# Swahili*

Gideon Beston Kabenge, Gladdess Ndanu Kitonga, Alusiah Thaara Munyi, Pauline Wamuyu Njogu
Emmanuel Leonard Obunge

## 1. Language description

Swahili is a Bantu language. It is an official language in Kenya and Tanzania, as well as the lingua franca in many East-African countries, including Uganda, Rwanda and Burundi, some parts of Malawi, Somalia, Zambia, Mozambique and the Democratic Republic of Congo (DRC). Source: (https://en.wikipedia.org/wiki/Swahili_language, Lewis, 2009).

The exact number of Swahili-speakers, either native speakers or bilingual speakers, is not clear. It is estimated that Swahili is the first language of 5 to up to 15 million people and that in total between 100 million to 150 million people speak Swahili. (Swahililanguage.stanford.edu)

There are 15 Swahili dialects and pidgin-versions in use. Speakaboo is based on the Kiunguja dialect, which is spoken on Zanzibar and mainland Tanzania. This standardized version of Swahili is used in official and educational domains all over Kenya and other East African countries. Standard Swahili is understood by every Swahili-speaking person in the East Africa region. In contrast to other dialects, Standard Swahili is simple and easy. Speakers of different varieties can understand each other, but each variety has its own specific words. Sometimes the pronunciation of words between those varieties can also differ. Have in mind here, for instance, the differences between British English and American.

It is important to know that children in Kenya often grow up with a language other than Swahili. As soon as a child attends school, Swahili and English are learnt. English language is dominant.
This is different in Tanzania, where Swahili is the mother tongue for many more speakers, AND it is the language used by the government and the media. In some families, one parent at home speaks one Bantu Language while the other parent another variety, therefore the family language will become Swahili.

**Table 1**

*The Swahili Consonant system (Iribemwangi, 2010)*

| | | | Coronal | | | | Dorsal | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Palatal | Velar | Uvular | Pharyngal | Glotal |
| Plosives | p b | | | t d | | ʄ[1] | k g | | | |
| Nasals | m | | | n | | ɲ | ŋ | | | |
| Trills | | | r | | | | | | | |
| Fricatives | | f v | θ ð[2] | s z | ʃ ʒ | | x ɣ[2] | | | |
| Affricates | | | | | ʧ | | | | | |
| Liquidae | | | | l | | | | | | |
| Semi vowels | | | | | | j | w | | | |

[1] *This symbol is used in Swahili transcriptions. The consonant sounds as a voiced affricate /ʤ/*
[2] *These sounds mainly occur in Arabic loan words and are not included in the test because of the low frequency*

The Swahili language has many Arabic influences. We can see this both in the sound system as well as in the lexicon.

* In the region they talk about Kiswahili, in which 'Ki' stands for 'Language".

In certain dialects aspired plosives occur, which are meaning distinctive.

In some dialects, /l/ and /r/ are allophones and these sounds are randomly exchanged.

**Syllable structure**

The standard syllable structure in Swahili is CV (consonant vowel), and it should be noted that there are few monosyllabic words.
Consonant clusters appear at the beginning of a word or syllable; up to a maximum of 3 consonants.
Important: many Swahili words start with a nasal. Sometimes this nasal is part of a cluster, but the nasal can also form a separate syllable. In the score form the syllables are indicated with a /./ at the end of the syllable.
Swahili has no diphthongs. Successive vowels are pronounced as a separate syllable.

| | ***Swahili*** | ***IPA transcription*** | ***Translation*** |
|---|---|---|---|
| CV | saa | /saː/ | clock |
| CVCV | kisu | /kisu/ | knife |
| C-CCV | mbwa | /m.bwɑ/ | dog |
| CV-CCV | tumbo | /tu.mbɔ/ | stomach |
| CV-CV-V | mayai | /mɑ.jɑ.i/ | eggs |

In Swahili, consonants or consonant clusters are NOT allowed at the end of a word. Two consonants in the middle of a word are considered as a cluster at the beginning of a new syllable.

**Stress/emphasis**

The emphasis is usually on the penultimate syllable.

## 2. Acquisition order consonants

One publication was found about the acquisition of phonemes in Swahili (Gangji et al., 2014).
This study was carried out on 24 typical developing children in Tanzania, from 3 to 6 years old. Per age category (6 in total) 4 children were tested using a picture naming task consisting of 49 items. These words contained the majority of the Swahili consonant system.
A consonant was considered as acquired when 3 out of the 4 children from an age category produced the consonant correctly.

**Table 2**

*Age of acquisition of consonants according to Gangji et al., 2014*

| age | phonemes |
|---|---|
| 3;0 - 3;5 | p, b, t, d, k, g, m, n, ɲ, ŋ, ʧ, ɟ, w, j, f, v, ð, ʃ, w, j |
| 3;6 – 3;11 | z |
| 4;0 – 4;5 | s, h |
| 5;6 – 5;11 | θ, r, |

In the study by Gangji et al., consonant clusters are not mentioned separately and there is no distinction towards the position of the consonant in the word.

As can be seen in table 2, most of the consonants are acquired by the age of 3. This can also be seen in the percentage consonants correct (PCC) of the tested children (table 3).

**Table 3**

*PCC per age category ( Gangji et al, 2014)*

| age | Average PCC |
|---|---|
| 3;0 – 3;5 | 93.8 |
| 3;6 – 3;11 | 93.1 |
| 4;0 – 4;5 | 94.4 |
| 4;6 – 4;11 | 89.5 |
| 5;0 – 5;5 | 96.3 |
| 5;6 – 5;11 | 96.5 |

## 3. Most common phonological processes

Table 4 indicates which phonological processes have been observed by Gangji et al. in their study.

**Table 4**

*Normal simplification processes according to Gangji et al. (2014)*

| **Process** | **Example** | **Age categories** | | | | | |
|---|---|---|---|---|---|---|---|
| | | 3;0 – 3;5 | 3;6 – 3;11 | 4;0 – 4;5 | 4;6 - 4;11 | 5;0 - 5;5 | 5;5– 5;11 |
| Lateralisation | rɛdiɔ→lɛdiɔ | ****** | ****** | ****** | ****** | ****** | ****** |
| C-substitution | zawadi→ bawadi | ****** | ****** | ****** | ****** | ****** | ****** |
| Del. weak syllabe | θɛmanini→nini | ****** | ****** | ****** | ****** | ****** | |
| Initial C deletion | nanasi→anasi | ****** | ****** | | | | |
| CC reduction | mwavuli→mavuli | ****** | ****** | | | | |
| palatalisation | samaki→ʃamaki | ****** | ****** | | | | |
| metathesis | lɔri→rɔli | ****** | | | | | |

******* observed in this age category*

## 4. Variation

In 2020, the items from the app were tested with typically developing children between 3 and 6 years old in Kenya and Tanzania. These tests showed that some items are named differently than intended. Below a summary of the observed variations.

| | |
|---|---|
| 9.bus | basi → gari (vehicle) |
| 10.tummy | tumbɔ → kitɔvu (belly button) |
| 11.eggs | majai → jai (egg) |
| 15.pen/pencil | kalamu → pɛnsɛli (pencil) |
| 20.glass | gilasi → glaːs (English pronunciation) |
| 23.shoes | viatu → kiatu (shoe) |
| 24.sun | ɟua → ɲota (star) |
| 28. truck | lɔri → gari (vehicle) |
| 33. matches | kibiriti → vibiriti (lucifer) |

The following variations were also common. However these variations are grammatical errors. In the case of "umbwa" it can also be a phonological error.

16.keys fuŋguɔ → * kifuŋguɔ (ungrammatical)
36.dog mbwɑ → * umbwa (ungrammatical)

(see Omari Ontieri, 2015 about errors in L2 Swahili speakers).

## 5. Performance of typically developing toddlers in Kenya

Early in 2020, a group of 19 children aged between 31 and 70 months were tested in Kenya with a paper version of Speakaboo. The children were attending a mainstream (pre)school in Nairobi and, as far as known by their teachers, they had a normal or above average (language)development. The average age of the children was 53 months.

The administration of the testing activity was done by a native Swahili speaker from Tanzania and an L2 Swahili speaker from Kenya. Both had been extensively trained in the administration of the test. The tests took place in a separate room. The items were scored by a trained 'listener' who also recorded the audio.
The children had to match the picture shown with a similar picture on a lotto sheet and then they had to pronounce the word. If the word was not pronounced spontaneously, a eliciting sentence was used. If the eliciting sentence did not help, the word was prompted. If, even then, the child would not pronounce the word, the tester proceeded to the next word.

All the children's utterances were scored on a score form. The test consists of a total of 40 words with 105 consonants, whereby affricates are counted as one consonant.

**Table 5**
*Average scores of typically developing Kenyan toddlers*

| | |
|---|---|
| Age | 53 months |
| Number of consonants wrong | 2.2 |
| Number of words not spontaneous uttered | 11.1 |
| Number of rated consonants | 101.8 |
| Number of correct consonants | 99.4 (101.8-2.4) |
| Percentage Consonants Correct (PCC) | 97.6 (99.4/101.8*100) |

As not all words could be rated (not spoken or unintelligible), not all the 105 consonants were assessed. This has been taken into account in the calculation of the results. In table 5 the averages of the group are shown.

Remarkable is the large number of words that had to be repeated. This could indicate that for this group of children Swahili is not their first language; a situation which is quite normal for Kenya.
The average amount of (phonological) errors (at repeating of naming) is remarkably low. This probably is due to the average age of 53 months. The PCC of the assessed children (with an average age of 53 months) is even slightly higher than the PCC of the same age group in the research of Gangji et al. (2014).

Table 6 shows which phonological processes occurred most.

**Table 6**

*Phonological processes in typically developing Kenyan children*

| **Process** | **example** | | | **frequency** |
|---|---|---|---|---|
| Syllable deletion | mkɔnɔ→kɔnɔ* | sɑhɑni→sɑni | kitɑndɑ→tɑndɑ | 11 |
| Fronting | ɲumbɑ→numbɑ | nɑnɑsi→mɑnɑsi | diriʃɑ→ dirisɑ | 8 |
| Backing** | mkɑtɛ→nkɑtɛ | fuŋguɔ→ʃuŋguɔ | | 5 |
| Assimilation | kiti→titi | mkɑtɛ→ mtɑtɛ | lɔri→rɔri | 5 |

** Omitting the first syllable /m/, occurred most.*

***Backing was only observed with the two children with most errors.*

After the pretest in Nairobi, all items were discussed with the local development team; consisting of linguists, speech and language therapists and teachers (see authors). Based on the experiences from the pretest, some items´ pictures were replaced, others removed, and some pictures adapted. This resulted in the current version of Swahili Speakaboo with a total of 36 items.

## 6. Performance of typically developing toddlers in Tanzania

The modified version of Speakaboo (with 36 items) was tested in Tanzania in August 2020. In Tanzania the children grow up with Swahili as their mother tongue, while in Kenya Swahili is often a second or third language.

Researcher Emmanuel Leonard Obunge tested a total of 31 children between the ages of 37 and 69 months. We were able to process the test results of 26 children.

The children attended a public or private school in Mwanza and, as far as known to their teachers, had normal (language) development. The mean age of the children was 53 months (as in Kenya).

Speakaboo-Swahili was administered by the researcher, native Swahili speaker and co-developer of the test. If a word was not spontaneously named, a eliciting phrase was used. If the eliciting sentence did not help, the word was prompted and the child could repeat the word.

All the children's utterances were recorded in the app are scored on a score form. The test contains a total of 36 words with 93 consonants, where affricates are counted as one consonant.

**Table 7**

*Average scores of typically developing Tanzanian toddlers*

| | |
|---|---|
| Age | 53 months |
| Number of consonants wrong | 4,5 |
| Number of words not spontaneous uttered | 3,1 |
| Number of rated consonants | 91,8 |
| Number of consonants correct | 87,3 (91,8-4,5) |
| Percentage Consonants Correct (PCC) | 95,1 (87,3/91,8*100) |

Because not all items could be assessed (picture was named differently) not all 93 consonants were assessed. This has been taken into account when calculating scores. Table 7 shows the averages of the group.

Compared to the Kenyan children, far fewer words needed to be repeated. This is most likely due to the fact that Swahili is the first language for Tanzanian children.

In addition, it is remarkable that slightly more mistakes are made by the Tanzanian children than by the Kenyan children. However, these errors consist for the most part (69%) of lateralization: replacing the /r/ with [l]. According to the literature (Gangi, 2014) and the researcher, the phoneme /r/ is acquired last by native speakers, only after five year of age. Earlier acquisition of /r/ in Kenya may be due to the other languages spoken.

Leaving aside the lateralisation of the /r/, the PCC of the Tanzanian children is higher than that of the Kenyan children.

Table 8 shows which other processes occurred regularly.

**Tabel 8**

*Most common phonological processes in typically developing Tanzanian children*

| **Process** | **example** | | | **frequency** |
|---|---|---|---|---|
| Lateralisation | mpiri→mpili | diriʃa→ diliʃa | kibirit→kibiliti | 69 |
| Backing | mkɑtɛ→nkɑtɛ | bɑsi → bɑʃi | mɑʧɔ→ŋɑʧɔ | 17 |
| Assimilation | kiti→titi | lɔri→rɔri | | 5 |
| V-addition* | mbwɑ→ umbwɑ | | | 5 |

**this could also be labelled as cluster reduction*

## 7. Sources

**Literature**

Carstens, V. (2008). DP in Bantu and Romance. *In K. Demuth C. De Cat (eds.*). The Bantu-Romance Connection, 131-166. Amsterdam: John Benjamins

Iribemwangi, P.I. (2010). Kiswahili Phonology and Pronunciation Guidelines. *Conference Paper of the ROSETTA STONE LANGUAGE WORKSHOP*, Dubai, UAE

Gangji, N., Pascoe, M. & Smouse, M., (2014). Swahili speech development: preliminary normative data from typically developing pre-school children in Tanzania. *International Journal of Language and Communication Disorders, Vol*. 00, No. 0, 1–14. DOI: 10.1111/1460-6984.12118

Safari, J., Akida, H. (2015). *English Swahili Pocket Dictionary*, Mkuki na Nyota Publisers, Dar es Salaam

Standard Swahili-Swahili Dictionary, (2019). Institute of Kiswahili studies, Universiteit of Dar es Salaam, Oxford University Press East Africa Limited, Nairobi.

Omari Ontieri, J. (2015). Phonological Influences of First Language on Kiswahili: A Case Study of Kenyan Bantu Languages, *International Journal of Science and Research, vol* 4-1, 2522-2526.

**Other Sources**

https://en.wikipedia.org/wiki/Swahili_language

https://www.youtube.com/watch?v=Q_9QfBSbw8g informative video about Swahili (13 min.)

https://language.stanford.edu/programs/ame/languages/swahili

*The development of the Swahili-version of Speakaboo is a Kentalis International project, led by Fred Marinus. This project has been made possible through a financial contribution by the Foundation "Vrienden van Effatha".*