Swahili*

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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		ɟ[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	/sɑ:/	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	zɑwɑdi→ bɑwɑdi	******	******	******	******	******	******
Del. weak syllabe	θɛmɑnini→nini	******	******	******	******	******	
Initial C deletion	nɑnɑsi→ɑnɑsi	******	******				
CC reduction	mwɑvuli→mɑvuli	******	******				
palatalisation	sɑmɑki→ʃɑmɑki	******	******				
metathesis	lɔri→rɔli	******					
****** observed in this age category							

4. Variation

At the beginning of 2020 items from this app were tested with typical developing children between 3 and 6 years of age in Kenya. It turned out that some items were named differently than was intended. Below a summary of the observed variations.

9. bus	bɑsi	→	gɑri	(vehicle)
11. eggs	mɑjɑi	→	jɑi	(egg)
20. glass	gilɑsi	→	glɑːs	(English pronunciation)
23. shoes	viɑtu	→	kiɑtu	(shoe)
28. lorry	lɔri	→	gɑri	(vehicle)

| 16. keys | fuŋguɔ | → | *kifuŋguɔ | (not a phonological error, but ungrammatically) |
| 36. dog | mbwɑ | → | *umbwa | (ungrammatically) |

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

5. Performance of typical 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 typical developing Kenyan toddlers

Age	53 months
Number of consonants wrong	2.2
Number of word snot 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 typical developing Kenyan children

Process	example			frequency
Syllable deletion	mkɔnɔ→kɔnɔ*	sahani→sani	kitanda→tanda	11
Fronting	ɲumba→numba	nanasi→manasi	diriʃa→ dirisa	8
Backing**	mkatɛ→nkatɛ	fuŋguɔ→ʃuŋguɔ		5
Assimilation	kiti→titi	mkatɛ→ mtatɛ	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. sources

Literature

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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