

Memory and cognition essays examples

[Technology](#), [Development](#)



Vygotsky and Luria: Soviet Psychologists

Lev Vygotsky and Alexander Luria were two Soviet psychologists that were rejected their own country, and it was only in the 1970s when it began to be taken into account in the United States of America, mostly due to Cold War prejudices. Thus, their theory has not been so profoundly studied. Also, many researchers have questioned the authoritative nature of the available translations, which could be obscuring the comprehension of what these researchers were truly proposing, which is usually called cultural-historical psychology. This label, however, “ does not reflect the genuine self-concept of the respective researchers. Rather, both designations originally were introduced in the mid-30s by critics with defamatory aims” (Keiler, 2012, 1). Vygotsky was born in the Soviet Union and lived from 1896 to 1935. He was mainly interested in the process of language acquisition, so he studied children, where the process is more rudimentary and elementary. Vygotsky, even though he doesn't state that children and adults have the same state of knowledge, the learning process is essentially the same. For this theorist, cognitive development is carried out through experience, especially that which is social in nature. Vygotsky focuses on each individual's potential for learning, as he already has experiences that he may use as tools to better his cognitive abilities; thus, a child, even though he has not learnt a great deal at the time he enrolls in primary school, has already had sufficient experiences from which to draw from, enabling him to use this knowledge to interact with others and develop more advanced abilities.

Vygotsky “ appeals almost always to a heteronomous individual” (Lourenço, 2012, p. 284). His view of man implied relation to the social environment and

this is present throughout all his theory; this is important because it is a stance against the individualism that is present in Western society.

Vygotsky's theory is fundamentally social and cultural. " Vygotsky's (1993) assertion that a primary cause such as the loss of sight is amenable to cultural mediation toward a society's higher mental functions is, in contrast to biological determinism, a hopeful and future-oriented way of regarding departures from the evolutionary norm" (Smagorinsky, 2012, p. 20). For him, an adult or a more experienced person of his own age, are the ones that determine a child's zone of proximal development. This, one of Vygotsky's fundamental concepts, is the " the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1980, p. 86).

Vygotsky posits that the signs and tools embedded in culture and language are there for a child almost from the onset. For this scientist, language is a cultural object that is in charge of mediating within a society; he gave this last cultural object a main function in the learning path from that which is interpsychical to that which is intrapsychical. For this scientist, learning is the key to cognitive development; it is through the acquisition of knowledge that one advances mentally; he is in the historical and dialectical materialism mind frame. Thus, learning goes before development, and is a requisite for this to happen. For this scientist, cognitive evolution is facilitated by social interaction. Vygotsky greatly valued social interaction, particularly for its ability to develop a child's mind, the social regulations it implied and for the

signs and tools it provided.

Alexander Luria was born in 1902 and passed away in 1977. He worked extensively with Vygotsky; at the beginning, the latter was under the former, but his prominence and the importance of his research made him into an investigator of weight. Luria focused on the more neurological and organic aspects of cognitive processes; nevertheless, he did not put aside the sociocultural aspects that Vygotsky was suggesting. This scientist is considered one of the first neuropsychologists and his research is highly respected to this day. His theory also served to propose the Luria-Nebraska Neuropsychological Test, which is used to measure cognitive functions. He worked extensively on the field with special population like twins, children with disability and soldiers. “ A number of the formal programs are based on or derive from the work of Aleksandr Romanovich Luria, the Soviet neuropsychologist, in rehabilitating Red Army soldiers wounded in WWII. The foundation of Luria’s program was in his studies of the role of language in development of normal and intellectually handicapped children” (Macmillian). His work showed the importance of language in relation to neurological processes and is still highly-regarded to this day.

Phineas Gage: An Important Cognitive Case Study

Phineas Gage was a railroad worker who suffered a gruesome accident while working. A big railroad spike was lifted and went through his skull, damaging a great part of his brain. As a result, his personality suffered remarkable changes, going from a well-liked, diligent person, to an obstinate and irreverent one. This was one of the most important cases in the study of personality and its relation to the brain.

One day, Gage was working on the railroad and his life, that of those around him, and neurocognitive science were all changed forever. “ He used his 3 foot 7 inches, 13 1/4 pound iron rod to tamp gunpowder and sand into a hole in the rock. On this day something went horribly wrong. The rod striking the stone caused a spark and the resulting explosion sent the rod flying up and through his left cheek and out the top of his head” (Jack & Beverly).

Astonishingly, he lived for more than eleven years after this accident that everybody thought would be fatal; some accounts even say that he did not pass out. Nevertheless, even though he did not die, life was never the same for him.

After the accident, Gage’s personality changed dramatically. “ Before the accident he had been their most capable and efficient foreman, one with a well-balanced mind, and who was looked on as a shrewd smart business man. He was now, Harlow said, fitful, irreverent, and grossly profane, showing little deference for his fellows. He was also impatient and obstinate, yet capricious and vacillating, unable to settle on any of the plans he devised for future action” (Macmillian). His friends did not recognize him and he was so troublesome that his coworkers and bosses did not want for him to return to his job. His impulse control was severely damaged, which also influenced in his line of work. His friends and family were very worried that he would not return to his previous state, but he apparently underwent some type of rehabilitation, which allowed him to come close to being who he was.

Another one of the teachings that this case left was that, even though the accident was dramatic and modified Gage’s personality, there is still hope for rehabilitation. Throguh social rehabilitation, he was able to reverse some of

the personality damage that the accident left. Also, he was able to hold long-term, complicated jobs. “ If Phineas was ‘ No longer Gage’ for some time after the accident he finally came close enough to being Gage again” (Macmillian). While this recuperation was not complete, it was significant, and serves as a model for the possibilities of rehabilitation after dramatic cranial accidents.

In conclusion, American rail road worker Phineas Gage’s gruesome work accident is one of the most important cases in cognitive science. After a pike went through his head, he was still alive, but his personality dramatically changed, evidencing an association between this and the brain. Also, it demonstrated that after an accident of this sort, social rehabilitation is possible. Even though this was a tragic accident, Gage served as evidence for the evolution of cognitive sciences as a whole.

Reading and Working Memory

The brain is very complex and has many activities going on in it at the same time. One of the most important functions that reside in the brain is memory, of which there are different types. While memory models differ, the most accepted one at the moment differentiates between working memory and long-term memory. The former coordinates current cognitive activities and is responsible for the rapid manipulation of a limited amount of data. Thus, it is very important for everyday activities, as it allows the processing and handle of small packets of information at a rapid pace. One of these common activities is reading, where working memory is used for various tasks, especially enabling the recall of concepts, words and grammar; remembering what one has read just before; and the visuospatial sketchpad allows for the

visualization of what is being read.

Working memory allows you to handle different parts of speech and sentence construction, enabling sense construction. If one thinks about it, reading is taking a lot of senseless letters written on a page and manipulating them in a way that allows for the comprehension of some content. While this is a task that one may take for granted, as one does it a great part of every day, it is complicated and implies the correct functioning of different levels of cognitive activity. Working memory allows a person to recall and manipulate words, concepts and grammar to be able to construct meaning from these printed letters. Therefore, it is not just remembering what the words mean, for example; working memory is active and is important in the arranging of these mental objects in a specific way, so that the text makes sense. Part of this organization has to do with concepts that were learnt before; however, working memory is also important in the recognition and manipulation of what is in the text that serves towards the formation of the particular sense that the text intends to transmit.

In this sense, the order that the letters are put together is of primordial importance. The formation of words, sentences, paragraphs and other structural elements dictates what the text will mean; this is enabled by working memory: without it, one could not read a word or a sentence and remember what went before, inhibiting the sense-construction process. Every word in a sentence contributes to the formation of meaning, and one tiny change may make the sentence mean something completely opposite of what one was lead to believe before that change: the word not and other forms of negation are basic examples of this. Working memory is in charge

of this process of remembering what was just read, so that the meaning of the sentence may change as one reads it.

Finally, the visuospatial sketchpad, a component of working memory, allows for the visualization of that which one is reading, facilitating comprehension. Another way that working memory is implicated in the reading process is the construction of images. This allows the reader to get a better grasp of what he or she is reading, making it easier to understand.

In conclusion, working memory is very important for the process of reading, as it allows for the comprehension of texts. It is involved in the recall and manipulation of words, concepts and grammar, which are the basic elements in the construction of meaning. This is also influenced by the order in which they are presented and working memory allows one to remember that which one has just read, to be able to construct meaning from it. Working memory also allows for the visualization of content, which serves as a comprehension aid.

Sensation and Perception

Sensation and perception are two distinct, yet complementary, neurological processes. They are complex functions that form a part of everyday life.

Sensation takes stimuli from the environment, transforming them into neural impulses which are transported to the brain. Later, perception is in charge of organizing and making sense of the electrical information sent by the sensorial complex. Nevertheless, in this process there may be some abnormalities, which usually have an organic base, which are also remarkable.

A part of what happens with these neural impulses is perception, in which

the brain tries to make sense of the information that the sensory organs have sent it. The brain translates the energy and, following the Gestalt laws, tries to construct sense from it. The impulses arrive at the brain in disarray, and the brain is in charge of assembling the information, and inventing and discarding what it sees fit. Nevertheless, one should also be aware that it is not just a neural process; cultural aspects also influence perception.

Finally, as it is a complex neurological process, there are many perception disorders, a few of which will be remarked on with their corresponding organic malfunction. Amblyopia is the impaired vision that is a result of the insufficient stimulation of the part of the brain which receives stimuli from the eye. Color vision deficiencies, like color blindness, can have many causes, but are usually due to an abnormal development of the retinal cones that are in charge of sensing color in light and sending it through the optic nerve. Psychiatric conditions, like schizophrenia and depression, may also lead to abnormal perceptions, especially hallucinations and alteration of pain perception, respectively; this is thought to be due to alterations in neurochemistry.

In conclusion, sensation and perception are two complex neurological processes that are very important for everyday life. Sensation implies the reception of physical impulses from the exterior, their processing and their posterior sending to the brain. There, perception tries to make meaning from the electrical impulses that have been sent, especially with Gestalt laws and cultural parameters. Nevertheless, there are many perceptual abnormalities that affect this process and should be taken into account. It is remarkable how many everyday processes, which we take for granted, are so complex!

Reference List

Keiler, P. (2012). " Cultural-Historical Theory" and " Cultural-Historical School": From Myth (Back) to Reality. *Dubna Psychological Journal*, 1.

Retrieved from [http://www.psyanima.](http://www.psyanima.ru/journal/2012/1/2012n1a1/2012n1a1.1.pdf)

[ru/journal/2012/1/2012n1a1/2012n1a1.1.pdf](http://www.psyanima.ru/journal/2012/1/2012n1a1/2012n1a1.1.pdf).

Lourenço, O. (2012). Piaget and Vygotsky: Many resemblances, and a crucial difference. *New Ideas in Psychology*, 30(3). Retrieved from [http://ac.els-cdn.com/S0732118X1100078X/1-s2.0-S0732118X1100078X-main.pdf?_tid=](http://ac.els-cdn.com/S0732118X1100078X/1-s2.0-S0732118X1100078X-main.pdf?_tid=0225a2a4-8af4-11e3-a69f-00000aab0f6c&acdnat=1391226816_12622fa41250bf2a87b571aa664a67a7)

[0225a2a4-8af4-11e3-a69f-00000aab0f6c&acdnat=](http://ac.els-cdn.com/S0732118X1100078X/1-s2.0-S0732118X1100078X-main.pdf?_tid=0225a2a4-8af4-11e3-a69f-00000aab0f6c&acdnat=1391226816_12622fa41250bf2a87b571aa664a67a7)

[1391226816_12622fa41250bf2a87b571aa664a67a7](http://ac.els-cdn.com/S0732118X1100078X/1-s2.0-S0732118X1100078X-main.pdf?_tid=0225a2a4-8af4-11e3-a69f-00000aab0f6c&acdnat=1391226816_12622fa41250bf2a87b571aa664a67a7).

Macmillan, Malcolm B. (PGIP). " The Phineas Gage Information Page". The University of Akron. Retrieved Feb 09, 2014.

Jack & Beverly. " Meet Phineas Gage". Bright Bytes Studio. Retrieved Feb 09, 2014.

Smagorinsky, P. (2012). Vygotsky, ' Defectology,' and the Inclusion of People of Difference in the Broader Cultural Stream. *Journal of Language and Literacy Education*, 8(1). Retrieved from <http://jolle.coe.uga.edu/wp-content/uploads/2012/05/Vygotsky-and-Defectology.pdf>.

Vygotsky, L. (1980). *Mind in Society: Development of Higher Psychological Processes*. Boston: Harvard University Press.