

# What helps children to acquire new object names on the basis of unobservable information?

Vlasova Elizaveta, Kotov Alexey

Russian State University for the Humanities, Moscow

## Introduction

This research is dedicated to the children's ability of acquiring new word meanings on the basis of unobservable information. Most researchers studying the process of new word learning use objects whose features are nothing but external, perceptually available for children. That kind of material facilitates the word learning because it demands only attention control and memorization. But it doesn't allow us to analyze representations made by children or their choosing of necessary information among available of different kinds.

P. Bloom (2000) was first who separated external and internal (unobservable) information in the new meaning forming task. He studied the influence of a sign and stated its social role in acquiring internal information – the one which is not available for visual perception. He supposed that children would recall the internal feature of a new object much better than the external one just because it is verbally transmitted by adults (the way the sign, i.e. object name does).

In our research we tested P. Bloom's hypothesis and examined what exactly helps children to acquire new object names on the basis of the unobservable information.

## Experiment 1

### Materials and Method

Subjects: 16 4-5-years-old children (M=53,07)

19 3-4-years-old children (M=40,94)

Material: 5 novel objects, 2 of which were targets.



Alternative target objects

The target object (2 of them were alternative) was named by a novel word – “koba” and could be of either yellow or green color. All novel objects were a part of a game. Subject's task was to manipulate with 3 objects using one of the target ones (or to help 3 “boats” to reach the other sea shore using the “koba” for this purpose).

Before the game was started, the child was informed about target object's name (“koba”), its external color (yellow or green) and unobservable internal color (white).

A week later we tested what kind of information children were able to recall or recognize. Additionally we tested children's color naming competence.

## Results

The P. Bloom's hypothesis wasn't verified considering our data. We got differences in performance between two age groups but we didn't get any advantages in memorization unobservable but socially transmitted information.

Table 1. Performance in memorization information of different kinds in 4-5-year-olds

	Object form	Novel name	External color	Internal color	Activity
Free recall	16 (100%)	1 (6,25%)	12 (75%)	10 (62,5%)	16 (100%)
Recognition among two alternatives	-	14 (87,5%)	4 (25%)	3 (18,75%)	-
No correct answer	0	1 (6,25%)	0	3 (18,75%)	0
Sum total	16	16	16	16	16

Table 2. Performance in memorization information of different kinds in 3-4-year-olds

	Object form	Novel name	External color	Internal color	Activity
Free recall	15 (78,95%)	0	6 (31,58%)	5 (26,32%)	19 (100%)
Recognition among two alternatives	-	14 (73,68%)	8 (42,11%)	3 (15,79%)	-
No correct answer	4 (21,05%)	5 (26,32%)	5 (26,32%)	11 (57,89%)	0
Sum total	19	19	19	19	19

We got only one significant interaction - between performance in internal color memorization and children's color naming competence,  $\chi^2(1)=4,97$ ,  $p<0,05$

Table 3. Performance in acquiring unobservable information depends on color naming competence

	Doesn't know color names	Know color names
Doesn't remember the internal color	7 (87,5%)	4 (36,4%)
Remember the internal color	1 (12,5%)	7 (63,6%)

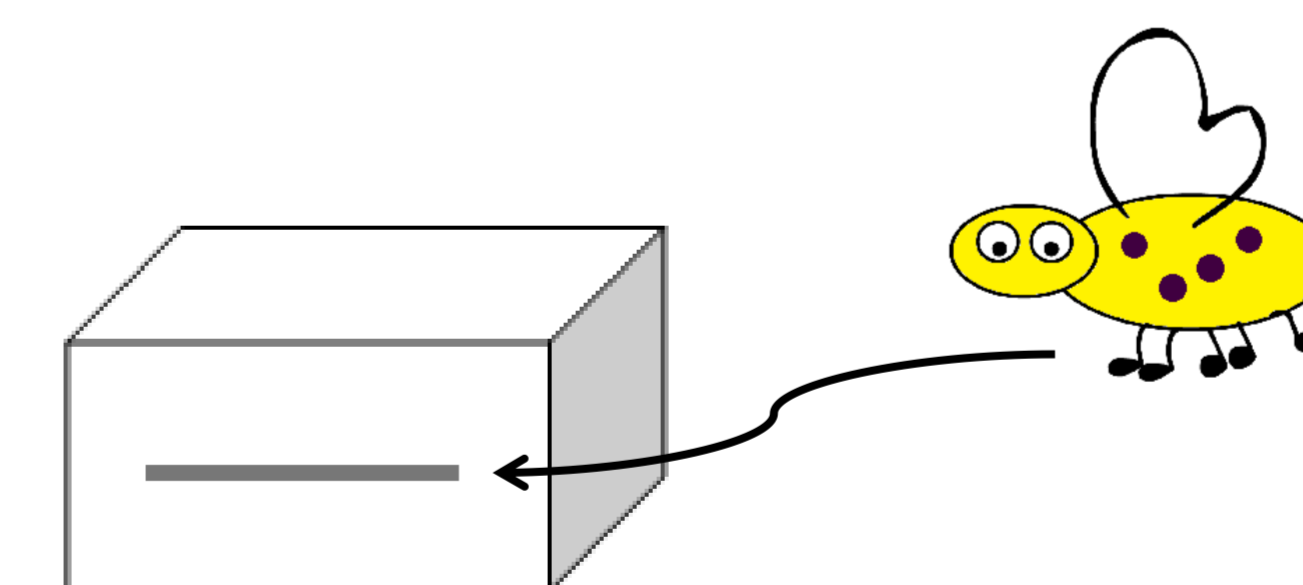
## Experiment 2

We supposed that children's poor performance in memorization of the internal color was due to the solid target object of an abstract shape – the one you could barely imagine to have any internal color. So we designed a more meaningful object with some conceptual background for our 2<sup>nd</sup> experiment.

## Materials and Method

Subjects: 20 3-4-years-old children (M=43,84)

Material: “insects' house” (a rectangular pasteboard box with a narrow slot on the front side)



The main difference in material from the 1<sup>st</sup> experiment was the “meaningfulness” of the target object. Now it was not an abstract shape but an object with some conceptual background (like knowledge about houses) so that children could expect it to actually have an internal color (unlike the 1<sup>st</sup> experiment where you could barely imagine a solid object of an abstract shape to have one).

We excluded the information about the object's name and its external color because we were primarily interested in unobservable information memorization and the 1<sup>st</sup> experiment didn't show any interaction between acquiring information of different kinds. So the child was informed only about the internal color of the target object and about the object's function connected to the main task.

The task in the 2<sup>nd</sup> experiment was to form two categories of insects one of which should live in the house.

Same to the 1<sup>st</sup> experiment we tested children's color naming competence after they had finished the main task.

## Results

The 3-year-olds performed significantly better in this condition

- about 80% of those who could name the basic colors recalled the internal color correctly.

So the performance in memorization of unobservable information increased by 20% on average due to induction of relevant conceptual expectations and this difference was significant,  $\chi^2(1)=6,54$ ,  $p<0,05$

## Conclusion

First of all we got age-specific differences in performance between groups of 3-4- and 4-5-year-olds. 4-5 performed significantly better in memorization of all kinds of information and there wasn't any privilege for unobservable but socially transmitted information as P. Bloom supposed.

3-4-year-olds also didn't recalled unobservable information better than information of other kinds so it seems that its acquisition doesn't depend on such social factor as confidence in adults' words.

So the factors, the acquisition of the new object names depends on, are, besides age, conceptual expectations and the lexical competence in the task-relevant domain.

## Literature cited

Bloom, P. (2000). How children learn the meanings of words. Cambridge, MA. MIT Press.

## For further information

Please contact [elizabeth.vlasova@gmail.com](mailto:elizabeth.vlasova@gmail.com). More information on this and related projects can be obtained at the site of our Research Group for Concept and Cognitive development ([www.cogdevelopment.com](http://www.cogdevelopment.com))