

Maths

Using home languages to support maths teaching

Teaching maths in the learners' home language can be used as a resource

Hamsa Venkat and
Lynn Bowie

In South Africa, language is often described as a "problem" or a barrier to successful learning. This view goes against international evidence that points to

home language use at primary level supporting mathematics learning. In this article, we look at some ways in which language can be used as a resource in mathematics teaching in the early primary years.

In South Africa, national policy related to language encourag-

es the use of home languages in the Foundation Phase. This links well to the evidence, that it is helpful to learn in the language that one speaks at home. Without this, children are often in a situation where they are faced with the difficulty of trying to learn mathematics in a medium they do not yet understand or possess any fluency in.

Learning the number of words in the correct sequence is very important in early number learning.

But teachers working with young children know that this is not easy! There are lots of words to remember, and they have to come in a specific order. When counting out objects, children have to keep track of the objects they have counted, the objects left to count, and the words they are saying alongside this tagging of objects.

The number words in English are particularly difficult for a host of reasons. After learning the words from "one" to "ten", another set of

words need to be learned to say the numbers from "eleven" to "twenty". After twenty, a more regular pattern sets in with: twenty-one, twenty-two, twenty-three, etc.

Young children often get to "twenty-nine" but then say 'twenty-ten' because they know that ten follows nine. And similar problems come in after 'thirty-nine' and 'forty-nine' and so on. A new set of special words have to be learned for all the multiples of ten: twenty, thirty, forty, and so on.

In contrast to English, many of the South African languages have a much simpler and more regular structure. Look at the following table of numbers showing how to say the numbers from one to thirty in sePedi:

1	2	3	4	5	6	7	8	9	10
tee	pedi	tharo	nne	hlano	tshela	supa	seswai	senyane	lesome
11	12	13	14	15	16	17	18	19	20
lesome tee	lesome pedi	lesome tharo	lesome nne	lesome hlano	lesome tshela	lesome supa	lesome seswai	lesome senyane	masome pedi
21	22	23	24	25	26	27	28	29	30
masome pedi tee	masome pedi pedi	masome pedi tharo	masome pedi nne	masome pedi hlano	masome pedi tshela	masome pedi supa	masome pedi seswai	masome pedi senyane	masome tharo

Neither of us are sePedi speakers, but we both began by learning the number names for one to ten. Beyond this, paying some attention to the patterns and structure that we can see emerging in this table allows us to 'construct' the number names for the next line. We can see the following patterns:

- 11 is "lesome tee" or, literally, "ten, one" (10 and 1, if we write this using the number symbols)
- 12 is "lesome pedi" which is "ten, two" (10 and 2)
- 13 is "lesome tharo", "ten, three" (10 and 3)

We can follow this pattern through to 19, and we then see that 20 is "masome pedi". Here, the prefix for some has changed from le- to ma-. The "ma" tells us that we have a plural number of tens, and the "pedi" that follows "masome" tells us that we now have two 10s, not one 10 as before. After 20, the same pattern seen before repeats itself:

- 21 is "masome pedi tee" - "twenty, one" (20 and 1), and so on.

Unlike in English, where a new word needs to be learned for 30, the pattern seen above continues in sePedi:

- 30 is "masome tharo" - "tens - three"

What is important is that we are paying attention to the patterns and structure of how numbers get built up in sePedi rather than trying to remember a long sequence of numbers.

This is important for teaching. We think that paying attention to the struc-

ture of number names in Sepedi is the more important aspect to focus on after learning the number names for 1-20, rather than trying to teach children to learn long lists of number names. Learning how numbers are constructed allows children to create larger number names for themselves using the rules of the pattern. Tasks for focusing on these rules include questions like these:

- a) 34 is masome ____ nne
- b) Jabu says 46 is masome nne tshela
Thuli says 46 is lesome nne tshela
Who is correct - Jabu or Thuli?

We would use 10 sticks and unit squares to help children to see what these numbers look like as quantities - for example, 34 is shown below:



We enjoyed extending our learning of number names to an unfamiliar language. Our thanks to Manono Mdluli, a colleague and lecturer in the Wits School of Education for teaching us how to construct the numbers up to 99 (so far) in sePedi.

Start a Wits Maths Circle at your school!

Each month, we will set a maths problem for you to think about and try. You can try it on your own, with colleagues in your school, with your learners or with your own children. Or all of these! You can email your solutions to us and/or bring them along to a Wits Maths Circles event for primary teachers at the Wits School of Education that we will hold on March 23, from 3-5pm, Room M4, Wits School of Education. Our aim is to discuss different

participants' ways of thinking about the problems that we set - it will be a relaxed environment for all of us to share and discuss our different approaches.

Let us know if you want to come to the Wits Maths Circle event on March 23 at this address: primary.maths@wits.ac.za. And you can email solutions to us through this address as well - write "Wits Maths Circles-January problem" in the subject line. Solutions and different teachers ways

of thinking about the first three months' problems will appear in the April issue of *the Teacher*.

Wits Maths Circles is an initiative focused on primary mathematics teacher development through building platforms and spaces for primary teachers to work on mathematics - for themselves and for their teaching - in fun, supportive and non-threatening ways. It is an initiative built on a partnership between the Wits Maths Connect Primary project at

Wits and *the Teacher* newspaper. The "ticket" for entry to a Wits Maths Circle event is some work on one or more of the problems that have been set in *the Teacher* during that term.

Wits Maths Circles - January Problem

The problem on the right is from the NRICH website - a really good source for interesting maths problems. <http://nrich.maths.org/774/index>

There are six numbers written in five different scripts. Can you sort out which is which? Write 51 in each script.

900	13	67	17	2+5
23	2	24	83	500
=	5+8	2	50	-5
25	67	2	8+2	10
58	2+5	100	47	26