

## Vygotsky: The Godfather of Social Learning

J. Dana. Stoll

University of Liverpool

June 07, 2017

Vygotsky can be considered the Godfather of social learning.

### **One Operation Only**

As one of the most fascinating aspects of Vygotsky's (1938/1987) social cognitive theory, Vygotsky proposed only one basic operation of construction: generalisation. By this operation, all emergent effects throughout the phases of mental transformation are produced. This view is astounding, given the fact that network theory and the regulatory (cybernetic) branch of control theory both had not been invented yet. In addition, the model of the brain was far from the understanding of the massively parallel looped network that neurobiologists are mapping out today. In this sense, Vygotsky's thinking of understanding as a mutual, social construction that operates on language may be as revolutionary as Einstein's reinvention of time as an observer-relative concept with respect to the speed of light. Vygotsky particularly emphasizes that "the word at first is a generalisation of the most primitive type; as the child's intellect develops, it is replaced by generalizations of higher and higher type (1934/2012, p. 158).

### **Emergence of Meaning**

Vygotsky's generalisation was systemic, generating emergent effects: "Psychology, which aims at a study of complex holistic systems, must replace the method of analysis into elements with the method of analysis into units. [...] We believe that such a unit can be found in the internal aspect of the word, in word meaning." (1934/2012, p. 4).

Vygotsky sees meaning to directly arise as the experiential (perceptive) side of the

generalising act: “[...] the meaning of every word is a generalisation or a concept. And since generalizations and concepts are undeniably acts of thought, we may regard meaning as a phenomenon of thinking” (p. 225). Thus, generalisation, for Vygotsky is a social construction that abstracts reality, is the substance of thinking, and creates all emergent meaning.

### **Modern Evidence**

There is increasing neurobiological evidence that supports Vygotsky’s above hypotheses. Generalisation may be the one intrinsic feature of the looped network of our brain. Meltzer et al. (2017) found that meaning is the handle from which long-term memory is constructed, turning it into the experiential side of neuron activation. Translation of neuronal signals in facial recognition shows generalising properties over several layers, spanning from forms to recognition (Salk Institute, 2017). Cultural construction of language has been found to transform visual perception (Ueda et al, 2017). Amit et al. (2017) produced evidence that verbal thinking co-activates visual content, but not necessarily the vice versa. This finding support’s Vygotsky’s emphasis that word generalisations transcend mere behaviourist associations between sound and image. Brain connectivity dynamics have been shown to reflect the structure of people’s social network: the bigger your network, the more widespread the activation (Schmälzle et al., 2017). Babies were found to abandon their continuous vocalisations and produce gestures along with syllables in their pre-language phase instead of only gesturing, with an intention to declare, directly supporting Vygotsky’s language hypothesis (University of Basque Country, 2017). Baum et al. (2017) report that the brain’s network organisation is structurally transformed in several stages on the way to adulthood.

## Conclusion

The neuronal network of the brain operating on people's social environment appears to operate comparable to the properties that Vygotsky's generalisation proposed, including the role of language construction and meaning as its experiential side.

## References

- Amit, E., Hoeflin, C., Hamzah, N., & Fedorenko, E. (2017). An asymmetrical relationship between verbal and visual thinking: Converging evidence from behaviour and fMRI. *Neuroimage*, *152*, 619-627. doi:10.1016/j.neuroimage.2017.03.029
- Baum, G. L., Ciric, R., Roalf, D., Betzel, R. F., Moor, T. M., Shinohara, R., T., ..., & Satterthwaite, T. D. (2017). Modular segregation of structural brain networks supports the development of executive function in youth. *Current Biology*, *27*(11), 1561-1572. doi:10.1016/j.cub.2017.04.051
- Meltzer, A., Kielar, A., Panamsky, L., Links, K. A., Deschamps, T., & Leigh, R. C. (2017). Electrophysiological signatures of phonological and semantic maintenance in sentence repetition. *NeuroImage*, *156*, 302-314. doi:10.1016/j.neuroimage.2017.05.030
- Salk Institute (2017, June 8). How the Brain Recognizes What the Eyes See. *NeuroscienceNews*. Retrieved June 8, 2017 from <http://neurosciencenews.com/visual-recognition-system-6874/>
- Schmälzle, R., O'Donnell, M. B., Garcia, J. O., Cascio, C. N., Bayer, J. Bassett, D. S., Vettel, J. M., & Falk, E. B. Brain connectivity dynamics during social interaction reflects social network structure. *PNAS*, *114*(20), 5153-5158.

Ueda, Y., Chen, L., Kopecky, J., Cramer, E. S., Rensink, R. A., Meyer, D. E., Kitayama, S., & Saiki, J. (2017). Cultural differences in visual search for geometric figures. *Cognitive Science*, 2019. Advance Online Publication.  
doi:10.1111/cogs.12490

University of the Basque Country (2017, April 28). How Do Babies Coordinate Gestures and Vocalization?. *NeuroscienceNews*. Retrieved April 28, 2017  
from <http://neurosciencenews.com/baby-vocalization-gestures-6533/>

Vygotsky, L. S. (1934/2012). *Thought and language*. (A. Kozulin, Ed.). Cambridge, MA: MIT Press.

Vygotsky, L. S. (1938/1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.