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Learning in Context: Attention and effects of linguistic contrast on preschoolers' comprehension of color terms.

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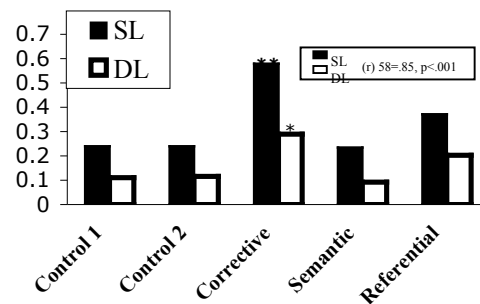
Despite good color discrimination, rapid early word learning, and the ability to categorize objects by color when other dimensions are held constant (e.g. Soja, 1994), children may take up to seven years to learn the eleven basic color words of English (Roberson, Davidoff, Davies & Shapiro, 2004). Recurring naming (overextension) and comprehension errors for color terms are reported among 2-5 year olds, despite similar levels of familiarity to those for count nouns such as "ball" which are mastered early and often from a single exposure. Learning difficulties for the color domain might arise at an attentional level (because children are biased towards attending to the shape dimension in novel word interpretation) or from adherence to the assumption of Mutual Exclusivity (that a novel term will not refer to an object / property for which they already have a label) because overextension errors make children less 'willing' to learn a (correct) new term for a color already classified (erroneously) with a known term. The experiments reported here systematically compare attentional and linguistic factors in teaching children novel color terms.

Experimental Studies

Normally developing 3-year-olds, tightly matched on Vocabulary age were taught novel color terms using either Referential, Semantic or Corrective Linguistic Contrast (LC) -, with varied attentional demands. In Referential LC the new word is introduced in a naturalistic setting (when all named colors are in view) e.g. "Pass me the ochre cup, not the red one". In Semantic LC the new word is introduced by contrasting it with two *random* color terms that the child knows (when only one colored object is in view) e.g. "It's not red and it's not green, it is *mauve*". Finally in Corrective LC, the new word is introduced by correcting the child's own label for the specific referent (when only one colored object is in view) e.g. "It's not pink, it's *mauve*". Each group received four training sessions and four assessment trials over a five week period. Speed and degree of learning for each of the novel color terms: CRIMSON, TEAL and BEIGE were assessed. Performance was best among the Corrective LC group, supporting the idea that Mutual Exclusivity impacts on the ease with which diverse color

words are learned. Results suggest that poor color competence in young children is due to attentional factors, since Corrective LC directs attention to the relationship between a novel (color) word and its corresponding referent, enabling successful integration of new information with established perceptual & linguistic knowledge. In Referential LC attention may be divided between the three objects in view and Semantic LC may divert attention to the [absent] negated items in the contrastive input, at the expense of focusing on the target. Finally, Beige was easier to learn than the other two novel terms, perhaps because the primary color (*Brown*) associated with it was a less established linguistic category - compared to *Red* and *Blue*.

Figure 1: Speed and degree of learning scores for Corrective, Referential and Semantic Linguistic Contrast and for controls.



Acknowledgments

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References

- Roberson, D., Davidoff, J., Davies, I.R.L. & Shapiro, L. R. (2004) The Development of Color Categories in Two languages: a longitudinal study. *Journal of Experimental Psychology: General*, 133, 554-571
- Soja, N.N. (1994) Young children's concept of color and its relation to the acquisition of color words. *Child Development* 65, 918-937.

