

Numbers make no sense to people who can't speak a language, scientists claim

By [Daniel Bates](#)

Last updated at 2:20 PM on 9th February 2011

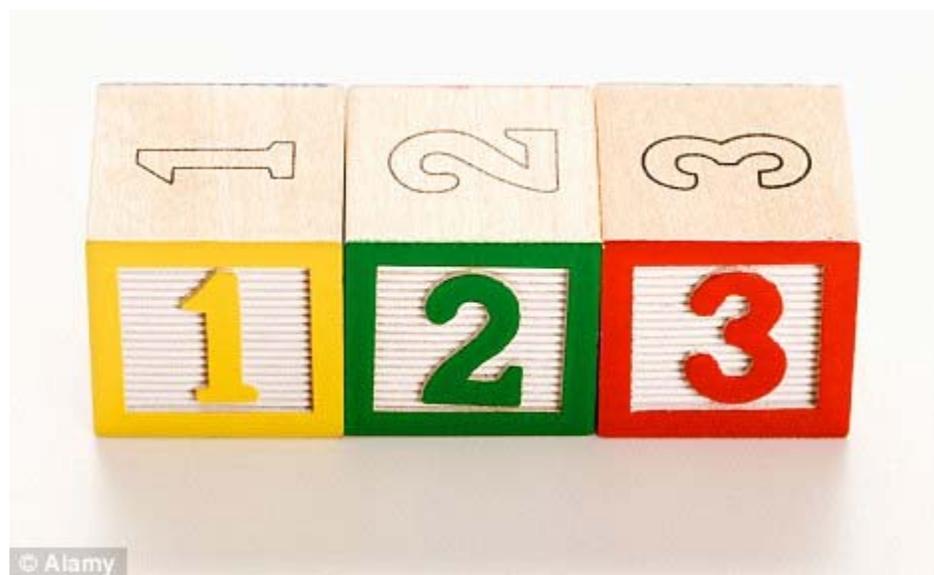
• Research helps explain how children pick up understanding of numbers

Being able to speak a language is the key to understanding numbers, scientists have discovered.

A research project found that deaf people who had not learned a language containing symbols used for counting were unable to comprehend any number greater than three.

Experts said the reason was that they had not studied the familiar 'count list' of one to ten that most people are taught when they are young.

Children learn such a sequence even before they know what it means and it stays hardwired into their brain for the rest of their lives.



© Alamy

Words are key: Deaf people who had not learned a language containing symbols used for counting were unable to comprehend any number greater than three, research found

The study is the first to identify the link between language and numeracy and was carried out by researchers at the University of Chicago.

They studied deaf people from Nicaragua who had created their own unique sign language to talk to one another.

These so-called 'homesigners' did have numbers in their culture including a monetary system, so any differences they exhibited would have to solely be due to language.

The first test involved asking them to answer which had the most value out of a 10-unit, 20-unit and 100-unit coin.

As they were familiar with their money, the test subjects were able to answer each question correctly.

Things changed when were shown an animated video in which numbers played a key part, such as a story with ten sheep in a pen.

The researchers then asked the subjects to retell the story to a friend using their 'homesigns' but as the numbers got bigger, they had increasing difficulty in making an accurate gesture with their hands.

Finally, the test subjects were shown cards with different numbers of items on them and asked to give a gesture that represented the number of items.

The homesigners were accurate only up to the number three.

The research team concluded that the problem understanding large numbers was not due to an inability to communicate them, but because they could not think about them.

Susan Goldin-Meadow, a professor in psychology at Chicago University, said: 'It's not just the vocabulary words that matter, but understanding the relationships that underlie the words - the fact that "eight" is one more than "seven" and one less than "nine".'

'Without having a set of number words to guide them, deaf homesigners in the study failed to understand that numbers build on each other in value.'

Her colleague Elizabeth Spaepen added that the homesigners were not 'wildly off' in their guesses but that there was definitely an issue connected to their language.

'They can approximate quantities, but they don't have a way of getting to the exact number,' she said.

The study was published in the journal the Proceedings of the National Academy of Sciences.

Places:

[Nicaragua](#)

Comments (6)

- [Newest](#)
- [Oldest](#)
- [Best rated](#)
- [Worst rated](#)

[View all](#)

what a load of bibble! I have an amazing ability to speak French and German at a high level (often being mistaken as nationals of those countries), yet I'm rubbish at maths.

- me again, peterborough, 10/2/2011 14:51

Click to rate __ Rating 6

[Report abuse](#)

The first San people (African Bushmen) encountered by Europeans were reported to have no number system other than One, Two, Many.

- Terence H, Rochester, UK, 10/2/2011 07:06

Click to rate __ Rating 4

[Report abuse](#)

Karl Pilkington was right!!!!

- James Crooder, Bristol, UK, 10/2/2011 01:53

Click to rate __ Rating 2

[Report abuse](#)

This maybe why they say animals can only count to 3. Interesting research. - Teddy Robbear, Scotland, 09/2/2011 18:06-----I don't agree Teddy not in every case, Watch the counting chimps documentary , they

outsmarted humans in counting and arithmetic easily, also lets not forget we humans are animals too.

- Daveyboy-UK, Cannock, 09/2/2011 22:50

Click to rate __ Rating 46

[Report abuse](#)

Eye opener. Until very recently most biologists continued to under estimate animals, but whenever you saw an animal in action it always seemed to be smarter than people were saying. Guess this might explain why many of them are better at apparently abstract tasks than humans. We're thick, but don't realise because education's swamped our minds with concepts from an early age. Some of them are smarter at some concepts, but don't know it because no one's educating them.

- Eye, Opening, 09/2/2011 20:14

Click to rate __ Rating 8

[Report abuse](#)

This maybe why they say animals can only count to 3. Interesting research.

- Teddy Robbear, Scotland, 09/2/2011 18:06

Click to rate __ Rating 26

[Report abuse](#)

The views expressed in the contents above are those of our users and do not necessarily reflect the views of MailOnline.

- [Headlines](#)
- [Most Read](#)

- [Scientists look beneath Jupiter's cloud belt... with a little help from its icy moon Europa](#)
- [The 3.2 million-year-old fossilised foot bone that proves when man first started to walk](#)
- [How simply upper-casing your password can frustrate a hacker's attempts at breaking into your account](#)
- [Time for another tablet: HP unveils the TouchPad as battle to become a worthy iPad rival heats up](#)
- [Riddle of how fleas can jump 100 times their height solved... they have 'multi-jointed' hind legs](#)
- [Save our seals: Mystery sickness striking down British pups as vets treat double usual number](#)
- [Spending Valentine's Day alone? These scientific secrets of seduction could make all the difference](#)
- [A novel idea: How authors are bypassing agents with self-published e-books](#)
- [You can't confess to your iPhone: Vatican bans £1.19 app for Catholics](#)
- [Apple keeps on growing! Steve Jobs' empire set to become world's most valuable company](#)
- [How stormy weather around stars moulds an amazing dust mountain 6,400 light years away from Earth](#)
- ['We are years behind': New Nokia boss reads the riot act to staff as smartphone rivals Apple and Google surge ahead](#)
- [You can't confess to your iPhone: Vatican bans £1.19 app for Catholics](#)
- [Watch TV on the move: BBC confirms iPlayer app for iPad and Android devices](#)
- [I'm bats about you! Scientists find nocturnal mammals form long-lasting relationships just like humans](#)
- [Numbers make no sense to people who can't speak a language, scientists claim](#)
- [The perils of gang life: Ravens who flock together 'have high stress levels'](#)
- [More than the sum of his parts: Steve Jobs portrait made from every Apple product ever released](#)
- [Natural born pessimist: Some people are genetically programmed to be depressed, scientists say](#)
- [Why playing hard to get really IS the key to a woman's heart: Men who keep their feelings under wraps are 'more attractive'](#)
- [Time for another tablet: HP unveils the TouchPad as battle to become a worthy iPad rival heats up](#)
- [Apple keeps on growing! Steve Jobs' empire set to become world's most valuable company](#)
- [How simply upper-casing your password can frustrate a hacker's attempts at breaking into your account](#)
- [Not content with 500 million users online, now Facebook launches its own phone](#)
- [As 400 wolves lay siege to a village... Have these ruthless killers lost their fear of humans?](#)
- [Watch TV on the move: BBC confirms iPlayer app for iPad and Android devices](#)
- [Unlucky for some: How hitherto unknown 13th sign of zodiac Ophiuchus could be why your stars never seem right](#)
- [Save our seals: Mystery sickness striking down British pups as vets treat double usual number](#)
- [The \(very nervous\) man who became a billionaire: Rare footage of 23-year-old Apple boss Steve Jobs giving TV interview](#)
- ['We are years behind': New Nokia boss reads the riot act to staff as smartphone rivals Apple and Google surge ahead](#)
- [E-reader price war breaks out as Asda takes on Amazon with a £52 device](#)

- [How testosterone causes men to fail on the feelings front](#)
- [Scientists look beneath Jupiter's cloud belt... with a little help from its icy moon Europa](#)
- [You can't confess to your iPhone: Vatican bans £1.19 app for Catholics](#)
- [How stormy weather around stars moulds an amazing dust mountain 6,400 light years away from Earth](#)
- [More than the sum of his parts: Steve Jobs portrait made from every Apple product ever released](#)
- [Spending Valentine's Day alone? These scientific secrets of seduction could make all the difference](#)
- [What a whopper! But the world's biggest fish could be even bigger, say scientists](#)
- [The lightsaber in the sky: Launch of spy satellite blazes spectacular rocket trail over Californian coast](#)
- [Is it a bird? Is it a plane? No, it's a super-galaxy: The curious S-shaped logo in space](#)
- [MOST READ IN DETAIL](#)

Ads by Google:

[B.S. in Global Security](#) Request Degree Information from Embry-Riddle University www.erau.edu

[Video Remote Interpreting](#) On Line Video Interpreting On Demand Services 24x7x365 www.alphaomegac.com

[Online degrees from CMU](#) Bachelor of Science in Psychology BS in Community Development www.cmich.edu/online

GADGET REVIEWS

[Vogel iPad WallMount](#)

[Oh no, not another iPad accessory that I'll struggle to find a use for... Admittedly, that was my first thought when Vogel's iPad wall mount landed on my desk.](#)

[Samsung Galaxy Tab](#)

[Samsung's tablet PC is a lot more compact than the iPad and boasts some impressive features - but still fails to outshine its rival](#)

[Altec Lansing's Octiv 202 dual dock](#)

[Now this is handy – not only can I charge my iPhone and listen my iPod at one and the same time but I can also do so on a unit that fits neatly into a corner.](#)

[Nokia C6-01 smartphone](#)

[Not to be confused with the similarly-titled C6, the C6-01 enters the crowded smartphone arena at the lower end, and is priced accordingly.](#)

[Polar CS500 Cycling Computer](#)

[The Polar CS500 Cycling Computer is a nifty piece of gear aimed at 'ambitious cyclists' who want to improve their performance.](#)

[WOWee One Portable Speaker](#)

[The WOWee One is a portable speaker for a laptop, notebook or MP3 player that turns any flat surface onto which it is placed into a huge resonating sounding board.](#)

Ads by Google:

[Chicago Coupons](#)1 ridiculously huge coupon a day. It's like doing Chicago at 90% off!www.Groupon.com/Chicago
[Official BP Claims Site](#)Visit BP's Claims Page & Learn How To Make A Claim Without A Lawyerwww.BP.com/claims
[B.S. in Global Security](#)Request Degree Information from Embry-Riddle Universitywww.erau.edu
[Study of Law](#)Study law 100% online. Respected. Affordable. Accredited.www.AMUOnline.com/Legal
[Video Remote Interpreting](#)On Line Video Interpreting On Demand Services 24x7x365www.alphaomegakc.com
[Online degrees from CMU](#)Bachelor of Science in Psychology BS in Community Developmentwww.cmich.edu/online
[Learn in 10 Days](#)World-famous Pimsleur Method. As seen on PBS - \$9.95 w/ Free S&H.PimsleurApproach.com/Learn_Language
[Sign Language Interpreter](#)Find Top Human Services Programs To Earn A Degree On Your Own Time.www.Degrees-HumanServices.com

Published by Associated Newspapers Ltd

Part of the Daily Mail, The Mail on Sunday & Metro Media Group

GlamEntertainment

© [Associated Newspapers Ltd](#)

