by using the materials of one language with that of another language. That is, by combining two elements from two different languages, and form a new word. For example, there is no Greek word 'chlorophyll', but the English word is made up of Greek element 'chloros', and English element 'phyllon' to form 'chlorophyll' that stands for the name of the substance in plants that gives green colour.

In this case, therefore, we can in the same way create words by using English and Hausa materials to invent scientific words of our need. For example, the word 'cell' that originates from English and has the extended scientific meanings, "a microscopic unit of living matter enclosing a

nucleus with self-producing gene”, (Hornby, 1974:135), can receive Hausa morphological additions and then be adapted in Hausa as ‘selu’ (cell). The adapted word can then be combined with either a true Hausa word or a syllable of it to form new scientific terms relating to cells. For example, the scientific word ‘haemoglobin’ (a

English	Hausa
Hydrogen	Ruwajin
Hydrogen bomb	Ruwajin bam
hydrocarbon	Ruwajinkabo
hydrochloric	Ruwajinkulori
hydroelectric	Ruwajinlantarki
hydropathy	Ruwajinfashe

English	Hausa
Cell haemoglobin	Selu Jaasule

English	Hausa
Oxygen	Iska’oksi
Carbon dioxide	Iskabooda
Nitrogen	Iskanaato

colouring matter of the red corpuscle of the blood (Hornby, 1974:407), can be transferred into Hausa as ‘jaaselu’ (haemoglobin), because it contains cells that are red (i.e. jaa). The two words can, therefore, be transferred as follows:

The scientific words, ‘oxygen’, ‘carbon dioxide’ and ‘nitrogen’, deal with special types of air or gas. For example, ‘oxygen’ is described as a gas without taste, colour or smell, forming part of the air, water, etc., and supporting life and combustion” (Chambers, 1972:945). Whereas, ‘carbon dioxide’ is described as a colourless, odourless gas with a density of about 1 1/2 times greater than air” (Americana. 1979:892). Since each word deals with a sort of air or gas, the words can be combined with the Hausa word ‘iska’ (air, wind or gas), and effect some morphological changes to create, for example, ‘iska’oksi’, ‘iskabooda’ and ‘iskanaato’, to carry the meanings of the scientific terms, oxygen, carbon dioxide and nitrogen respectively, as illustrated in table 2 above.

The morpheme, ‘hydro’ is from Greek and has the meaning, “composition, like, by means of water” (Chambers, 1972:639). It is combined with English morpheme ‘gen’ to form hydrogen, “a gas which in combination with oxygen, produces water” (Chambers, 1972:641). Since ‘hydro’ deals with a sort of water, that is ‘ruwa’ in Hausa, new terms comprising English and Hausa morphemes can be formed to transfer ‘hydrogen’ into Hausa by the word, ‘ruwajin’ (hydrogen). The word ‘ruwa’ (water) is Hausa, and the bound

morpheme, ‘jin’, is the adapted English morpheme ‘gen’. The following words can be converted into Hausa as follows:

In order to transfer into Hausa nominal words, the scientific meaning “the knowledge of something or the science of something”, as the word ‘petrology’ carries the meaning, “the science of the origin, chemical and mineral composition and structure, and alternation of rocks” (Chambers, 1972:998), the word ‘ilmu’, an Arabic adapted Hausa word, can be used to refer to such sense. For example, the word ‘pharmacology’ can have Hausa equivalent as ‘ilmu-maaganii’ (ilmumaaganii). The word ‘ilmu’, as earlier indicated, is an Arabic loan word, and ‘maaganii’ is a Hausa word meaning medicine. Other related words that can be created using this method are the following:

Since biology, for example, deals with life, the word ‘ilmu’, which has the meaning, the knowledge or science of something, can be combined with ‘rai’ (life) to form ‘ilmurai’ which can stand for ‘biology’. Similarly, ‘duutsi’ (rock), ‘sheekaru’ (years), ‘tsirrai’ (leaves), and others may be combined with ‘ilmu’ to form ‘ilmuduutsi’ (botany) and so on, as seen above.

DERIVATIONS AND THE NEW WORDS

To derive scientific words of agentive cases (the performer of an action or someone who studies something) as the words, ‘chemist’, ‘biologist’ and ‘psychologist’ carry such meaning, a Hausa bound morpheme ‘maga’ – can be combined with a free morpheme to form such words. There exist, in Hausa, agentive cases of the structure ‘maga’ + a noun as in ‘magaayaaki’ (reporter of war) “magaatakarda” (chief scribe) and so on. Therefore, the bound morpheme (-ist) can be combined with an English or Hausa stem to derive agentive cases of the structure ‘magaarai’ (chemist) and ‘magaasarari’ (astronaut). Whether the new terms have two different morphemes from two different languages (i.e. English and Hausa), or the two morphemes come from Hausa, the morpheme ‘maga’ can be combined with stems to derive numerous agentive cases as follows:

English	Hausa
Chemist	Magaakyami
Biologist	Magaarai
Botanist	Magaatsirrai
Pharmacist	Magaamaaganii
Bacteriologist	Maga’abu
Chronologist	Magaasheekaru
Astronaut	Magaasararii
Astronomer	Magaasammai
psychologist	Magahankali

To derive into Hausa scientific terms of adjectival meaning as the words, ‘chemical’, ‘chronological’ and ‘botanical’, Hausa particles ‘na’- and ‘ta’- can be combined with other nouns to carry the intended sense. Hausa uses ‘na’- to derive adjectival words as for example, ‘nakwarai’ (of good quality), ‘nagari’ (trustworthy) and so on. Therefore, ‘na’- or ‘ta’- can be attached to a stem or word in order to form scientific terms with the adjectival derivatives such as ‘nakyami’

Conclusion

From what has so far been analysed, one can see that scientific terminologies are not the exclusive preserve of English or any European language. Hausa too, or any Nigeria language, can create, develop and adopt any scientific or technical term of her need. What is required, however, is the patriotic approach of the matter by the Federal and State Governments of Nigeria. A Language Board can be formed and be giving the duty and responsibilities of enriching and inventing the new terminologies into Hausa. Our Universities, especially, Departments of Linguistics and Languages, can in the same way contribute by funding researches in this aspect of invention.

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(chemical), ‘natsirrai’ (botanical) and so on. Other examples are as follows:

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Chemical	Nakyami
Botanical	Natsirrai
Chronological	Nashekaru
Phonological	Nasauti
Morphological	Nakalma

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