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A Romantic Scientist. Introduction

Janna M. Glozman

Lomonosov Moscow State University,
Moscow, Russia

ОТ РЕДКОЛЛЕГИИ

Романтический ученый. Вступление

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Around the world, Luria is best known as being a romantic scientist. Following Max Fervern, Alexander Romanovich divides scientists into classics and romantics and he once defined the difference between classical and romantic scholars:

Classical scholars are those who look upon events in terms of their constituent parts. Step by step, they single out important units and elements until they can formulate abstract, general laws [...]. One outcome of this approach is the reduction of living reality with all its richness of detail to abstract schemas [...]. Romantic scholars' traits, attitudes, and strategies are just the opposite. They do not follow the path of reductionism, which is the leading philosophy of the classical group. Romantics in science want neither to split living reality into its elementary components nor to represent the wealth of life's concrete events in abstract models that lose the properties of the phenomena themselves. It is of the utmost importance to romantics to preserve the wealth of living reality, and they aspire to a science that retains this richness. (Luria, 1979, p. 174)

Patient description in romantic scholars not only precede explanation, but sometimes replace it. Michael Cole (2005) considered, that Luria was a happy combination of both approaches, or perhaps it is because Alexander Romanovich remained a romantic to the end that he became a historical figure. Dissecting, dividing and analyzing reality, he never lost his sense of wholeness of life (Zinchenko, 2005).

Such an approach corresponded to the vision of the psychological science that animated Luria from his earliest work, his first book, written in 1922, but published only in 2003 (Luria, 1922/2003). In this book, Luria first had formulated the main principle of the cultural-historical approach in a psychological study: to analyze a human as a unity of social and biological.

The social does not just “interact” with the biological, but it also forms new functional systems, using biological mechanisms, provided with new forms of work; namely, within the creation of such “functional formations” there lies the emergence of the higher forms of conscious activity that appear on the boundary between the natural and the social [...]. (Luria, 1977, p. 26)

The human nature is not fatefully determined by the neurophysiology, the biology, he is born with, but that this may be richly modified by his life experiences, by his culture. Luria, indeed, goes much further, and shows the role of the historical, the cultural, the interactive, not merely in modifying, but in actually making higher nervous functions *possible*.

Thus, the development of language was never seen by Luria as an automatic development of “language areas” in the brain, but as resulting from the interaction of mother and child, from the negotiation of meanings between mother and child, as being in the mode of interaction or “betweenness” and this as a prerequisite for, and needing to be structuralized in the developing neurolinguistic systems of the brain. (Sacks, 1990, p. 188)

A. R. Luria underscored the creative, formative role of social origins, which mediate the appearance of conscious activity; namely, these social sources determine its appearance and functioning, through natural human prerequisites. The “natural” is used only as the necessary precondition in the process of the social mediation of human conscious activity, a form of mediation that serves as its real origin and determining factor. “And the key to this was the perception of the individual as a *being*, a living being, containing (but transcending) organic functions and drives, a being rooted in the depths of biology, but historically, culturally, biographically unique” (Ibid., p. 189).

Oliver Sacks appreciated very high this Luria’s approach: “It is characteristic of genius to contain great contradiction and richness, but at the deepest level to resolve these into an ultimate unity” (Ibid., p. 186).

Truly scientific observation is not merely pure description of separate facts. Its main goal is to view an event from as many perspectives as possible. The eye of science does not probe “a thing,” an event isolated from other events or things. Its real object is to see and understand the way a thing or event relates to other things or events. *Only after these basic factors and their consequences have been identified can the entire picture become clear.* The object of observation is thus to ascertain a network of important relations. When done properly, observation accomplishes the classical aim of explaining facts, while not losing sight of the romantic aim of preserving the manifold richness of the subject. (Luria, 1979, pp. 177–178)

The same romantic approach characterized the second famous book by Luria *The Nature of Human Conflicts* (1932/2002), that was severely criticized by Ivan Pavlov. “You call this science! Science proceeds from elementary parts and builds up. Here you are describing behavior as a whole!” (Sacks, 1990, p. 183).

Luria saw such reductionism as the very essence of 20th-century science, in medicine, as well as in physiology, and psychology.

In psychology it seemed that by reducing psychological events to elementary physiological rules, we could attain the ultimate explanation of human behavior. In this atmosphere, the rich and complex picture of human behavior, which had existed in the nineteenth century, disappeared [...]. The physicians of our time, having a battery of auxiliary aids and tests, frequently overlooks clinical reality [...]. Physicians who are great observers and great thinkers have gradually disappeared. (Luria, 1979, pp. 175–176)

Luria could express this romantic approach fully and openly, in his two late books: *The Mind of a Mnemonist* (1968/1987); *The Man with a Shattered World* (1972/1987). In these two short books about exceptional patients, Luria gave voice to an entirely new genre of scientific research — a case study — “which combines the nomothetic and idiographic approaches that have split psychologists since the beginning of the discipline, providing his own resolution to what is generally referred to as ‘the crisis in psychology.’” (Cole, 2005, p. 40). If one’s subject is a human life (not atoms or stars) then it is not just “life” in some general theoretical sense, but *a life* — the living and structure of an actual human life — that must become the subject of the fullest scientific observation.

Such romantic books (“neurological novels”) as *The Mind of a Mnemonist* (Luria, 1968/1987), or *The Man with a Shattered World* (Luria, 1972/1987), were widely read bestsellers for different generations.

Luria invited psychologists to follow his example, and describe in detail cases of extraordinary development of certain psychological faculties, because such cases can help us to better understand the whole. A case history merely exhibits a syndrome and its development. Oliver Sacks (1986) came to write a story *The Lost Mariner* (in *The Man who Mistook his Wife for a Hat*) under influence of Luria.

M. Cole put a question: “Why in his book about S. V. Shereshevsky, (the man with an unusual memory), did Luria spend so much time discussing his personality when

his memory was at issue?" (1979). Even when focusing on one separate psychological function, the memory of a mnemonist, he deduced other personal traits from this study. His romanticism is considered to be humanistic, rather than scholarly, something which appeared to be very unrealistic to his friends, colleagues, and disciples, but proved a real part of his personality. "All took on the quality of an intricate piece of music with a few central motifs and a variety of secondary theme" (Luria, 1979, pp. 195–198).

Another point is that Luria's interest in people, his ability to be absolutely impressed by them, as well as his sensitivity, led to the personal relationships with Shereshevsky and Zaslavsky. During many years, he observed the mnemonist, Shereshevsky, and the patient, Zaslavsky (*Fig.*). Both men described in these books became his friends.



Figure. Luria and Zaslavsky

In both books (*The Mind of a Mnemonist* and *The Man with a Shattered World*) I describe an individual and the laws of his mental life [...]. I choose to write about two men each

of whom had one feature that played a decisive role in determining his personality and which set him apart from all other people. In each case, I tried to study the individual's basic trait as carefully as possible, and from it deduce his other personality traits [...]. Thus S. V. Shereshevsky (the hero of Mnemonist) had an outstanding memory, which dominated his personality. However, it was not his memory itself, but rather its influence on his life and personality, which formed the subject of the book [...]. By contrast, my second book using the approach of romantic science began not with an outstanding capacity, but with a catastrophe that had devastated a man's intellectual powers [...]. I observed this patient for thirty years. The book about him is in no sense an "imaginary portrait" [...] but rather a true portrait that is also an attempt to come closer to understanding some psychological facts through the use of neuropsychology." (Luria, 1979, pp. 179–180)

Luria "always knew the necessity of the *qualitative* in studies, and equally, of the historical, the *biographical* in science — at least if one was to study a living being, a human being" (Sacks, 1990, p. 184). Although Luria was endlessly resourceful in inventing cognitive tests of all sorts, he would only administer these *in the context of the individual*, varying them and improvising them, according to the individual and his history.

"To write true stories, to construct true lives, to present the essence and sense of a whole human life — in all its living fullness and richness and complexity — this must be the final goal of any human science or psychology" (Ibid., p. 193).

The qualitative study of personality for every attempt to find factors underlying the structure of personality and each subject's cognitive functioning are the main particularities of the case studies, published in this issue of *Lurian Journal*.

References

- Cole, M. (1979). Epilogue: A portrait of A. R. Luria. In A. R. Luria (Auth.), *The making of mind: A personal account of Soviet Psychology* (pp. 189–209). Cambridge, MA: Harvard University Press. Retrieved from <http://luria.ucsd.edu/epilogue.html>
- Cole, M. (2005). A. R. Luria and the cultural-historical approach in psychology. In T. Akhutina, J. Glozman, L. Moskvich, & D. Robbins (Eds.), *A. R. Luria and contemporary psychology: Festschrift celebrating the centennial of the birth of Luria* (pp. 35–41). New York, NY: Nova Science Publishers.
- Luria, A. R. (1922/2003). The principles of real psychology. In J. M. Glozman, D. A. Leontiev & A. G. Radkobskaya (Eds.), *A. R. Luria. Psychological Tribute* (pp. 295–384). Moscow: Smysl. [In Russian]
- Luria, A. R. (1932/2002). *The nature of human conflicts*. New York, NY: Liveright; Moscow: Cogito-Center [Russian ed.].
- Luria, A. R. (1968/1987). *The mind of a mnemonist: A little book about a vast memory*. Cambridge, MA: Harvard University Press.
- Luria, A. R. (1972/1987). *The man with a shattered world: The history of a brain wound*. New York, NY: Basic Books / Cambridge, MA: Harvard University Press.

- Luria, A. R. (1977). On the problem of psychologically oriented physiology. In E. D. Chomskaya & A. R. Luria (Eds.), *Problems of neuropsychology* (pp. 9–27). Moscow: Nauka. [In Russian]
- Luria, A. R. (1979). *The making of mind: A personal account of Soviet Psychology* (M. Cole & Sh. Cole, Eds.). Cambridge, MA: Harvard University Press.
- Sacks, O. W. (1986). *The man who mistook his wife for a hat*. New York, NY: Summit Books.
- Sacks, O. W. (1990). Luria and “Romantic Science.” In E. Goldberg (Ed.), *Contemporary neuropsychology and the legacy of Luria* (pp. 181–194). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Zinchenko, V. P. (2005). A. R. Luria (1902–2002): A retrospective view on time. In T. Akhutina, J. Glozman, L. Moskvich, & D. Robbins (Eds.), *A. R. Luria and contemporary psychology: Festschrift celebrating the centennial of the birth of Luria* (pp. 13–21). New York, NY: Nova Science Publishers.

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НАУЧНЫЕ ИССЛЕДОВАНИЯ

Rorschach Test and Neuropsychological Assessment: a Case Study

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Тест Роршаха и нейропсихологическая оценка: анализ случая

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Abstract. The present work aims to demonstrate the important role of the Rorschach Test in assessment. The interest arises from clinical experience in the office, using the Rorschach Test in clinical care. The contribution of this instrument in therapeutic planning is visible because it points out the compromises found in the personality dynamics, enabling the psychotherapist to act in this nexus of conflict, showing to the client his difficulties, so that he can build resources and be able to confront them. In neuropsychological assessment, the results from the Rorschach Test, which is a psychological assessment, together with all the information coming from other neuropsychological instruments, often become decisive in the path that the subsequent intervention plan should take. Therefore this article has the goal to connect the use of the Rorschach Test, a psychometric psychological instrument, with Luria's qualitative neuropsychological assessment within a cultural-historical point of view. At last a study case will be presented to illustrate the concepts brought up uniting quantitative and qualitative measures to provide a better and more personalized treatment to the client.

Keywords: *Rorschach Test; neuropsychological assessment; psychological treatment*

Аннотация. Цель данной статьи заключается в том, чтобы продемонстрировать важную роль теста Роршаха при диагностике. Интерес к данной тематике появился в результате использования теста Роршаха в клинической практике. Значимость

данного метода в терапевтическом планировании очевидна, поскольку он указывает на компромиссы, выявленные в динамике личности. Это позволяет психотерапевту воздействовать на причину конфликта, указывать клиенту на его трудности с тем, чтобы он смог создавать ресурсы и противостоять данным трудностям. При нейропсихологической оценке результаты теста Роршаха, который представляет собой психологическую оценку, вместе с данными, полученными при применении других методов нейропсихологического оценивания, часто становятся решающими в выборе направления последующей терапии. Статья нацелена на выявление связи между тестом Роршаха как психометрическим психологическим инструментом и качественной нейропсихологической оценкой А. Р. Лурия, разработанной в рамках культурно-исторического подхода. В статье также представлен случай из практики, который иллюстрирует концепции, объединяющие количественные и качественные методики, что позволит более тщательно подбирать индивидуальные схемы лечения для каждого клиента.

Ключевые слова: *тест Роршаха; нейропсихологическая диагностика; психологическое лечение*

Introduction

Hermann Rorschach (1921/1972) was born in Zurich on November 8th, 1884. He studied Medical School in Neuenburg, Zurich, Bern and Berlin, graduating in 1910. In the same year he married a Russian colleague from the medical school, Olga Stemplen, who became his co-worker and collaborator. In 1914, he specialized in psychiatry at the University of Zurich. Influenced by the psychoanalytic school, Hermann Rorschach, together with Zulliger, Ben-Eschenburger, Oberholzer, Biswanger and other colleagues, founded the Zurich Psychoanalytic Society. Despite having carried out some previous experiments, it was in the years 1917–1918 that Hermann Rorschach began a more systematic study of the use of the inkblot method in psychiatric diagnosis, especially in the diagnosis of schizophrenia.

Originally Hermann Rorschach (1921/1972) used a total of 40 different boards, which were soon reduced to 15. Even this greatly reduced number of boards represented difficulties for the publication of the work due to the high cost of printing. Most editors were willing to publish only 6 boards, with which Hermann Rorschach did not agree. Thus, throughout 1920, the finished work could not be published.

In 1921, Hermann Rorschach with the help of Walter Morgenthaler managed to negotiate a compromise with the Bern editor Burcher, he would edit 10 boards. The editor had problems reproducing the spots, so the edited boards were smaller than the originals and had previously non-existent shading. This is the current form of the Test. These changes were not a problem, in the contrary, represented new possibilities for the Test, possibilities that were not part of the original work. In June of 1921, with the help and effort of his friend Morgenthaler, he published the book *Psychodiagnosis*, containing the conclusions

of his studies with the boards he created. Rorschach himself, did not consider this book as a final draft, but as an initial draft of his work. This is the reason why he worked without rest to improve it until death, suddenly, surprised him (Rorschach, 1921/1972).

Hermann Rorschach died on February 4th, 1922, with 38 years, victim of an acute appendicitis crisis which was aggravated by peritonitis. He left an article about the Shading unfinished and interrupted his studies in relation to the *Psychodiagnostic Technique*, which was later studied and concluded by his followers.

We decided, this time to unite the only work that Hermann Rorschach left us besides Psychodiagnosis, still on the same subject. We refer to the conference *Contribution to the Use of the Form Interpretation Test* published after the author's death by Emil Oberholzer and which appeared in the volume of *Zeitschrift fur die gesamte Neurologie und Psychiatrie* (*Journal of Neurology and Psychiatry*) dedicated to the jubilee of Bleuler (Rorschach, 1921/1972, p.10).

The book *Psychodiagnosis*, "can be considered one of those imperishable classic works, which time cannot discredit and which, therefore, remains always current" (Ibid., p. 6a). The book is a big contribution of Hermann Rorschach elucidating the evaluation of the interpretation of ambiguous forms of paint. In this sense, we will start the explanation with a question, how do ink blots relate to Hermann Rorschach?

Over the years, specifically in 1911, Rorschach starts his studies and researches with ink blots, however his concern was broader than the simple study of *imagination* and *fantasy*. He wanted to obtain a method of *personality inquiry*, placing the interpretation of ink blots in the field of perception. But how did this happen? It is very simple to make such random figures (inkblots): some blots are made by randomly throwing the ink onto the sheet of paper. This paper is folded in half and opened. Now look at the blur and ask yourself: "What does it look like?" "Write to yourself and if you wish on the chat," "What does that look like?"; that is, what the expression of that blur immediately brings, what kind of perception. This is the 1st contact with the inkblot it is called the *association step* or *response* (Ibid.). Now, using the answer you gave about the inkblot in the first moment, ask yourself: "And why does it look like this?" "What characteristics in this inkblot led me to give this response?" This is the 2nd contact with the ink stain it is called the *inquiry phase*.

What is the goal? Understand the subject's perception to that stimulus. That is, he saw, extrapsychism, realized something, gave a *meaning*, as Vygotsky would say, and then he created his own sense, intrapsychism, using his cognitive, affective and relational resources from an unstructured stimulus field, he brings characteristics that were built through his ontogenetic development for that specific inkblot. So, from a first simple contact with the stain, each one will bring a deeper perception of what that blur means to each subject and what proper and internal sense the subject takes from that blur. Let's get to know a little more about the Rorschach Test and the neuropsychological assessment.

Rorschach Test and Neuropsychological Assessment

The Rorschach Test is a projective-constructive psychological test developed by the Swiss psychiatrist Hermann Rorschach (1884–1922). The Rorschach Test provides us with a perceptual-cognitive task, manifesting processes of decision making, problem solving, revealing confrontation strategies and of the subject's psychological organization. Hermann Rorschach had the task of understanding how the subject made this cognitive-perception, which resources he used to capture the content of what he saw. The test consists of giving possible interpretations to the 10 boards with ambiguous and symmetrical inkblots.

Rorschach wanted to obtain a method of interpreting personality, placing the interpretation of inkblots in the field of perception. That is, not only as the subject saw the stimulus and became aware of it; but how he perceived the inkblot, how he became aware of it in a profound way which is individual, personal and subjective.

In this sense, Hermann Rorschach was concerned not only with "WHAT" the person saw, but "HOW" he saw each inkblot, becoming aware of it in a profound way and relating such observations to mental functions, that is, depending on the development of each subject, his relationships and depending on the personality dynamics of each person, the expressions and inkblots are viewed in different ways. This analysis points to the close connection with the theoretical assumptions of Vygotsky and Luria. Which presupposes that each person perceives the world his own way according to his experiences in life and relations which constituted him.

Gattas and Guntern (2000) discuss that after the premature death of Hermann Rorschach in 1922, he left his work as a rich procedure to be further explored. Although the dissemination of the method, after his death, took place, initially, thanks to the efforts of Morgentahaler and Oberholzer, the first systematizations were done in the American continent, still in the late 1920s and during the decades of 30 and 40, arousing several systems. Each of the developed systems had similarities to each other, as they all remained faithful to Rorschach's original ideas, but contained differences resulting from the different theoretical backgrounds of their authors. The expansion of the use of these different systems, on the one hand, allowed for an increasing development of the technique, whether in the United States or Europe, and later, also in other continents, but, on the other hand, made communication between the different researchers and the application of developments and discoveries from one system to others.

The authors affirm that in the 70s, Exner, with the consent and encouragement of some of Rorschach's studios in the United States — Samuel Beck, Marguerite Hertz, Bruno Klopfer and Zigmunt Piotrowski and Rappaport gathered and systematized their knowledge and investigations. Therefore, Exner's initial proposal was to unify the main contributions of American authors in a single system that could overcome the complications arising from the exchange between researchers, creating obstacles to further developments of the method.

The Comprehensive System was created by John Exner Jr. from North American and was published in 1972. Through his work, the Rorschach Inkblot Test became a more useful psychometric instrument. It was not built on any theoretical assumption, it is an autonomous and more technical system, it does not need an in-depth study of a theory *per se*.

The comprehensive system is linked to what Vygotsky and Luria describe about the “subject” having a *dynamic* and *systemic* personality. The union of the comprehensive system which is essentially psychometric and quantitative + the cultural-historical approach and its qualitative point of view led to a more complete analysis of the subject. The cultural-historical theory focuses on *consciousness* and it is interested in the psychic functioning and the personality dynamics of the subject.

Consciousness, is the real understanding of reality, is having an understanding of the material world. It is objective, as it is external to man, however he appropriates himself creating a sense of his own, and the sense is internal, subjective, and unique. In this way, the activity theory developed by Leontiev (2004) argues that man’s development takes place through his relationship with the environment in which he is inserted, seeking for the satisfaction of personal needs. The development of mental functions will result from a process of appropriation of knowledge, that is, that human characteristics are developed by the appropriation of material and intellectual culture transmitted from generation to generation.

The cultural-historical theory gives us the possibility of looking at the comprehensive system of the Rorschach Test, which is more psychometric and quantitative, in a more qualitative way.

The Rorschach Test is a projective technique, a mediator, to assess the internal world of a person, the personality as a whole. There are answers given on the Rorschach Test which are recognized by many people but there are others which are unique, are only recognized by that person. And this means that each person has his own story, a way to look at reality.

The result of the Rorschach Test can be very well used in the psychological treatment of a client to give meaning and sense to his life. This way the person will be more involved and motivated enabling the treatment to transform that client. Human activities for Leontiev (2004) are considered as the subject forms his relationships within his life, which are driven by a motive, by objectives to be achieved. The idea of activity, thus, involves the notion that man is guided by goals, acting intentionally through planned actions.

According to Sforzi (2004) The need is a factor that triggers the activity, it is what concretely motivates the subject to have goals and carry out actions. It is such an important component that Sforzi adds “not every process is an activity, but only one that is driven by a need” (Sforzi, 2004, p. 97). The purpose has to do with what is intended in a more particular way in that activity, we could associate it with the objective. To achieve this objective, the conditions and the means to achieve it through actions and operations will be necessary.

Therefore the interpretation of the Rorschach Test will help the psychologist to treat his client to pass from his potential level of development to the real level of development where he will not need anymore the help of the other. The cultural-historical theory made it possible to do a new reading of the Rorschach's Test. Study and analysis the personality dynamic of the subject in a qualitative matter including the higher mental functions thus enabling a qualitative and quantitative interpretation of the test.

The systemic and dynamic understanding of the higher mental functions within the cultural-historical theory allows us to articulate with the aspects of the subject's personality dynamics once we understand that personality and psychism occur in a dialectical and univocal process. According to Luria (1981) the neuropsychological assessment aims to examine the mental processes of memory, attention, imagination, thought, action planning, verification and control of behavior, language, among others. These are all together in the functional systems implicitly linked to man's social context.

Vygotsky (2015) corroborates with Luria's ideas and states that human mental development occurs in a physical body that carries with it a biological apparatus capable of developing higher mental functions while being in relationship with other humans, inserted in a social and cultural context. In this sense, higher mental functions can be examined as artificial products of the human brain arising from the interaction of man with the social context.

Higher mental functions are fundamental forms of human conscious activity and must be considered as complex functional systems, formed in the course of a long historical and social development of man, as well as constituted with a hierarchical structure and a dynamic location. For example, in children, because they have a concrete form of perception and thinking, the language function is processed in the posterior portion of the brain, while in the adult, in which more abstract thinking and perception predominates, language starts to be processed in the anterior part of the brain. In this sense, Luria states that

mental functions, as complex functional systems, cannot be located in narrow zones of the cortex or in isolated cell clusters, but must be organized into systems of zones working in concert, each of these zones playing its role in a complex functional system, with each of these territories being located in completely different areas of the brain and often quite distant from one another. (Luria, 1981, p. 16)

According to the theoretical approach of functional systems developed by Luria, neuropsychological assessment assumes the role of analysing functional systems and identifying how higher mental functions are operating in the individual's brain, as well as understanding how the symptoms described by the patient are related to system changes. For Luria (1981) neuropsychology is a branch of science whose "specific and peculiar objective is the investigation of the role of individual brain systems in complex forms of mental activity" (p. 4).

The Rorschach Test — Comprehensive System

The Rorschach Test aims to understand the interrelationship of the subject's affective, cognitive, and relational aspects. And how these systems are integrated in mind control, information processing, self-image and interpersonal relationships.

When building an answer, and I love to see this moment, when the subject is looking at the inkblot and processing and organizing his answer, it is a magical moment for all of Rorschach's specialists, the subject needs to notice the inkblot and integrate the information based on his experiences and memories. The stimuli on the boards are ambiguous and need perceptive integration and thought and language to communicate the constructed response in an articulated way. Perceptual integration systems, which do simultaneous syntheses, using the temporo-parieto-occipital functional systems: memory, language and speech articulation must be involved in this process of the subject's response.

The subject's set of responses allows us to perceive how he interacts and integrates internal and external affective aspects, linked to the social environment. The coding of responses and interpretation are based on the comprehensive system, and data analysis is integrated with the systemic and dynamic understanding of the higher mental functions.

According to the *Coding Manual of Rorschach for the Comprehensive System* and the *Interpretation Manual of Rorschach for the Comprehensive System* both of Exner Jr. published in 1999, the structural summary is divided into 2 sections: *the upper section*, which refers to the sum of the frequency of all indexes obtained in rating the subject's answers; and *the lower section*, which will be shown in the next slide, is grouped into 7 blocks relating to the interpretation of the personality dynamics. And in the lower part are the 6 special indexes, the constellations, which will be described in more details a little later.

What is Rorschach's contribution in neuropsychology? All of the *cognitive triad* — *processing, mediation and ideation*. The cognitive triad demonstrates subject's attention in receiving processed stimuli (1st functional block) / how he maintains his sustained attention and information processing (2nd functional block) / and at last evaluate the subject's cognitive capacity through QD (quality of development) values to integrate and build, from unstructured forms, an articulated projective material with its own meaning (3rd functional block).

We can make an analogy of the cognitive triad with the TPO area, with executive functions, as well as with how the subject captures the first processed stimulus. The cognitive triad carries out the work of the associative functions of the 2nd functional unit (primary and secondary areas). Even more complex, the tertiary area, integrates into the third functional unit — frontal — to carry out the verification, planning and execution of tasks. Therefore, there is a participation of the entire dynamic and hierarchical system of the higher mental functions, which occur in an orchestrated and dynamic way. Not allowing a particular analysis of the gear.

According to the Exner's Jr. manual (1999) the processing shows the data on how the subject apprehends and incorporates information from reality, also indicating the level of intellectual development and the capacity to carry out analysis and synthesis operations.

When processing the stimuli, the synapses send the information to the occipital cortex (secondary area), but it also has a connection with the primary areas of the occipital lobe, which are the sensations.

The mediation — provides guidelines for knowing how the translation of the incorporated information about oneself and reality occurs, whether there is an adequate or distorted perception. Then the secondary area (analysis and synthesis) assume, already integrating the tertiary area, occurring the simultaneous synthesis which are in the TPO area.

The ideation is related to the thought, it brings elements that indicate how the subject thinks about his experiences, which results in deliberate decisions and behaviors, therefore a tertiary area integrating the third functional block — in the frontal lobe associated to the executive functions. Example: the subject may be able to think in a logical, coherent, flexible and constructive way, or on the contrary, show an incoherent, rigid and little constructive thought.

The affection within the limbic system in the diencephalon (subcortex) translates how the subject deals with emotional situations and how he expresses his feelings. It reveals how the impact of emotions and affections influence the subject's dynamics, organizing or disorganizing his behavior.

The thalamus performs the integration, analysis, and control of sensory, motor, and limbic system stimuli that come through the afferent pathways — the ascending activator reticular system. The thalamus distributes this information to the cortex, which through the neuronal axes continues the process dynamically and hierarchically. Optimal neuropsychological functioning requires the integration of the limbic brain with cortical functions. The Rorschach Test is the instrument that allows, through the analysis of the production of the subject on the test, the verification of how this integration occurs, as the subject will use his resources to build the answers.

Interpersonal section provides information on how the subject perceives the other and establishes his relationships, whether they are more sociable or more distant. Self-image — refers to the self-knowledge that the subject has of himself. It reveals the way people describe themselves and the concepts and attitudes they build about themselves, giving us information about their self-image and the value they attribute to that image, that is, self-esteem.

Control section located in the frontal lobe (3rd functional block — descending reticular activator system). It has a significant link with the limbic system, examines the subject's impulsiveness and control in stressful situations. Verifies the subject's capacity or not to deliberate productive actions to achieve practical ends.

The code EB is the heart of the Rorschach Test from it professionals perform all the analysis of the Structural Summary. It points out how the person is guided in life, how he lives his life. There are 4 basic response styles or experiential types: *introversive* — a basically ideational subject prefers to delay decision taking until he considers all the alternatives; *extratensive* — a more emotional subject mixes affects with thinking during his problem solving activities influenced by external information; *ambiguous* — greater vulnerability to difficulties, needs more time to complete his tasks and has less

internal consistency, has an unpredictable behavior because a low amount of answers leads to a rigid defensive behavior and a greater predisposition to *impulsiveness*.

The variables — C, C', T, V, Y present in the control section are a signal of all affects that trigger lack of cognitive control, frontal compromise, excessive impulsiveness, difficulty in affective and cognitive control and no criticisms.

Therefore, the analysis of the Rorschach Test joined with Luria's neuropsychological assessment done in a dynamic and integrated way gives the vision of the *whole*, of the whole psychological functioning of the human being. It is noteworthy that the use of assessment instruments, both neuropsychological and psychological, serve to give us clues on how we can work in the intervention of the patient, enabling him to new constructions through the transformation of the superior mental functions.

To finalize, the analysis of the comprehensive system, according to Exner Jr. and Sendin (1999) left a big legacy — the constellations. *Constellations* are a set of statements that validate a given group of signs:

- when there is a positive SCZI — Schizoaffective Index — the subject presents difficulties in affective relationships, generally thought and perception are compromised, it is a reliable indicator of disturbance in thought and perception, especially if the subject gets the maximum score. SCZI = 4 it indicates a Hypothesis of the existence of a psychotic disorder / SCZI = 5 allows you to think seriously about the possibility of this psychotic disorder / SCZI = 6 it is almost certain of that this kind of disorder is present;
- when there is a positive DEPI — Depression Index — it intends to assess whether the subject is living in a situation in which depressive symptoms occur. DEPI = 5 it suggests the existence of affective disorders that may lead to the experience of depressive episodes / DEPI = 6 it indicates the hypothesis of the existence of a relatively serious depressive state / DEPI = 7 elucidates the existence of depression (which may coexist with a positive Suicide Potential Index). However, many times the person does not commit suicide and it is not because he is not depressed, it may be due to anxiety; low activation of the 1st block; or lack of intention to act;
- when the CDI is positive — Coping Deficit Index — it indicates difficulties in interpersonal relationships, difficulties in engaging in the day-to-day demands, assesses the lack of resources for confronting and solving problems in various situations. CDI = 4 it suggests the existence of some difficulties in dealing with the situations / CDI = 5 expresses the certainty of these difficulties;
- when there is a positive SCON — Suicide Potential Index — it is characterized by depressive elements, low self-esteem, pessimism at the level of ideation, negative introspection, presence of elements of isolation, interpersonal difficulties, reduced self-control of impulsivity and perceptual maladjustment;
- when there is a positive HVI — Hyper Vigilance Index — it consists of a state of continuous alert towards the environment, which requires a considerable availability of energy. The exacerbation is accompanied by paranoid-like manifestations, the need to control everything (a phobic-anxious symptom). It is interesting

to know if it is from the basic structure of the subject or if there was an accident that caused this behavior;

- when there is a OBS positive — Obsession Index — it is marked by perfectionism, excessive concern with details. Subjects are extremely cautious in their processing behaviors, the information is collected in a meticulous manner, meticulously fixed on details that go unnoticed by most people. They are overly conventional, neglecting creative abilities. This index has negative characteristics, as the excessive effort to improve or reorganize small details tends to interfere in complex situations that require immediate answers. It is noteworthy that all these data presented should not be examined in isolation, but crossed with the clinical history and other instruments applied.

The Rorschach Test is not a pathognomonic instrument of a specific pathology, however, within the clinical experience, the proper use and the expert eye in the analysis of the instrument's production provide valuable information to understand the dynamics of the individual's functioning, the psychodiagnosis differential and very reliable tracks for proper referrals. The Rorschach Test is more than a projective personality test, it is a projective-constructive test, which provides a perceptual-cognitive task, manifesting processes of decision making, problem solving, revealing confrontation strategies and the subject's psychological organization, obtaining a broad picture or profile of the subject's neuropsychological dynamics.

As we just saw in the comprehensive model, we find the constellations, which gather evidence considered "special," that is, not expected at first hand, but which together provide clues to some unusual functioning of the subject's brain. Extending this analysis, in some schools there is a survey of evidence that shows alterations of brain lesion origin, the best known is the Piotrowski Series, used by Piotrowski himself, as well as by the Brazilian Aníbal Silveira School.

According to Coelho (2000) there are some red flags for us to be very attentive to in the Rorschach's Test because they can indicate a neurological disorder. Piotrowski's Series consists of 10 signals to be evaluated when positive in a protocol. They are:

- nC-Color Naming — in front of the stimulus, the subject only verbalizes the color name as a satisfactory answer, without giving any explanation. For example: "This is red. — But what made you see this red? — Ah, because it's red." There is an inability to perform an adequate association with that stimulus. There is a productive limitation. And when he repeats: "Ah! Because it's red." — there is a lack of criticism;
- Ppl — reveals the subject's perplexity in face of the stimulus, there is difficulty in expression, he is impacted. Bringing insecurity about their cognitive capacity, they need the examiner's support, and even when they try to give an answer, they keep asking whether it is correct or not. Increasing your reaction time to the stimulus or response, deteriorating the quality of production;
- Aut — it is an automatic response, stereotyped phrases, filling. For example: "This is a butterfly, brooch." "This is a heart, brooch." The subject brings an answer

without being able to explain, cannot inhibit, contain verbalization, as a mechanical reaction to unfamiliar situations. He does not realize he repeats. Raising the hypothesis of “malfunction” of their mental work, common to the functioning resulting from brain damage;

- R — total responses less than 15;
- T — initial reaction time, expected 60 seconds. If there is a longer time, the subject has a delay in responding to this stimulus. It presupposes some difficulty when capturing and building this stimulus for you;
- M — a single human movement response, or none. Human movement speaks of autonomy, independence. It provides information on how this subject permeates his environment. Difference from Silveira to the comprehensive system: for Silveira the movement must be clear, there must be a perception of kinesthesia / for the comprehensive system — the movement is present by any record of propulsion or retraction;
- F+% — conventional pure form /%F + less than 70 % (or 75 % for Silveira). The subject does not see things, life objectively, as being repressed. See in a more unusual, distorted way, within a subjective view;
- Lib — inappropriate answers, due to inability to repress them. The subject even recognizes that his response was inadequate, but he cannot contain it, there is a lack of restraint, he is impulsive. This mechanism stems from the fact that patients with brain injuries have the capacity for self-criticism preserved, but they are unable to correct their mistakes. Lib can occur in a normal adult protocol, but in this case, this is due to the examinee’s awareness of the numerous possibilities of interpretation offered by the Rorschach stimuli, and that he was too hasty in choosing his response;
- Rpt — repetition of the same answer on at least three different boards. It is the perseveration (PSV) of the comprehensive system. The first answer in this series may be accurate, but the rest may be poorly defined. The subject repeats the content of the previous answer, he stays attached to that point, he does not evolve;
- %V — percentage of common answers less than 25 % (they are the popular answers of the comprehensive system). Indicating a certain degree of difficulty in apprehending the thought patterns that make up the social consensus (Coelho, 2000).

The occurrence of five signs of the Series would be enough for referral to an evaluation by a neurologist. These are signs that give clues, raise hypotheses that need to be crossed with other data from the subject, but they provide clues, empirically observed by well-trained Rorschach psychologists.

Study Case

The analysis in this work will be illustrated by a study case of the assessment of a 19-year-old patient M., user of drugs such as crack, marijuana and glue, for 8 years, which currently presents a hallucinations, recurrent idealization and a lot of insecurity in interpersonal contact. M. presents a history of intense drug addiction. The Rorschach Test was used to identify in more detail the personality dynamic of M., in other words, how were the intellectual, affective, emotional and interacting resources, the ability to control internal tensions and the resources used in this control.

M. was a 19 years old single man. He was presenting many difficulties in relating to people. He was having difficulties to leave his home to go to work and even to walk. This difficulty was implicitly linked to the fact that M. believed that the others “read his thoughts” and “went inside his head.” This feeling made M. insecure in the presence of foreign people. He felt that people would attack him when they got into contact with his thoughts. However, when asked what kind of thoughts gave rise to the fear of aggression, M. laughed at the thoughts that he was an outlaw, a murderer. He also referred that when in front of the television, he had the feeling that the characters knew what he was thinking. According to the family report, M. had been using drugs for 8 years, during which he lived on the street, as he left home at the age 11, although he returned sometimes to his house.

Structural Summary

Structural Summary analysis with data obtained: the subject demonstrated distortion in the processing of reality data, responsible for his internal distress ($\text{Sum6} = 5\uparrow$; $\text{WSum6} = 14\uparrow$) and the feeling of being invaded by affects he did not know categorize such as anguish, anxiety, helplessness ($V = 1\uparrow$; $Y = 3\uparrow$; $m = 3\uparrow$; $C' = 4\uparrow$).

When compared to others, his personal value was negative, with a less favorable self-image not believing in his own abilities ($3r + (2)/R = .28\downarrow$; $V = 1\uparrow$). His perception of the events was distorted due to the difficulty of emotional comprehension, which provided these hallucinations, functioning far from the conventional ($P = 4\downarrow$), triggering distortion in thought and action ($\text{Sum6} = 5\uparrow$; $\text{WSum6} = 14\uparrow$) by interference from subjective emotional nexuses ($Y = 3\uparrow$; $V = 1\uparrow$; $C' = 4\uparrow$).

The lowered lambda ($L = .21\downarrow$) demonstrates how emotional aspects interfere in the perception of reality facts and ends up distorting them ($X+\% = .39\downarrow$; $Xu\% = .50\uparrow$). The irritating internal stimulation is high ($es = 14\uparrow$), taking hold of the few available resources ($EA = 5.0\downarrow$). In this sense, the limbic circuitry (Y, V, C') acts intensely on the 2nd and 3rd functional block, dismantling the capacity for analysis and synthesis, that is, associative functions — TPO — examined through the variables $DQ+$ and DQv , impacting on the execution of their intentions and actions in the middle (3rd block).

The high level of situational stress of an ideational and emotional nature ($m = 3\uparrow$; $Y = 3\uparrow$), linked to special codes ($\text{Sum6} = 5\uparrow$), predisposes to incongruous, disorganized reasoning. The intense situational irritating stimulation of an ideational and emotional nature (m and Y) acts on the higher psychic processes (attention, memory, capacity for

analysis and synthesis; problem solving) disorganizing the functional systems in a dynamic and systemic way.

The predominance of incongruous thinking, without logic, distorted view of reality, corroborating with disexecutive behavior ($\text{Sum6} = 5\uparrow$; $\text{WSum6} = 14\uparrow$; $\text{X}+\% = .39\downarrow$; $\text{Xu}\% = .50\uparrow$).

He demonstrated a self-concept based more on imagination than on experience, and his conceptions regarding the other were more illusory than real ($\text{H} = 2\downarrow$; $\text{Hd} = 2\uparrow$). The individual's thought flow was undergoing changes due to the affective discharge he was feeling, interfering with his attention and concentration ($\text{Y} = 3\uparrow$; $\text{V} = 1$; $\text{m} = 3\uparrow$; $\text{C}' = 4\uparrow$). There was a need to approach others, but due to their affective immaturity, their contact was cautious, reserved due to the insecurity and vulnerability they felt ($\text{T} = 0$; $\text{Afr} = .38\downarrow$).

Final Considerations

Quantitative and qualitative analysis of the Rorschach Test did not allow us to think that the attentional systems were impaired, mainly because they were influenced by the affective impact of the feeling of insecurity, which influenced M. especially when he was in the presence of others. Thus, the invasion of affections, associated with their psychological immaturity, interfered in his thinking, compromising and making it difficult for him to understand the reality data. He felt he was being invaded by the thought of the other, and being able to be attacked by the other, which reinforced the feeling of insecurity and the fragility felt by M.

His distorted view of reality, his incongruous thinking, as well as the action of the limbic circuitry impacting in an important way in all neuropsychological dynamics, leads him to have difficulties in all productive actions impacting on the change of superior nervous functions. The organization of simultaneous syntheses, responsible for the organization of the subject in the external space, both in the visuospatial orientation (right-left, top, bottom, etc.), as in the logical grammatical constructions (heart of stone, brother's father and father's brother, etc.), were influenced by affections, leading to disjointed perceptual and grammatical constructions. These psychic functions triggered the thought that people could invade his thinking, making it difficult to perceive the external environment.

The distortion in M.'s thought was influencing his action in the external environment and in interpersonal relationships. The difficulty of restraining his thoughts, because of the compromise of the frontal region, responsible for the executive functions and control inhibition made M. enter a cycle of ideation and action in which he was not able to be restrained internally by his superior mental functions. Therefore, we could understand that M.'s psychic dynamics was marked by psychological immaturity and an influence of affective aspects that influenced the production of thoughts.

The diagnostic hypothesis, in the psychological interview, was that M. had a psychic dynamic common to an affective psychosis, which was corroborated by the results obtained in the Rorschach Test, characterized by a personal and distorted view of reality, resulting from the excess of the affective aspects of his personality, structurally immature and without self-control resources to deal with internal tensions, leading to difficulty

of interaction in interpersonal relationships, which ended up permitting him to succumb to chemical dependency.

Suggestions

- (1) Psychotherapy, for the construction of one's own value systems for the development of autonomy and understanding of his own feelings.
- (2) Neuropsychological remediation, focused on attention, concentration, working memory and action planning.

These two suggestions are due to the immature personality of the subject, caused by the abusive use of drugs, for an intense period, which did not provide resources for the development of his mental functions.

Conclusion

The study of the Rorschach Test provided us with a view of how the functional systems of each subject is organized and acts on the neuropsychological dynamics. The way the subject realizes the random forms of paint, correlating them with Lurian neuropsychology and how the functional systems are articulated in an orchestrated way, providing a response to the first stimulus captured through the afferent pathways (SARA — Ascendant Reticular Activating System), processed and integrated through simultaneous analysis and syntheses and executed by the frontal system. This perception will have its own meaning according to the ontogenetic development of each subject, providing an understanding of how every dynamic and hierarchical system of the higher mental functions occurs.

Therefore through the use of the cultural-historical theory and the theoretical assumptions of Vygotsky, Leontiev, and Luria, it was possible to analyse Rorschach's Test, contemplating the personality dynamic of the subject, both in qualitative and quantitative terms, as a biopsychosocial human being.

References

- Coelho, L. M. S. (2000). *Clinical Rorschach — Basic Manual*. São Paulo: Terceira Margem. Retrieved from <https://docero.com.br/doc/s5scs> [In Portuguese]
- Exner Jr., J. E. (1974). *The Rorschach: A Comprehensive System*. Chichester, UK: John Wiley & Sons.
- Exner Jr., J. E. (1999). *Coding manual of Rorschach for the comprehensive system* (A. C. Pacheco, Trans.). São Paulo: Casa do Psicólogo. [In Portuguese]
- Exner Jr., J. E., & Sendin, C. (1999). *Interpretation manual of Rorschach for the comprehensive system* (A. C. Pacheco, Trans.). São Paulo: Casa do Psicólogo. [In Portuguese]

- Gattas, R. S. F. N., & Guntern, A. E. V. A. (2000). New tendencies: Introduction to the comprehensive system Exner. In J. A. Cunha (Ed.), *Psychodiagnostico-V* (5th ed., pp. 368–377). Porto Alegre: Artmed. [In Portuguese]
- Leontiev, A. (2004). *The development of the psyche* (2nd ed.). São Paulo: Centauro. [In Portuguese]
- Luria, A. R. (1981). *The working brain* (J. A. Ricardo, Trans.). Rio de Janeiro: Technical and Scientific Books; São Paulo: University of São Paulo. [In Portuguese]
- Rorschach, H. (1921/1972). *Psicodiagnosis* (1st ed.). São Paulo: Editora Mestre Jou. [In Portuguese]
- Sforni, M. S. F. (2004) *Conceptual learning and the organization of teaching: Contribution to the theory of activity* (1st ed.). Araraguara: JM Editor. [In Portuguese]
- Vygotsky, L. S. (2015). *Collection works: Vol. 2. Thought and language*. Espanha: Editorial Antonio Machado Libros. [In Spanish]

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Quantitative and Qualitative Aspects of Factors and Forms of Aphasia: Clinical Data

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Количественные и качественные аспекты факторов и форм афазии: клинические данные

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Abstract. There is no single valid method covering all the clinical and research needs of aphasia assessment. The classic controversies about the qualitative and psychometric approaches to this condition should be finally overcome. In this article, firstly, the metric characteristics of the test variables employed in the study of aphasia are investigated. Second, a psychometric/categorical method is proposed to resolve the limitations of these metrics. Finally, the psychometric/categorical method is illustrated through the particular aspects

of three clinical cases. The contributions of the method, and the problems of the factors and forms of aphasia, are discussed.

Keywords: *neuropsychological testing; psychometrics; qualitative assessment*

Аннотация. Не существует единого метода, который подходил бы для всех клинических и исследовательских нужд оценки афазии. Классические споры о качественном и психометрическом подходе к афазии должны быть полностью завершены. В данной статье, во-первых, исследуются метрические характеристики переменных тестов, используемых при изучении афазии; во-вторых, предлагается психометрический/категориальный метод для преодоления ограничений метрик тестовых переменных. Психометрический/категориальный метод проиллюстрирован тремя конкретными клиническими случаями. Обсуждаются вклад метода и проблемы факторов и форм афазии.

Ключевые слова: *нейропсихологическое тестирование; психометрия; качественная оценка*

Introduction

In neuropsychology, and specifically in aphasiology, there is an old controversy about qualitative versus quantitative methods of assessment (Akhutina & Melikyan, 2012; Glozman, 1999a, 1999b, 2002, 2006; Luria, 1970, 1973a; Luria & Majovski, 1977; Mikadze, 2011). This kind of “simplistic” or false dichotomy (Peña-Casanova, 2021) has obvious limitations because there is not one single method valid for all clinical or research issues (Glozman, 2002; Lezak, Howieson, Bigler, & Tranel, 2012). Standardization procedures are considered the core of reliability assessment in neuropsychology (Lezak et al., 2012).

Historically aphasia classification has been based on a qualitative approach: aphasia syndromes are characterized thanks to dissociations among different linguistic, cognitive, and neurological capacities (Lecours, Poncet, Ponzio, & Ramade-Poncet, 1979). It is also evident that symptoms (semiology) are critical in understanding the observed dissociations (Lecours & Lhermitte, 1979). In Luria’s approach the assessment aim was the definition and “qualification of the deficit” (the *Grundstörung* [basic disorder] of Goldstein) (Goldstein, 1925; Luria, 1970). This kind of proposition was considered similar to factor analysis (Luria & Majovski, 1977).

Beyond dissociations (preserved and impaired capabilities), the French school of neuropsychology introduced a vocabulary of neurolinguistics that described qualitative aspects of aphasic symptoms (Baqué, Barbeau, Sahraoui, & Nespoulous, 2016; François & Nespoulous, 2011; Lecours, Dordain, Nespoulous, & Lhermitte, 1979). The qualitative neuropsycholinguistic description of aphasic symptoms constitutes the determining aspect of the diagnosis (Diéguez-Vide & Peña-Casanova, 2012).

Aphasiology shows that the strict dichotomy “qualitative-quantitative” does not make much sense. The same quantitative score (psychometry) in a test acquires a totally different clinical value depending on the specific symptoms (semiology) observed. As much as this paper focuses on the issue of “psychometry”, semiology is inextricably linked to it. Finally, it is important to remember that cultural values always underlie the psychometric approach, especially in the case of language (Ardila, 2005). Consequently, the point is how to incorporate psychometric approaches to qualitative syndromes. The evaluation of language involves very different concepts and methods depending on the theoretical view and the practical needs of the authors.

Objective

The objective of this paper is threefold: (1) To study the metric characteristics of the tests used for the clinical evaluation of aphasias; (2) To define a methodology that allows overcoming the statistical limitations of test variables; and finally, (3) To illustrate and discuss the proposed methodology and the factors and forms of aphasia.

Methods

The methods differ according to the three objectives of the study: (1) Definition of the characteristics of the variables of language by reviewing the main aphasia tests. (2) Definition of a new methodology for the evaluation of aphasia based on the study of 100 cases. (3) Illustration and discussion of the proposed method through the selection, *ad hoc*, of three clinical cases: a phonological aphasia, a pure anomia, and a case of two-way anomia.

Development

Metric Characteristics of Aphasia Test Variables

For the definition of the metric characteristics of the variables of the aphasia tests, the following approaches and tools have been selected: (1) Luria’s basic postulates, testing, and functional “model” (Luria, 1970, 1973b, 1975), and its “quantitative” formalization (Glozman, 1999b, 2006). (2) The “model” of the Boston Diagnostic Aphasia Examination (BDAE) (Goodglass & Kaplan, 1974; Goodglass, Kaplan, & Barresi, 2001). (3) The Psycholinguistic Assessment of Language Processing in Aphasia (PALPA) (Kay, Lesser & Coltheart, 1992).

(1) Luria’s postulates and methods are described in detail in his book on traumatic aphasia (1970). Each test has the objective of assessing particular components of the complex functional system of language. The tests therefore have specific psychological and neurological (topographic) diagnostic objectives (Luria & Majovski, 1977).

In the field of Lurian neuropsychology, Glozman (1999a, 1999b, 2006) defined a method of quantification of the neuropsychological symptoms observed in the neuropsychological examination. This method allows the assignment of scores (0 — 0.5 — 1 — 1.5 — 2 — 3) to types of symptoms graded by severity. In fact, this quantitative method is based on descriptive qualitative categories. This means that the variables become “ordinal” since the categories are graded by a theoretical (not empirical) severity. In this regard, Glozman’s method is similar to certain BDAE tests such as the severity scale that establishes a graded scale of six ordinal categories (from 0 to 5).

(2) The BDAE model has three aims: “(1) *diagnosis of presence of any type of aphasic syndrome that leads to inferences concerning cerebral localization and underlying linguistic processes that may have been damaged [...]*; (2) *measurement of performance over a wide range for both initial determination and detection of changes over time*; (3) *comprehensive assessment of the patient’s assets and liabilities in all language areas as a guide to therapy*” (Goodglass et al., 2001, p. 1). The general scoring method is pass or fail, 1 point per correct item. In certain tests, however, the score is adjusted to allow for delay in responding (e.g., responsive naming approximate time to respond: 1–5 s. = 2 points; > 5 s. = 1 point; fail = 0 points).

In order to overcome the issue of aphasia tests in normal subjects who show ceiling scores (maximum scores), the authors decided to take a group of aphasics as reference. Such a decision, however, had the accompanying complication of the inclusion and exclusion criteria considered (type of aphasia, severity, location of the lesion, time of evolution, etc.). Depending on the group studied, the pathological reference would vary greatly. Furthermore, each time the reference sample was modified, the test scores would be modified accordingly.

There is still another more serious complication: how to report test results? In the first edition of the BDAE (Goodglass & Kaplan, 1974), test results were described as means and standard deviations. This was an error since the descriptive statistics of a group of unselected aphasics shows a bimodal distribution. This is so because aphasias present a series of dichotomies (e.g., cases with preserved repetition vs. cases with impaired repetition; cases with preserved comprehension vs. cases with impaired comprehension) that lead, at a minimum, to bimodality. To overcome this problem, in the second edition of the BDAE (Goodglass et al., 2001) percentiles were introduced as a quantification method.

When an aphasia battery contains tasks such as a fluency test (e.g. animal names in one minute), or complex constructional praxis tests, then normative groups and psychometry are required (Peña-Casanova, Blesa et al., 2009; Peña-Casanova, Quiñones-Úbeda, Gramunt-Fombuena, Aguilar et al., 2009; Peña-Casanova, Quiñones-Úbeda, Gramunt-Fombuena, Quintana-Aparicio et al., 2009).

(3) The Psycholinguistic Assessment of Language Processing in Aphasia (PALPA) is based on a psycholinguistic processing model (theoretical functional architecture). The model includes “boxes” (processors) and “arrows” (connectors), which represent postulates about language function. Beyond anatomy, the resulting test tries to study

each particular component of the model. As the model variables are dichotomous (again maximum scores are expected here), the group of normal controls consisted of 40 subjects. As the intention of the test is to detect problems in specific components of the model, the approach is absolutely qualitative and Lurian. The main difference between the cognitive approach and Luria's is that the latter focuses on complex functional systems.

In summary, there are two types of language test variable metrics: dichotomous and distributed (Koziol & Budding, 2009; Peña-Casanova, 2021). The characteristics of these variables will be briefly discussed in the following paragraphs.

Dichotomous variables (or “almost” dichotomous) are those in which a maximum (ceiling) or complete performance is expected in all normal subjects, that is to say, a constant score (Peña-Casanova, 2019, 2021). These tests are considered dichotomous (normal *versus* abnormal = qualitative variable), or pathognomonic (errors are indicative of brain disorders). This kind of variables have been described as Lurian as they are characteristic of the type of test used mainly by Luria's qualitative neuropsychology (Koziol & Budding, 2009). The expected constant score confers the category of “quality” to the variable. There are many tests that meet these characteristics, for example: repetition, naming of parts of the body or very common objects in daily life.

Within the scope of the dichotomy, some nuances can be recognized. Depending on the sociodemographic characteristics of the subjects studied, the “dichotomous” characteristics of a variable may be “non absolute.” Thus, there are cases in which a marked ceiling effect is observed, without the scores being strictly constant. These variables can be classified as qualitative, almost dichotomous, and can be assimilated to the previous ones.

The repetition of pseudowords is an example of such a type of test (Sánchez, Peña-Casanova, Cáceres, Quiñones-Úbeda, & Rivera, 2019). This variable is absolutely dichotomous in young subjects, while in older ones it is “quasi-dichotomous” (some errors are possible and may lack clinical value) which implies the need for normative specifications. The work of Roselli, Ardila, Florez, and Castro (1990) lie in the same direction. The youngest normative groups (regardless of schooling level) show a dichotomous score (ceiling — 10). Older subjects (over 60 years), present scores of 8 and 9 in the 10th and 20th percentiles, respectively. In this case the score is not ceiling. Consequently, scores 0–7 would fall below the 10th percentile.

A series of ordinal qualitative variables are also dichotomous. Such variables are determined, “by author's criteria,” through descriptive characteristics that have been ordered to establish an intensity scale. As previously commented, a typical example is given by the BDAE and TB-2 aphasia severity scales (Peña-Casanova, 2019; Peña-Casanova, Diéguez-Vide, Sigg, & Conesa, 2019). In this case, all normal subjects must, by definition, fall into the “normal” category. The rest of the severity categories indicate and “measure” the intensity of the aphasic disorder.

Conversion of dichotomous (Lurian) variables into Gaussian variables. In certain cases, item selection causes a variable to change from being dichotomous to Gaussian.

Thus, if a naming test includes typical and frequent elements of daily life (dog, cow, hand, eye, etc.), the expected scores will be complete (maximum, ceiling). In contrast, if a picture naming test includes elements belonging to different frequency ranges (high, medium, and low), and of differentiated cultural knowledge, the result will be a test with a distribution of scores, probably Gaussian. The typical example of this is represented by the BNT (Kaplan, Goodglass, & Weintraub, 1983, 2001). For this reason, the BNT requires adequate standardization and sociodemographic adjustments of the observed scores (Peña-Casanova, Quiñones-Úbeda, Gramunt-Fombuena, Aguilar et al., 2009). The same phenomenon is observed in constructional praxis tests: in all cases schooling (years) must be considered, including the cases of relatively “easy” items. In these cases, psychometry is mandatory.

Distributed variables. These variables show a normal or Gaussian distribution that is not necessarily perfect (negative or positive asymmetries). Scores are expressed as means, deviations, percentiles or scaled scores (ordered groups of percentiles). In many cases, moreover, raw scores are adjusted for sociodemographic factors such as age and education. For example, the BNT, as previously commented, must be adjusted for sociodemographic factors such as age and education. There are many tests that meet these characteristics, for example: semantic (e.g., animals) and category (e.g., words beginning by the sound “p”) fluencies, the BNT, Stoop Test, Trail Making Test, Rey-Osterrieth Complex Figure, Free and Cued Selective Reminding Test. Obviously, psychometrics must be complemented by a qualitative analysis, such as Luria’s method, or the Boston process approach (Kaplan, 1983; Werner, 1937). Psychometric scores alone without “qualification” make no neuropsychological sense.

The Psychometric-Ordinal Method (Categorical Grading of Pathology)

In order to overcome the “dichotomous jump” of ceiling variables in normal subjects, a psychometric-ordinal method was developed. The solution was based on the bimodal distribution of aphasic scores, taking as reference the repetition of words (Bilbao, García, & Torres, 1990; Peña-Casanova, Böhm, Villaseñor, Guardia, & Manero-Borrás, 2005).

Bimodality reflects the dichotomous axes that allow aphasic syndromes to be roughly classified, e.g., verbal expression, comprehension, repetition, and naming (Ardila & Roselli, 2019). Considering the data from the word repetition test, and for a variable with a range 0–10, a graded series of categories (inspired by Leyton, Ballard, Piguet, & Hodges, 2014) of impairment was defined (*Fig. 1*).

The maximum possible score [10] defines normality [N] (expected ceiling score in normal subjects). The following score [9] can have two meanings: L–Q (borderline [limit] — questionable), or L1 (Mild 1). L–Q, means loss of a single point without clinical significance (by definition). In the case of variables such as oral comprehension of parts of the body, which has an absolute ceiling [10], a single failure was considered mild and a score of 9 was located at L1. The G (severe [*gravis*]) score [0–4] was defined as follows: maximum possible score [10] divided by two and then one point subtracted [= 4]. It

was considered that in such simple tasks, not responding correctly to 50 % of the items signified a serious impairment.

In order to differentiate the zero score, G (gravis) was divided into G1 (4–1 scores) and G2 (zero score). Category L2 (mild 2) is defined by scores 8 and 7, while categories M1 (moderate 1) and M2 (moderate 2) are defined by scores 6 and 5 respectively. The defined categories are represented in the summary profile of the tests. The design allows the differentiation of L1 from L–Q in two different columns. Category N is located on the right, with a space (“jump”) represented by grids in which, if applicable, are the percentiles (from left to right: 80, 70, 60, 50, 40, 30, 20, 10 [L–Q]). N represents the percentile equal to or greater than 90, while L–Q represents the 10th percentile, or one error in the case of the non-strictly dichotomous Lurian tests. This information will be further discussed in the clinical cases section.

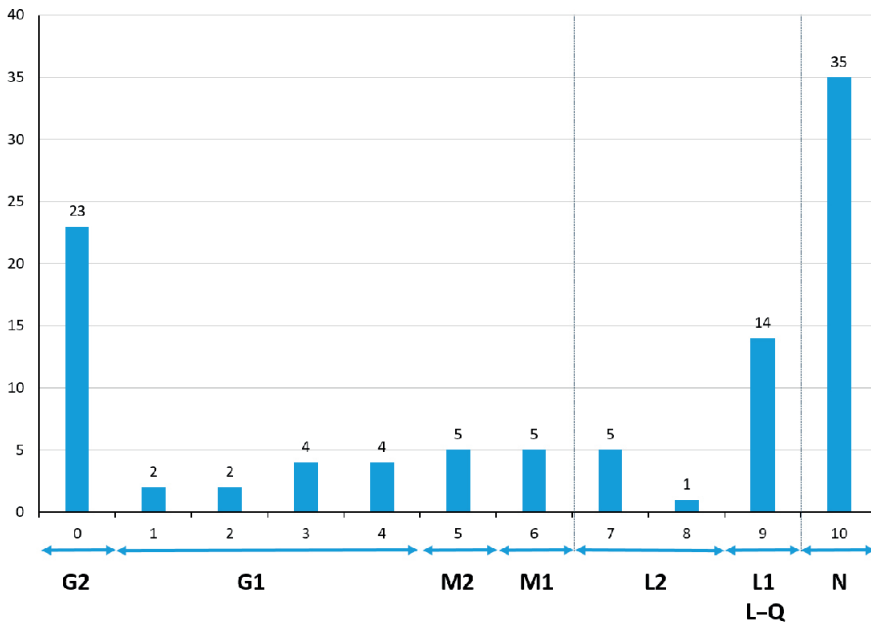


Figure 1. Bar charts of the word repetition test scores in cases of aphasia ($n = 100$). The observed distribution was bimodal. Below, and delimited by arrows, the defined psychometric categories are shown. Letter codes (from Latin language) are the following: N = normalis, normal, maximum score; L1 = levis, mild 1 / L–Q = borderline (limbus, limit) — questionable; L2 = levis, mild 2; M1 = moderatus, moderate 1; M2 = moderatus, moderate 2; G1 = gravis, severe 1; G2 = gravis, severe 2, maximum impairment, zero score

Some Illustrative Clinical Cases

We present below three illustrative cases of the psychometric-ordinal report of particular features of aphasia. We will successively depict a phonological aphasia, a pure anomic

aphasia, and a semantic anomia. All language examinations were carried out with the Barcelona Test.

Phonological aphasia. Case report. A 45-year-old man (PMDC) with higher education was diagnosed with a left parietal glioma (*Fig. 2*). The patient did not report any significant cognitive disorder, except being “tired and forgetful.” A few months before, he had presented a right paresis. The purpose of the consultation was to carry out a study in order to plan neurosurgery (cortical electrical stimulation and monitoring of language during surgery).

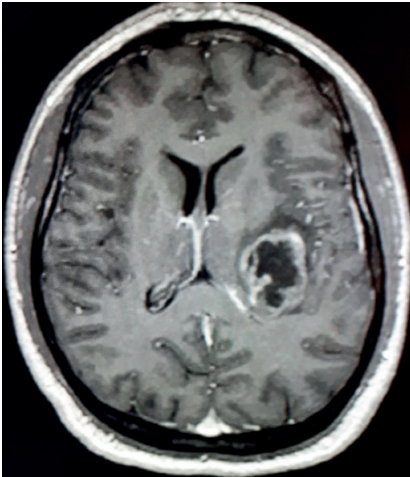


Figure 2. Left parietal (posterior insular) glioma with cortical and subcortical involvement affecting the internal capsule. Vasogenic edema and mass effect that discreetly deforms the anterior ventricular horn and occludes the posterior one

Impairment focused on repetition was observed (*Fig. 3*). The results were the following: syllables (9/10, mild), pseudowords (4/10, severe), words of minimal pairs (4/10, severe), pairs of syllables (6/10, moderate). The phenomenon of lexicalization was reported. In contrast, the repetition of words was normal (10/10), and the repetition of sentences showed a good performance (9/10), with one failure in a single sentence (of 10 words). Reading, including pseudoword reading and pointing, was absolutely normal. In contrast, pseudoword dictation was significantly impaired (4/10, severe). Word dictation and written naming were normal.

This ipsative dissociation is typical of phonological aphasia (mistakes focused on the repetition of pseudowords and assimilated elements). Comprehension was normal.

The observed pattern has a double value: on the one hand, the value of the scores *per se* (psychometry), and, on the other, the set of dissociations shown (specific problem of repetition). In other words, the profile has a quantitative diagnostic value (scores) and a qualitative one (the affected tests). Beyond the profile, however, the specific symptomatology was characterized by errors in phonemic seriation/discrimination of structures devoid of semantics (pseudowords, pairs of syllables), and in discriminatory tasks in which

The results of the test were the following: naming pictures (12/20, moderate), actions (10/20, moderate), and body parts (9/10, mild). Naming from verbal stimuli was also affected: responsive naming (8/10, mild), and closure naming (8/10, mild).

Interestingly, the verbal semantic context (response and sentence completion) improved the results. In summary, the patient was able to choose the correct object from a group of objects when given the name. In contrast he was unable to give the name of the object when it was presented in any sensory modality. Consequently, the patient presented one-way anomia (he was able to recognize the correct name offered).

The term classical anomia, was used by Geschwind (1967) to describe subjects who could not name an object but could pick the correct label from a range of possible names provided by the clinician (see Lambon-Ralph, Sage, & Roberts, 2000).

Semantic anomia: two-way anomia. Case report. A 25-year-old man (MMT) with higher education. He was referred for consultation due to language disorders as a consequence of a left temporo-parietal stroke. He presented fluent speech with semantic paraphasias, and mild to moderate disorder of verbal comprehension. Repetition was practically normal or of no clinical significance (words of minimal pairs: 9/10; sentences 9/10 [error in one sentence]). Naming tests presented the following results: objects, 9/20, severe; actions, 6/20, severe; body parts 0/10, severe. Naming from verbal stimuli was also affected: responsive naming (7/10, mild), and closure naming (9/10, mild) (*Fig. 5*).



Figure 5. Two-way anomia in the context of transcortical sensory aphasia, evolution from Wernicke's aphasia. Columns, from left to right: (1) Name of the test. (2) Possible range of scores. (3) Score obtained by the patient. (4) Category corresponding to the score obtained (result of the application of categorical rules). (5) Graphical representation (profile) of the scores shown in columns 3 and 4

The patient was unable to find the target word and also presented disorder in the recognition of the correct word offered (two-way anomia). Verbal comprehension showed the following performances: words, 8/10, mild; body parts, 8/10, mild; commands, 4/15, severe; complex sentences, 2/5, moderate. In short, verbal comprehension was mainly

in supralexical tasks (commands and complex sentences). The observed profile had the characteristics of a transcortical sensory aphasia with a two-way anomia.

Semantic or two-way anomia frequently occurs in transcortical sensory aphasia and Wernicke's aphasia, both "posterior" aphasias (Lecours & Lhermitte, 1979).

Discussion

Psychometry and Aphasia as a Qualitative Entity

A clinical form of aphasia defined through a test constitutes a qualitative pattern, whatever the form of examination. Psychometry adds systematization, objectivity, reliability, and comparability. Without systematization it is impossible to obtain homogeneous studies from which conclusions can be drawn. This also includes the specific contents of aphasia batteries (qualitative or quantitative, flexible or fixed). Thus, in the case of phonological aphasia depicted in our paper, the diagnosis could be made thanks to the inclusion of specific tests (pseudowords, etc.). Diagnoses such as deep aphasia (see Ellis & Young, 1988) can only be made through the specific symptoms observed in the repetition test (semantic paraphasias), and other symptomatology. In summary, the clinical profiles are not ecological since they only highlight dissociations, without referring to the symptoms. Nevertheless, in certain cases an ipsative analysis of test groups has considerable qualitative and diagnostic value (e.g., dissociations in the repetition test in the case of phonological aphasia presented here).

Quantification in Aphasia

For clinical and research needs quantification of the observed aphasic disorders is crucial. For example, an occasional anomia is not the same as a severe and limiting one. Nor is it the same to observe a slight disorder in verbal comprehension as to detect a practically abolished one. The key issue is how to quantify aphasic patterns since the vast majority of tests show a ceiling effect in normality (hence the qualitative or dichotomous variables).

The initial correct approach (reference aphasic group) of the Boston test (BDAE) was erroneous since z scores were applied for the graphic representation of the results. For this reason, the second edition of the BDAE changed the representation of the results to percentiles. Although percentiles have been criticized (Bowman, 2002), they are probably the best way to express psychometric results in neuropsychology (Crawford & Garthwaite, 2009).

The psychometric-ordinal method allows the systematic transformation of real scores (number of errors) into ordinal categories. The ordinal grading was carried out from the bimodal characteristics of the distributions of the scores of a group of 100 aphasias. The resulting graphs are similar to those defined by the previously developed percentile distribution (Peña-Casanova et al., 2005). This is of particular importance because it permits the avoidance of aphasics as a control group. In contrast, Gloszman's quantification method is based directly on the categorization and grading of the observed behavior, not on the psychometric number of errors.

The profiles of the cases presented in this paper show that it is possible to observe dissociations and severities of neuropsychological disorders. Obviously, profiles make sense if the semiological (symptomatic) features that characterize them are considered.

Aphasia Underlying Cognitive Processes and their Neural Substrates. Aphasia Factors

Interpretation of the relationships among clinical tests, the processes they measure, and the brain systems underlying them, is critical in order to move beyond aphasia syndrome classification towards specification of individual language process impairments (Lacey, Skipper-Kallal, Xing, Fama, & Turkeltaub, 2017). In fact, the two aspects of the issue are the test results and the cognitive processes and their biological correlates. Thus, the following questions arise: What is the affected factor or process behind the observed syndromic aphasia pattern? Can aphasias be explained by a single deficit factor?

The complexity and symptomatic diversity of most aphasic syndromes makes a simple and mono-factorial explanation difficult. For example, Broca's aphasia shows the following major symptoms: reduction with anomia, phonetic disintegration, and agrammatism. These symptoms, which can be dissociated into pure forms such as agrammatism, can hardly have a single determining factor. The same problem occurs in the case of Wernicke's aphasia and its variants. In the case of anomic aphasia or semantic aphasia, there are variants that probably recognize different pathophysiologies.

Present knowledge about the biological bases of language has developed far beyond the serial processing and corticocentric view of the previous century. The introduction of the dorsal and ventral processing streams opens new insights into the interpretation of aphasic syndromes (e.g., Friederici, 2011; Hickok & Poeppel, 2004). Moreover, the current hodological and parallel processing approach adds to the possibilities of interpretation of aphasia mechanisms (e.g., Catani & Thiebaut de Schotten, 2012). Finally, the recognition of the role of subcortical structures in cognition (Koziol & Budding, 2009), and the new perspective regarding brain functional blocks beyond Luria (Peña-Casanova & Sigg-Alonso, 2020), forces change in the interpretations of factors and anatomical correlations. It has recently been shown that in the auditory cortex cortical processing across areas is inconsistent with a serial hierarchical organization, and that there exists parallel and distinct information processing in the primary and nonprimary auditory cortices (Hamilton, Oganian, Hall, & Chang, 2021).

Valdois, Ryalls, and Lecours (1989) proposed a critical analysis of the clinical forms of aphasia recognized by Luria. These authors demonstrated in what manner and to what extent the main forms of aphasia described by Luria coincide with those characterized in other widely recognized classifications.

According to Luria, sensory aphasia (acoustic-agnosic) results from an impairment of the auditory analyzer. The primary factor underlying the symptomatology of sensory aphasia was not, however, consistently characterized. He originally considered that the fundamental defect in sensory aphasia was phonemic hearing (Luria, 1970). Nevertheless, in a paper published 1977 Luria contemplated the disorder to be secondary to a certain loss of the phonematic structure of words. This last hypothesis

goes far beyond the initially postulated impairment of phonemic hearing (Valdois et al., 1989). Luria's conception has been criticized by several authors because some of Wernicke's aphasics performed correctly on discrimination tasks, while others showed problems in discriminating phonological contrasts (Blumstein, Baker, & Goodglass, 1977). Luria also considered that a "disturbance of phonemic hearing obviously precludes understanding of the meaning of words" (Luria, 1964, p. 149). Although the phonemic hearing hypothesis cannot be discarded *a priori* (Valdois et al., 1989), most of the symptoms of sensory aphasia, such as reading, naming, writing, and spontaneous speech) could not be considered to derive from this kind of impairment. Recent studies demonstrate that Wernicke's aphasia reflects a combination of acoustic-phonological and semantic control deficits (see Robson, Sage, & Lambon Ralph, 2012).

Phonological aphasia (patient PMDC) shows the dissociation between the processing of meaningless verbal sounds (pseudowords) and real words (semantics). It is significant that the "phonological" symptomatology is also observed in dictation writing. This means that it is not reduced to an acoustic-phonological (oral) coding disorder, but a disturbance in phoneme-grapheme conversion also appears. It has already been commented that the grapheme-phoneme conversion (reading pseudowords) was normal.

Pure anomic aphasia (patient JPM) and semantic aphasia (patient MMT) present interesting dissociations. The "classical anomia" displays a profile of word-finding difficulties without impaired semantics or phonology, while the "semantic anomia" may express a degradation of semantic representations. In fact, semantic anomia can be seen in cases of Wernicke's aphasia as evolving into transcortical sensory aphasia. On the other hand, semantic anomia is typical of primary progressive aphasia resulting from atrophy of the temporal poles (see Peña-Casanova, 2019). According to Luria's conception, multidimensional featural matrices corresponding to words, include both semantic and phonemic features. Since Luria did not distinguish between meaning-based and form-based selection it led him to interpret both semantic and verbal paraphasias as reflecting a disorganization in semantic codes (Luria, 1973b). Recent studies report that there are different impairments of semantic cognition in semantic dementia and semantic aphasia, and there is evidence of an impairment of the non-verbal domain (Robson et al., 2012).

Conclusion

Without a quantitative approach it is impossible to perform certain types of analysis. Lacking psychometric scores the degree of deficit, and its evolution over time, cannot be determined. Psychometry allows systematization, objectivity of scores, reliability, and comparability. Many tests require a mandatory psychometric approach as performance depends on social and cultural factors such as age, sex, and education.

We have shown that when variables are dichotomous (Lurian), it is possible to perform an ordinal grading of the test scores. This gradation has been developed thanks

to a pilot sample of 100 aphasics. We have demonstrated that psychometry alone (scores) does not make sense in neuropsychology. The method proposed by Glozman, although similarly ordinal, works in the opposite direction. The symptom is first qualified and then assigned a numerical category. This method, although correct, lacks the traditional psychometric model.

The same score in a test can have different factors and mechanisms in its background. For this reason, as Luria postulated, all psychometric scores must be properly qualified. The clinical cases presented in this paper exemplify the problem. On the other hand, the ipsative analysis of the test results, *per se*, can lead to the recognition of qualitative profiles with a diagnostic value. This finding is evident in the case of phonological aphasia (patient PMDC).

The proposed clinical profiles, complemented with semiology, help to recognize dissociation patterns and, consequently, facilitate diagnosis. The profiles allow the visualization of the clinical course. In addition, although not the subject of this paper, numerical ordinal categories can be taken together to obtain global scores. Such scores permit mathematical (psychometric) follow-ups in cases of neuropsychological rehabilitation and pharmacological studies.

Finally, it should be noted that the most difficult issue is to ascertain the affected factor (s) (*Grundstörung*) that determines a neuropsychological syndrome. The possibilities for analysis and clinical-biological correlation have increased as a result of new technology and recent studies. The study of aphasia, thanks to the introduction of the ventral and dorsal streams, and the new approach to functional blocks, has radically changed. Consequently, the clinical forms of aphasia described by Luria can no longer be accepted as monolithic and static facts. This in no way detracts from the immense importance of his work. Luria's brilliant and comprehensive ideas about brain function continue to open new perspectives for the further development of neuropsychology.

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References

- Akhutina, T. V., & Melikyan, Z. A. (2012). Neuropsychological Assessment: An overview of modern tendencies (dedicated to 110-th anniversary of A. R. Luria). *Clinical Psychology and Special Education*, 1(2). Retrieved from <https://psyjournals.ru/en/psyclin/2012/n2/54529.shtml> [In Russian]
- Ardila, A. (2005). Cultural values underlying psychometric cognitive testing. *Neuropsychology Review*, 15(4), 185–195. <https://doi.org/10.1007/s11065-005-9180-y>
- Ardila, A., & Roselli, M. (2019). A new classification of aphasias. In E. Labos & J. L. Nespoulous (Eds.), *Neuropsycholingüística* (pp. 89–107). Buenos Aires: Akadia. [In Spanish]

- Baqué, L., Barbeau, E. R., Sahraoui, H., & Nespoulous, J.-L. (2016). Aphasia: Cornerstones of cognitive neuro(psycho)linguistics. In M. Sato & S. Pinto (Eds.), *Traité de neurolinguistique: du cerveau au langage* (ch. 21, pp. 296–313). Bruxelles: De Boeck. [In French]
- Bilbao, S., García, M., Torres, M. (1990). Aphasia profile in the Barcelona Test (*Perfil de afasias en el Test Barcelona*). Master's Thesis. Bellaterra: Universitat Autònoma de Barcelona.
- Blumstein, S. E., Baker, E., & Goodglass, H. (1977). *Phonological factors in auditory comprehension in aphasia*. *Neuropsychologia*, 15(1), 19–30. [https://doi.org/10.1016/0028-3932\(77\)90111-7](https://doi.org/10.1016/0028-3932(77)90111-7)
- Bowman, M. L. (2002). The perfidy of percentiles. *Archives of Clinical Neuropsychology*, 17(3), 295–303.
- Catani, M., & Thiebaut de Schotten, M. (2012). *Atlas of human brain connections*. New York, NY: Oxford University Press.
- Crawford, J. R., & Garthwaite, P. H. (2009). Percentiles please: The case for expressing neuropsychological test scores and accompanying confidence limits as percentile ranks. *The Clinical Neuropsychologist*, 23(2), 193–204. <https://doi.org/10.1080/13854040801968450>
- Diéguez-Vide, F., & Peña-Casanova, J. (2012). *Brain and Language. Neurolinguistic symptomatology*. Madrid: Panamericana. [In Spanish]
- Ellis, A. W., & Young, A. W. (1988). *Human cognitive neuropsychology*. Hove, UK: Psychology Press.
- François, J., & Nespoulous, J.-L. (2011). The architecture of production and reception processes: (Neuro) psycholinguistic aspects. In *Mémoires de la Société de Linguistique de Paris. L'architecture des théories linguistiques, les modules et leur interfaces* (vol. 20, pp. 205–239). Leuven: Peeters. [In French]
- Friederici, A. D. (2011). The brain basis of language processing: From structure to function. *Physiological Reviews*, 91(4), 1357–1392. <https://doi.org/10.1152/physrev.00006.2011>
- Geschwind, N. (1967). The varieties of naming errors. *Cortex*, 3(1), 97–112. [https://doi.org/10.1016/S0010-9452\(67\)80007-8](https://doi.org/10.1016/S0010-9452(67)80007-8)
- Glozman, J. M. (1999a). *Quantification of neuropsychological assessment data*. Moscow: Center for Therapeutic Pedagogy. [In Russian]
- Glozman, J. M. (1999b). Quantitative and qualitative integration of Lurian procedures. *Neuropsychology Review*, 9(1), 23–32. <https://doi.org/10.1023/A:1025638903874>
- Glozman, J. M. (2002). The quantitative assessment of the data from Luria's neuropsychological assessment. *Revista Española de Neuropsicología*, 4, 179–196. [In Spanish]
- Glozman, J. M. (2006). *Quantification of neuropsychological data*. São Paulo: IPAF. [In Portuguese]
- Goldstein, K. (1925). The symptom, its origin and significance for our conception of the structure and function of the nervous system. *Archiv für Psychiatrie und Nervenkrankheiten*, 76, 84–108. <https://doi.org/10.1007/BF01814686> [In German]
- Goodglass, H., & Kaplan, E. (1974). *The assessment of aphasia and related disorders*. Philadelphia, PA: Lippincott-Williams & Wilkins.
- Goodglass, H., Kaplan, E., & Barresi, B. (2001). *The assessment of aphasia and related disorders* (3rd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Hamilton, L. S., Oganian, Y., Hall, J., & Chang, E. F. (2021). Parallel and distributed encoding of speech across human auditory cortex. *Cell*, 184(18), 4626–4639. <https://doi.org/10.1016/j.cell.2021.07.019>
- Hickok, G., & Poeppel, D. (2004). Dorsal and ventral streams: A framework for understanding aspects of the functional anatomy of language. *Cognition*, 92(1–2), 67–99. <https://doi.org/10.1016/j.cognition.2003.10.011>

- Kaplan, E., Goodglass, H., & Weintraub, S. (1983). *The Boston Naming Test: Experimental edition*. Philadelphia, PA: Lea & Febiger.
- Kaplan, E., Goodglass, H., & Weintraub, S. (2001). *The Boston Naming Test* (2nd ed.). Philadelphia, PA: Lippincott-Williams & Wilkins.
- Kay, J., Lesser, R., & Coltheart, M. (1992). *Psycholinguistic assessment of language processing in aphasia (PALPA)*. Hove: Lawrence Erlbaum Associates.
- Kozioł, L. F., & Budding, D. E. (2009). *Subcortical structures and cognition: Implications for neuropsychological assessment*. New York, NY: Springer. <https://doi.org/10.1007/978-0-387-84868-6>
- Lacey, E. H., Skipper-Kallal, L. M., Xing, S., Fama, M. E., & Turkeltaub, P. E. (2017). Mapping common aphasia assessments to underlying cognitive processes and their neural substrates. *Neurorehabilitation and Neural Repair*, 31(5), 442–450. <https://doi.org/10.1177/1545968316688797>
- Lambon-Ralph, M. A., Sage, K., & Roberts, J. (2000). Classical anomia: A neuropsychological perspective on speech production. *Neuropsychologia*, 38(2), 186–202. [https://doi.org/10.1016/S0028-3932\(99\)00056-1](https://doi.org/10.1016/S0028-3932(99)00056-1)
- Lecours, A. R., Dordain, G., Nespoulous, J.-L., & Lhermitte, F. (1979). The vocabulary of neurolinguistics. In A. R. Lecours & F. Lhermitte (Eds.), *L'Aphasie* (pp. 53–84). Paris: Flammarion. [In French]
- Lecours, A. R., & Lhermitte, F. (1979). Clinical forms of aphasia. In A. R. Lecours & F. Lhermitte (Eds.), *L'Aphasie* (pp. 337–369). Paris: Flammarion. [In French]
- Lecours, A. R., Poncet, M., Ponzio, J., & Ramade-Poncet, M. (1979). Classification of aphasias. In A. R. Lecours & F. Lhermitte (Eds.), *L'Aphasie* (pp. 111–151). Paris: Flammarion. [In French]
- Leyton, C. E., Ballard, K. J., Piguet, O., & Hodges, J. R. (2014). Phonologic errors as a clinical marker of the logopenic variant of PPA. *Neurology*, 82(18), 1620–1627. <https://doi.org/10.1212/wnl.0000000000000387>
- Lezak, M. D., Howieson, D. B., Bigler, E. D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). New York, NY: Oxford University Press.
- Luria, A. R. (1964). Factors and forms of aphasia. In A. V. S. de Reuck & M. O'Connor (Eds.), *Disorders of language* (pp. 143–161). London: Ciba Foundation Symposium.
- Luria, A. R. (1970). Traumatic aphasia: Its syndromes, psychology and treatment. The Hague: Mouton.
- Luria, A. R. (1973a). Neuropsychological studies in the USSR. A review (pt. 1). *Proceedings of the National Academy of Sciences of the USA*, 70(3), 959–964. <https://doi.org/10.1073/pnas.70.3.959>
- Luria, A. R. (1973b). *Fundamentals of Neuropsychology*. Moscow: Moscow University Press. [In Russian]
- Luria, A. R. (1975). *The main problems of psycholinguistics*. Moscow: Moscow University Press. [In Russian]
- Luria, A. R. (1977). A modern approach to the basic forms of aphasic disorders. In R. Hoops & Y. Lebrun (Eds.), *Neuropsychological studies in aphasia. Neurolinguistics series* (vol. 6, pp. 159–168).
- Luria, A. R., & Majovski, L. V. (1977). Basic approaches used in American and Soviet clinical neuropsychology. *American Psychologist*, 32(11), 959–968. <https://psycnet.apa.org/doi/10.1037/0003-066X.32.11.959>
- Mikadze, Yu. V. (2011). Methodology of neuropsychological assessment: Qualitative (metasyndromal analysis of cognitive deficit structure) and quantitative (psychometric estimate). *Psychology in Russia. State of the Art*, 4, 261–267. http://psychologyinrussia.com/volumes/pdf/2011/15_2011_mikadze.pdf

- Peña-Casanova, J. (2019). *Integrated neuropsychological assessment program. Barcelona-2 Test. Theory and interpretation. Normality semiology and neuropsychological pathology*. Barcelona: Test Barcelona Services. [In Spanish]
- Peña-Casanova, J. (2021). Qualitative and quantitative neuropsychological assessment: A false dichotomy. *Lurian Journal*, 2(3), 139–142. <http://dx.doi.org/10.15826/Lurian.2021.2.3.13>
- Peña-Casanova, J., Blesa, R., Aguilar, M., Gramunt-Fombuena, N., Gómez-Ansón, B., Oliva, R., ... Sol, J.M. (2009). Spanish multicenter normative studies (NEURONORMA Project): Methods and simple characteristics. *Archives of Clinical Neuropsychology*, 24(4), 307–319. <https://doi.org/10.1093/arclin/acp027>
- Peña-Casanova, J., Böhm, P., Villaseñor, T., Guardia, J., & Manero-Borrás, R. M. (2005). Aphasia prophile from the Barcelona Test. In J. Peña-Casanova (Ed.), *Perfil de afasias del Test Barcelona. Programa integrado de exploración neuropsicológica. Test Barcelona-Revisado. Normalidad semiología y patología neuropsicológicas* (pp. 49–58). Barcelona: Masson, SA. [In Spanish]
- Peña-Casanova, J., Diéguez-Vide, F., Sigg, J., & Conesa, G. (2019). Module 1. Oral language — orientation — attention. In J. Peña-Casanova (Ed.), *Programa integrado de exploración neuropsicológica. Test Barcelona-2. Teoría e interpretación. Normalidad semiología y patología neuropsicológicas* (pp. 108–248). Barcelona: Test Barcelona Services. [In Spanish]
- Peña-Casanova, J., Quiñones-Úbeda, S., Gramunt-Fombuena, N., Aguilar, M., Casas, L., Molinuevo, J.L., ... Sol, J.M. (2009). Spanish multicenter normative studies (NEURONORMA project): Norms for Boston Naming Test and Token Test. *Archives of Clinical Neuropsychology*, 24(4), 343–354. <https://doi.org/10.1093/arclin/acp039>
- Peña-Casanova, J., Quiñones-Úbeda, S., Gramunt-Fombuena, N., Quintana-Aparicio, M., Aguilar, M., Badenes, D., ... Blesa, R. (2009). Spanish multicenter normative studies (NEURONORMA project): Norms for verbal fluency tests. *Archives of Clinical Neuropsychology*, 24(4), 395–411. <https://doi.org/10.1093/arclin/acp042>
- Peña-Casanova, J., & Sigg-Alonso, J. (2020). Functional systems and brain functional units beyond Luria, with Luria: Anatomical aspects. *Lurian Journal*, 1(1), 48–76. <http://dx.doi.org/10.15826/Lurian.2020.1.1.6>
- Robson, H., Sage, K., & Lambon Ralph, M. A. (2012). Wernicke's aphasia reflects a combination of acoustic-phonological and semantic control deficits: A case-series comparison of Wernicke's aphasia, semantic dementia and semantic aphasia. *Neuropsychologia*, 50(2), 266–275. <https://doi.org/10.1016/j.neuropsychologia.2011.11.021>
- Roselli, M., Ardila, A., Florez, A., & Castro, C. (1990). Normative data on the Boston Diagnostic Aphasia Examination in a Spanish-speaking population. *Journal of Clinical and Experimental Neuropsychology*, 12(2), 313–322. <https://doi.org/10.1080/01688639008400977>
- Sánchez-Benavides, G., Peña-Casanova, J., Cáceres, I., Quiñones-Úbeda, S., & Rivera, N. (2019). *Integrated Neuropsychological Assessment Program. Barcelona-2 Test. Normative Data*. Barcelona: Test Barcelona Services. [In Spanish]
- Valdois, S., Ryalls, J. & Lecours, A. R. (1989). Luria's aphasiology: A critical review. *Journal of Neurolinguistics*, 4(1), 37–63. [https://doi.org/10.1016/0911-6044\(89\)90004-3](https://doi.org/10.1016/0911-6044(89)90004-3)
- Werner, H. (1937). Process and achievement: A basic problem of education and developmental psychology. *Harvard Educational Review*, 7, 353–368.

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Obsessive-Compulsive Disorder in the Context of Neurosciences and a New Clinical Practice

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Обсессивно-компульсивное расстройство в контексте нейронауки и новой клинической практики

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Abstract. On human mental activity, the cellular orientation by R. Virchow is no longer so heuristic. The cell (neuron) is not the unit of mental life, but human activity. Plasticity depends not only on genetics, proteins, information in the DNA inside neuron or other cells, but it depends also on the object-oriented activity performed by the individuals in ontogenesis. More and more information from neuroscience and molecular biology and molecular genetics, helps to build our understanding on human mind and behavior. Advances in science pushed us to rethink our clinical practice. Vygotsky's cultural-historical and activity theory seems consistent in the integration of neurosciences with psychological science, is the fact that is a monistic approach. We illustrate our idea with a clinical case of a man diagnosed by psychiatry with obsessive-compulsive disorder (OCD). The neuropsychological education program includes the methodology of neuropsychological rehabilitation proposed by A. R. Luria and mental human developmental (step-by-step) theory of P. Galperin. The prevalence of OCD is high, and remission rates are extremely low (at 15 years, 60 % continue to show the symptoms). The results with the clinical case presented here, as well as in several hundred other clinical cases are encouraging. Vygotsky's cultural-historical and activity theory seems to be a good proposal for a new clinical practice in clinical psychology and psychiatry. This article is an invitation to other colleagues to experiment the same methodology, in other clinical centers

and even in other countries, in the sense that we study the possibility of this being an efficient and effective response that we intend to have available to our clients.

Keywords: *obsessive-compulsive disorder; historical-cultural neuropsychology; rehabilitation; formation of mental actions; neurosciences; psychiatry*

Аннотация. В отношении психической деятельности человека клеточная теория Р. Вирхова уже не столь эвристична. Не клетка (нейрон) является единицей психической жизни, а деятельность человека. Пластичность зависит не только от генетики, белков, информации в ДНК внутри нейрона или других клеток, но и от объектно-ориентированной деятельности, осуществляемой индивидами в онтогенезе. На данных нейронауки, молекулярной биологии и молекулярной генетики основывается наше понимание человеческого разума и поведения. Научные достижения подталкивают нас к переосмыслению клинической практики. Культурно-историческую теорию Л. С. Выготского можно считать последовательной в интеграции нейронаук с психологической наукой, так как она является монистическим подходом. Программа нейропсихологического обучения включает в себя методологию нейропсихологической реабилитации, предложенную А. Р. Лурия, и теорию психического развития человека («шаг за шагом») П. Гальперина. Мы иллюстрируем нашу идею конкретным клиническим случаем (мужчина, которому психиатры поставили диагноз «обсессивно-компульсивное расстройство», ОКР). Распространенность ОКР высока, а уровень ремиссии крайне низок (в 15 лет симптомы сохраняются у 60 %). Результаты клинического случая, описанного здесь, а также нескольких сотен других клинических случаев обнадеживают. Культурно-историческая концепция Л. С. Выготского представляется хорошим предложением для новой клинической практики в клинической психологии и психиатрии. Статья является приглашением для наших коллег к экспериментам с использованием данной методологии в других клинических центрах и даже в других странах, поскольку это может оказать эффективную помощь клиентам.

Ключевые слова: *обсессивно-компульсивное расстройство; историко-культурная нейропсихология; реабилитация; формирование умственных действий; нейронауки; психиатрия*

Introduction

The word neuroscience is very important in psychology. It remembers the ideas from A. R. Luria, A. N. Leontiev and L. S. Vygotsky, sometimes misunderstood by psychologists. A large group of psychologists never spends time trying to understand the contributions of these important engineers of psychological science. And because of it, we continue to have crisis in psychology as Vygotsky wrote in 1927, in his beautiful and important text *The Historical Meaning of Crisis in Psychology* (Quintino-Aires, 2016a). In last two decades we receive from neuroscience important reports, articles and even books that show us

the same ideas as Luria's, Vygotsky's and Leontiev's introduced us. And now, I believe, it is easier to charge, to prepare, to do an upgrade of our psychological clinical practice.

The XX century was a technological century. Today, we live in Moral Sciences XXI century, when we are concerned and involved to understand behavior in a different way, as a technology was understood different in the last century. We have more and more information from neuroscience, and more information from molecular biology and molecular genetics. This new knowledge helps to build our understanding on human mind and behavior.

Brain has an enormous plasticity. Plasticity depends not only on genetics, proteins, information in the DNA inside neuron or other cells, but it depends also on the object-oriented activity performed by the individuals in ontogenesis. Object-oriented activity is mandatory for neuroplasticity. Brain of human-beings is the same, from the point of genome, today or 400.000 years ago (Tyler-Smith, 2002). But activity we ask to our children, adolescents, or adults, it is very different. Regulatory activity, for example, is today absolutely asked to our children. But not once distant in ancient time. So, on construction of brain, which depends on activity not only from molecular information inside cell, but object-oriented activity should also receive our attention to understand and explain cognition and behavior.

To become a healthy citizen, depends more on personal activity history that genome. The brain is a self-regulated and self-controlled organ, which develops and works similarly to the Prigogine's theory of dissipative structures, that is, it has a historical nature (Ardila, 2018; Firth et al., 2019; Maguire et al., 2003; Maguire, Woollett, & Spiers, 2006). Brain will construct itself to respond the activity asked to each one. Particularly, the frontal cortex of brain is extremely dependent from the different kind of activities in the history of each person. Activity is also important to rebuilding brain, and in the possibility to reduce or loss the participation of some important parts of the brain (Grote & Hannan, 2007; Hastings, Tanapat, & Gould, 2001; Kempermann, 2015; Montoya, 2010).

This information must be integrated into our clinical reasoning when a client comes to us with complaints such as anxiety, depression, inability to argument or say no, inability to speak and talk with friends, inability to solve even simple questions. Even when we refer to smart people with professions that require high academic level, it means, in cognitive domain they are pretty good, but if unable to get a job, for example, because anxiety turn them unable to working.

Janna Glozman (2020), in an article on history of neuropsychology, shows that today neuropsychology is no longer focused on the study of the brain to understand mental activity (studying the brain's organization of mental activities), nor on the study of mental activity to understand the brain (studying mental disorder syndromes), but the interaction of the brain and mental activity in society (studying patients with mental disorders in the real world).

The advance of knowledge in science pushed us to rethink our clinical practice, that throughout the 20th century seemed insufficient for us. In universities, at psychology departments, contradictory theoretical approaches coexisted (Quintino-Aires, 2016a),

without this fact seeming to bother those who worked there, and despite a clinical practice not based on evidence. In psychiatric departments, we come across lists of infinite signs and symptoms tentatively grouped into syndromes, plus some knowledge of pharmacology, without a complete psychopathological theory, organizing all information.

So it is important in our days to come back to B. Zeigarnik (1976) and read her books, so we can remember that psychology is the basis of psychiatry. “Insufficient psychological preparation can lead to serious errors, a simplistic point of view on complex psychic phenomena, or erroneous deductions” (p. 9).

Cellular and molecular medicine school by R. Virchow is very important. What medicine did in the last 100 years, it would be impossible without the study of the cell. This, when we speak about heart, liver, pancreas, skin, bone, blood, etc. When we speak about psychological activity, human mental activity, we have important question about this proposal. On human mental activity, the cellular orientation by R. Virchow is no longer so heuristic. The cell is not the unit of mental life, but human activity. And then, should we try to find more information from genome and molecular biology, or should we put our attention in extra-cortical origin of psychological systems, as proposed by L. Vygotsky (1930/1996)?

A. R. Luria (1987) presented the Vygotsky’s idea: “In order to explain the most complex forms of human conscious life, it is essential to leave the limits of the organism, to look for the origins of this conscious life and ‘categorical’ behavior, not in the depths of the brain or soul, but of all, of relational life, in the social-historical forms of human existence” (p. 21). This idea was not as strong in international science in that time as it is today, even because the same idea is now presented by neurosciences. We have no more why to continue to hesitate, and not put our attention in these words of L. Vygotsky and change our clinical practice (almost nothing based on evidence), and to provide good services to our clients.

It is impossible to psychologists or psychiatrists to continue without realizing images like the one published by B. D. Perry (2004). TC scan shows the clear differences between the brain morphology of two three-year-old children. One, growing up in a family, the other neglected in an institution for orphaned children. The neurosciences have given us information showing that activity is the unit that allows us to understand, and interfere as clinicians, in the brain as the organ of mental activity, and work to promote mental health.

Neurosciences teaches us that what is unique about the brain, which makes it different from any other organ in the body, is its ability to transform. The brain does it itself, to do what somebody ask it to do. Of course, the society and culture change, and what somebody ask the brain to do would be different. A. N. Leontiev wrote: “The cortex of the human brain [...] it has become [...], an organ capable of forming functional organs” (Leontiev, 1981, p. 271). This idea should be included in our clinical practice.

A. R. Luria (1987) wrote: “Attempts to search for the material substrate of consciousness at the level of the individual synapse or neuron (a level that, of course, plays a very important role in the basic physiological mechanisms, essential for all psychological

activity) are beginning to be totally useless” (p. 22). It is consequently necessary to look for new clinical practices, and the information from the neurosciences can guide us to focus these new practices in the activity.

In fact, neurosciences today, such as cultural-historical and activity theory in the past. When we do research on articles on neuroscience and cognition or behavior, published during the last year of 2020, we find that we can group them into three themes: brain plasticity, systemic organization, and extra-cortical principle. Exactly the three pillars that support the Vygotsky’s cultural-historical and activity theory (Akhutina, 2003; Glozman, 2020; Semenova & Kotik-Friedgut, 2021).

Another aspect that makes Vygotsky’s cultural-historical and activity theory more consistent in the integration of neurosciences with psychological science, is the fact that is a monistic approach. In its conceptualization, it does not separate mind and brain as different substances, as in classical approaches, whether cognitive-behavioral, psychoanalysis, existentialism, gestalt, etc. On the contrary, mind and brain are different categories of the same substance (Quintino-Aires, 2016a; Robbins, 2003; Vygotsky, 1930/1996).

Virchow’s cellular theory is very useful in medicine, but not in mental health. And a clinical practice in mental health that is effective and efficient must look for a different path. Is in this position that we ask if could a cultural-historical and activity theory be a new proposal in the field of psychiatry, clinical psychology, and psychotherapy?

Neuropsychological Education as a Therapy Methodology in Mental Health

In Vygotsky Institute, in Portugal, we realized that in the different syndromes studied and worked in mental health clinical practice, it is possibly made two groups. Some disorders (congenital hypothyroidism, Prader-Willi syndrome, Down’s syndrome, Angelman syndrome, X fragile syndrome, delirium, etc.), it affects primarily, not only nervous system but also other systems or organs, like endocrine, respiratory, cardiovascular, etc. Other pathologies (anxiety, depression, bipolar disorder, schizophrenia, etc.) affect, primarily, only nervous system. It’s a very important difference, because most proteins are not specific from one tissue or organ. And we have some pathologies like autism spectrum disorders, social behavioral disorders, attention deficit hyperactivity disorder, etc., that scientists find changes in anatomy and chemistry only in the central nervous system (CNS).

So, it can mean that these two groups may receive different orientations in the therapeutic intervention, as they will certainly also have different “natures.” In the first group, morphological and molecular changes found will have their origin in the genome (all the hereditary information of an organism that is encoded in its DNA), giving rise to structural and functional proteins that disrupt mental and cognitive development and functioning. In the second group, morphological and functional changes are originated from oriented and related (social) activity, and therefore, an extra-cortical, or extra-brain,

origin. They are different groups, with different mechanisms of pathogenesis, and for this reason they must also receive different therapeutic proposals.

In Vygotsky Institute we consider the first group as medical group, pathologies depending on genome and specific proteins pathogenesis. And in the second group, a psychological group of disorders, depending on socially oriented activity, that generates different brain morphologies and biochemistries, compromising mental health. So, the first group, which we consider in biological frames, should benefit with medical intervention plus psychological. And the second group, in psychological frames, should benefit with psychological (historical-cultural) intervention plus medical intervention.

We decided to give in cases of anxiety, obsessive-compulsive disorders, depression, ADHD, etc., the same proposal from neuropsychological rehabilitation. To choose activities and design programs in a neuropsychological education plan (the context of human development, not about medical treatment), we used the original neuropsychological rehabilitation proposed by A. R. Luria, and presented in his books (Luria, 1963, 1966a, 1966b, 1970). Regardless of diagnosis of each patient, and in the path proposed by A. R. Luria for neuropsychological rehabilitation, with each patient carrying out a neuropsychological investigation (assessment), before designing a specific therapeutic plan, to meet syndromic analysis, analysis of the psychological structure (of the client), and the activity structure analysis of the activity exercises to include in that individual patient's neuropsychological education plan.

In the procedure of conducting a neuropsychological education session, we include the mental human developmental (step-by-step) theory of P. Galperin (Engeness, 2020a, 2020b, 2020c, 2020d; Galperin, 1969). As we have already had the opportunity to mention in other published works (Quintino-Aires, 2012, 2016b, 2020a, 2020b, 2021). A. R. Luria's conceptual proposal for neuropsychological rehabilitation is well known to those who work in the clinic. The step-by-step theory of P. Galperin is less known, as it has been used more in pedagogy than in clinical practice. For this reason, we will make a brief presentation on how we understand and apply this approach in practice.

P. Galperin's Theory in Neuropsychological Education Practice

P. Galperin (1902–1988) tried to explain how the process of forming internal mental actions during development takes place, that is, the steps through which the action goes through the process of appropriation by the individual, in the attempt (achieved) to guide the process in a more effective way pedagogically. Galperin worked within Vygotsky's theory, and in Leontiev's theory of activity. But it unfolds, explaining each one, the stages of transformation from intersychic to intrapsychic. Galperin developed “a theory to explain the ontogenetic development of psychic reality, that is, the assimilation by man of the historical-social experience and culture” (Núñez & Ramalho, 2018, p. 11). The theory operationalizes the how mental processes and the laws of their formation are formed (theoretical contribution) and presents methodological principles for effectively

organizing teaching and learning processes (methodological and practical contribution), which we adopt in neuropsychological education (habilitation). From the beginning, we believed that this would be the guidance we needed to work with clients.

Within this approach, it is understood that human action has three functional elements: guidance, execution, and control. The therapist's intervention focuses on guidance and control since execution alone can be carried out (if the purpose is transformation and development). Proper and intended execution presupposes the existence of an *Action Guiding Base (AGB)*, which is initially in the therapist's brain. In the process of skill formation, the person appropriates, in the sense of assimilation and updating, this AGB. It is this appropriation that must be directed in the therapeutical process and will allow the client (trainee) to be the one to guide and control the execution, that is, he is autonomous to execute it. The quality of the execution depends on the orientation, which must contain: (a) the content object of assimilation; (b) the representation of the final product of the action and its quality; (c) the representation of the order of actions and operations that must be carried out, and modes of action control (Núñez & Ramalho, 2018; Solovieva & Quintanar, 2018, 2019, 2020).

In Galperin's theory, the formation of new mental actions takes place in stages, which are designed to allow the passage from social to individual experience. In Vygotsky's cultural-historical and activity theory, the passage from the interpsychological plane to the intrapsychological plane, is always an expression of the construction of *brain neoformations*, new neuropsychological functional systems. In skill formation, it is first necessary to find a system of operations (action model), to represent it in materialized form, and finally to organize and develop training that leads to the realm of execution and its control.

The formation of a skill is planned in three moments: (a) initial diagnosis of the development of the skill to be formed, here the domain that the person has over the operations that enter the structure of action is established; (b) the stages of assimilation of the orientation of the action; (c) final control of the process, which more broadly should include the follow-up of the assimilation process. The objective is to diagnose the degree of real development of the skill formed, meeting the qualitative indicators established in the objectives.

Regarding the stages of assimilation of the orientation of action, and according to theory, the first is the stage of *motivation*. This is directly linked to the trainee's needs, and it is up to the therapist, usually looking at the "help request," to focus on that person's specific needs. Of course, the link between the proposed tasks and what motivated the "call for help" is almost always not immediate. It is up to the therapist to make it explicit so that the person can make the link.

The second is the *preparation phase of the AGB*. Understanding a given situation is a general task of the guiding activity, which is supposed to clearly distinguish which consecutive actions comprise it. And what is the logarithm for its execution. For this, we assume with the parents from the first day that our "material of work" includes only what has happened during a week. From the last session to this one. The events of the past,

because we do not have “a time travel machine,” would only be idealistic forms of work; that would not allow any transformation.

The third step is the *materialized orientation* step. The activity develops between client and therapist, therefore, on the inter-psychological level. Always guided by AGB, control is on the responsibility of the therapist. The cooperative, relational and guiding character is a key point in the historical-cultural approach. At this stage begins the process of assimilation, skill formation, so the AGB should progressively reduce the degree of detail.

The fourth is the *orientation stage in the form of external language*. After performing a required number of tasks with external support, and when this support can already be dispensed with, the skills training should continue with *external language guidance*. Speech is the highest means of regulating activity (Vygotsky, 1934/2001), and to achieve the autonomy that one wants to achieve, one must pass the verbal stage. Skill formation requires external and internal verbal communication, sustained by the generalizing power of the word (Núñez & Ramalho, 2018; Solovieva & Quintanar, 2018, 2019, 2020).

In this step, the activity is performed using rules and symbols (Veraksa, Quintino-Aires, Leonov, & Musálek, 2018). The tasks presented are like those of the materialized stage, but structured based on the possibilities that language (oral and written) offers. Communication, shared language, in close relation to action oriented, provides content and helps transform external action into internal action. And we remember here A. N. Leontiev’s theory of activity. A. N. Leontiev, in which Galperin’s theory begins, action, and communication form a unit (Leontiev, 1981).

This stage of external language will bring what N. F. Talízina (Núñez & Ramalho, 2018; Solovieva & Quintanar, 2018, 2019, 2020) named *reflection*, the ability to be aware of what one does, to argue and explain. Comparing its activity with the model (AGB), the client learns to regulate its actions, acquiring internal control, i. e. self-regulation. Just as in the materialized stage the external support decreases until it disappears, in the external language stage it is also going to be reduced to a mental resolution. It frees itself from external speech.

The fifth stage is the *orientation stage on the mental plane*. The action reduces and becomes *internal speech*, where the *orientation* that directs the execution and the control of the skill becomes formed. Now there is no external help whatsoever, which means that the orientation activity here is on the intrapsychological level. Once the skill is formed, it is available to integrate the formation of other skills. And the formation and development of the skill must lead one to enjoy the development that the skill offers, to recreate it, to be satisfied with personal growth.

This work of integrating the new knowledge of neurosciences into clinical practice, mediated by the Vygotsky’s cultural-historical and activity theory, it is the core of our clinical work in the context of several clinical syndromes in mental health. In the following section we share a clinical case of a man diagnosed with obsessive-compulsive disorder, worked at the Vygotsky Institute in the clinical methodology presented here.

Therapeutic Intervention in a Clinical Case of Obsessive-Compulsive Disorder

A concise description of obsessive-compulsive disorder is:

[...] a feeling of subjective compulsion — which must be resisted — to carry out some action, to dwell on an idea, to recall an experience, or ruminate on an abstract topic. Unwanted thoughts, which include the insistency of words or ideas, ruminations or trains of thought, are perceived by the patient to be inappropriate or nonsensical. The obsessional urge or idea is recognized as alien to the personality but as coming from within the self. Obsessional actions may be quasi ritual performances designed to relieve anxiety, e.g. washing the hands to deal with contamination. Attempts to dispel the unwelcome thoughts or urges may lead to a severe inner struggle, with intense anxiety. (Harrison, Cowen, Burns, & Fazel, 2018, p. 184)

Regarding the epidemiology of OCD, and based on information from the US, the report of the National Comorbidity Survey Replication (Ruscio, Stein, Chiu, & Kessler, 2010) found a lifetime risk of 2.1 %, and noted high rates of comorbidity, not only with other anxiety disorders but also with mood disorders, impulse control disorders, and substance misuse. Obsessive-compulsive symptomatology that did not meet the full criteria for DSM–IV was reported by 25 % of those surveyed, with checking and hoarding being the most common behaviours (*ibid.*). In clinic populations the female-to-male ratio is closer to 1 (Zohar, Fostick, & Juven-Wetzler, 2009).

Structural imaging in patients with OCD has revealed rather variable changes, but the most consistent are an increase in grey matter volume in the striatum and decrease in orbitofrontal, dorsomedial, and anterior cingulate cortex (Harrison et al., 2018; Yun et al., 2020). Some theories have advocated interference from circuits involving the base nuclei (Fineberg et al., 2014; Milad & Rauch, 2012), but they appear to be more theoretical and with little evidence.

The prognosis is better when there has been a precipitating event, social and occupational adjustment is good, and the symptoms are episodic. The prognosis is worse when there is a personality disorder, and onset is in childhood. Male gender, tic-related forms of OCD, and overvalued ideas about the obsessions also predict a poor prognosis. Remission rates in the first year of illness were low (16 %; what means that after one year of diagnosis 84 % proceeds with symptoms): gradually increased during follow-up, and at 15 years to just over 40 % (what means 60 % continue to show the symptoms). The presence of comorbid major depression diminished the chance of recovery. Pharmacology and classical psychotherapy proposals, such as cognitive-behavioral therapy or psychoanalysis, is not a response for this kind of disorders that are today more and more incidence this aim (Harrison et al., 2018). Of course, these data bother us, and make clinicians feel urgently needed to find new forms of therapeutic intervention.

The clinical case that I bring to this article is part of the casuistry of the clinical department of Neuropsychology and Psychotherapy at the Vygotsky Institute in Lisbon,

with about 400 cases worked on in recent years, with different syndromes, from anxiety and obsessive-compulsive disorders, depression, eating, sleep, and sexual disorders, personality disorder, reactions to stressful experiences, and in child psychiatry, conduct (antisocial or externalizing) disorders, attention deficit hyperactivity disorders, and emotional (internalizing) disorders.

Our client presented here is a young man, 19 years old. When he arrived at our institute, he had diagnosis by psychiatrist with an obsessive-compulsive disorder (OCD). In *Table* below, in the second column, the signs that he presented positive are marked with a cross. We prepared the neuropsychological education program, after syndrome analysis based on neuropsychological Luria's assessment. The methodology in this program was guided by the neuropsychological rehabilitation model of A. R. Luria and the developmental human mental (step-by-step) model of P. Galperin, both already mentioned in this article, and has already been presented in a more developed and detailed way in other publications (Quintino-Aires, 2016b, 2020a, 2020b, 2021). The materials that served as mediators of the proposed activities are simple and easy-to-build materials, which I will describe in the next section.

Materials Used in Therapeutic Intervention and Results

The tasks that constitute the activity, in this case, the rehabilitating activity, are not a prebuilt and edited kit, not even a set of tasks or activities that the therapist should follow by reading an instruction's manual. On the contrary. The therapist must have the necessary preparation to begin by conducting a client's psychological laboratory investigation, to be able to interpret the data and connect it to the complaint given by the client. And then, draw up a work plan for neuropsychological education (habilitation).

The therapist should be prepared to do the syndromic analysis (Luria, 1966a, 1966b) and identify the factors that may justify the complaint. He must have enough knowledge of systemic-dynamic neuropsychology, be able to analyze the psychological structure of his client's difficulty and understand the brain neuro-dynamics involved. This means that it is up to the therapist to design the specific work plan for that client. Each case involves the elaboration of a specific plan, which should always be reevaluated and may be reformulated at any time during the therapeutic program.

"Piano" is the use of an A4 size card which is presented to the client horizontally. On this card are small 2×2 cm squares, printed in five different colors, green, red, yellow, blue and black, randomly distributed. The direct or changed color naming, or the omission of one of the colors previously agreed upon, requires permanent inhibition of collateral stimuli.

"Control and Flexibility" originated from a proposal by H. G. Craine, H. E. Gudeman, and M. Ahn (1981). On an A4 sheet shown vertically, a table of five columns and six rows, with each cell measuring 2.5 cm sideways, has numbers from 1 to 30, distributed at random. Also, at random the numbers are printed in black, red or blue, in the form

A; and in black, red, blue, yellow, green or orange in form B. The client is told to point each number in numerical order. When finding and pointing the number the client must name, not the number, but the color in which it is printed. This implies that he has two tasks permanently in mind, and that he systematically switches from one to the other.

In “Attention 100” is indicated to the client to count from 1 to 100, saying one number out loud and the next in low voice. He is explained that when he says in a low voice he should do so as a whisper, but still the therapist must be able to hear what number is said. He is also explained that the correct procedure requires switching the focus of sound production between the mouth and throat. That is, when you say out loud think the sound coming out of your mouth; When you say in a low voice, think of the sound coming out of your throat. In guidance, the therapist can help by pointing in one’s own body to the mouth or throat, depending on whether the client should say it out loud or in a low voice. You can also use your own hands and forearms to make upward or downward movements for the same purpose. These external mediators are especially important in the early stages of the activity.

“Unfolded Speech.” The passage from internal (predicative) speech to external (discursive) speech is one of the most important mental health skills. But for a number of reasons not to be discussed here, it is more common to find people with poorly structured neoformations needed for this skill. The methodology is based on the passage from the internal synthesis of the psychological process to the regulation of this process during the speech. Particular attention is paid in the beginning to the client’s ability to “see” every single detail in the image, and the therapist works permanently so that the learner will use an Action Guiding Basis (AGB) that allows him to have a planned view of the entire drawing. For this activity we used a set of twenty cards with simple designs. It is suitable for the trainee to describe ALL what they see, and in greater detail. In counseling the therapist should present an Action Guiding Basis that helps the client make an appropriate “sweep” of the figure to meet all the details. In controlling the activity, the therapist should ask for the correction of all expressions such as “thing,” descriptions using body movements or limbs in place of words. When the client cannot find a word, it can be said by the therapist, but then repeated by the client. Each card should be worked as many times as necessary for the activity to be performed smoothly and quickly. Many colleagues, after a first realization, cover the drawing and ask the client to perform the memory activity. Here the goal is not to work on memory, but to make the trainee more attentive to details next time.

During the program designed based on the assessment carried out in January 2020, the patient was evaluated again in April and June of the same year. In this third assessment, we registered that the complaints were no longer present, so we stopped the program and scheduled a new assessment in October 2020. The results we had achieved with the program were maintained, as can be seen in the third column of *Table*.

*Table***Male, 19 years old. Obsessive-compulsive disorder. Criteria at the beginning and end of the neuropsychological education program**

Clinical features in OCD (Harrison et al., 2018)	Words from the patient. January 4th, 2020	January 4th, 2020. First assessment	October 27th, 2020. Last assessment
<i>Obsessional thoughts</i> Combination of an inner sense of compulsion and of efforts at resistance.	I have convictions, which doesn't make sense, but I can't stop.	+	-
<i>Obsessional ruminations</i> Internal debates in which arguments for and against even the simplest every day actions are reviewed endlessly.	Fear of cross the cross-walk. I justify the risk, but mathematically it doesn't make sense. I waste a lot of time and don't cross.	+	-
<i>Obsessional impulses</i> Urges to perform acts, usually of a violent or embarrassing kind (e.g. leaping in front of a car, injuring a child, or shouting blasphemies at a religious ceremony).	Self-mutilation. I know it's wrong, but I can't change it.	+	-
<i>Obsessional rituals</i> Both mental activities (e.g. counting repeatedly in a special way or repeating a certain form of words) and repeated but senseless behaviours (e.g. washing the hands 20 or more times a day).	Sequences of turning off the light in the toilet. Count to 25 before anything.	+	-
<i>Obsessional slowness.</i> Obsessional thoughts and rituals lead to slow performance, a few obsessional patients are afflicted by extreme slowness.	I spend in this much more than 2 hours of my day. Because of this, I cannot study for college or spend time with people.	+	-
<i>Anxiety</i>	Because of anxiety, I block and can't take my college exams.	+	-

End of Table

Clinical features in OCD (Harrison et al., 2018)	Words from the patient. January 4th, 2020	January 4th, 2020. First assessment	October 27th, 2020. Last assessment
<i>Depression</i>	I can't like myself physi- cally and psychologically. I never talked the least. I have no confidence because I feel that others don't like me.	+	-

Results similar cases were registered in October 2021, so we thought we could close the case.

Conclusion

We live in times of change and development. The many advances in neurosciences in recent decades encourage and allow the paradigms that we have been working on in clinical psychology and psychiatry, can, and should, be rethought, and that new approaches to be designed.

Vygotsky’s cultural-historical and activity theory, due to its conceptual structure, proved to be an excellent approach to integrate the new knowledge that neurosciences have allowed us to know with a psychological approach to mental health. The results already achieved in several hundred clinical cases are encouraging. I believe that this way we can reformulate clinical practice and offer more efficient and effective responses to our clients.

These new clinical practice proposals are even more urgent in highly prevalent clinical syndromes and conditions, for which our old therapeutic proposals result in very low remission rates, as in the case of obsessive-compulsive disorder.

This article is not, nor is it intended to be, a finished work. On the contrary, I understand it as an invitation for other colleagues to experiment the same methodology with new cases, in other clinical centers and even in other countries; it will provide a possibility of later progressing to studies that can guarantee us a new practice, based on evidence, which could be the efficient and effective response to our clients.

References

Akhutina, T. V. (2003). L. S. Vygotsky and A. R. Luria: Foundations of neuropsychology. *Journal of Russian and East European Psychology*, 41(3–4), 159–190. <http://dx.doi.org/10.2753/RPO1061-0405410304159>

- Ardila, A. (2018). *Historical development of Human cognition: A cultural-historical neuropsychological perspective*. Singapore: Springer. <https://doi.org/10.1007/978-981-10-6887-4>
- Craine, H. G., Gudeman, H. E., & Ahn, M. (1981). *The rehabilitation of brain functions. Principles, procedures, and techniques of neurotraining*. Springfield, Ill.: C. C. Thomas Publisher.
- Engeness, I. (2020a). Part 3: The study on the development of human mental activity Lecture 10. The development of mental actions and the orienting basis of actions. *Learning, Culture and Social Interaction*, 27, 100430. <https://doi.org/10.1016/j.lcsi.2020.100430>
- Engeness, I. (2020b). Lecture 11. The phases of the formation of mental actions. *Learning, Culture and Social Interaction*, 27, 100431. <https://doi.org/10.1016/j.lcsi.2020.100431>
- Engeness, I. (2020c). Lecture 12. The conditions for the development of the properties of the action. The phases of the development of the action. *Learning, Culture and Social Interaction*, 27, 100432. <https://doi.org/10.1016/j.lcsi.2020.100432>
- Engeness, I. (2020d). Lecture 13. The process of internalisation. Theoretical and practical implications of the study on the phases of the development of mental actions. *Learning, Culture and Social Interaction*, 27, 100433. <https://doi.org/10.1016/j.lcsi.2020.100433>
- Fineberg, N. A., Chamberlain, S. R., Goudriaan, A. E., Stein, D. J., Vanderschuren, L. J., Gillan, C. M., ... Potenza, M. N. (2014). New developments in human neurocognition: Clinical, genetic, and brain imaging correlates of impulsivity and compulsivity. *CNS Spectrums*, 19(1), 69–89. <https://doi.org/10.1017/s1092852913000801>
- Firth, J., Torous, J., Stubbs, B., Firth, J. A., Steiner, G. Z., Smith, L., ... Sarris, J. (2019). The “online brain”: How the Internet may be changing our cognition. *World Psychiatry*, 18(2), 119–129. <https://doi.org/10.1002/wps.20617>
- Galperin, P. (1969). Stages in the development of mental acts. In M. Cole & I. Maltzman (Eds.), *A handbook of contemporary soviet psychology* (pp. 249–273). New York, NY: Basic Books.
- Glozman, J. (2020). Neuropsychology, now and in the future. *Lurian Journal*, 1(1), 29–47. <https://doi.org/10.15826/LURIAN.2020.1.1.5>
- Grote, H. E., & Hannan, A. J. (2007). Regulators of adult neurogenesis in the healthy and diseased brain. *Clinical and Experimental Pharmacology and Physiology*, 34(5–6), 533–545. <https://doi.org/10.1111/j.1440-1681.2007.04610.x>
- Harrison, P., Cowen, P., Burns, T., & Fazel, M. (2018). *Shorter Oxford textbook of psychiatry* (7th ed.). New York, NY: Oxford University Press.
- Hastings, N. B., Tanapat, P., & Gould, E. (2001). Neurogenesis in the adult mammalian brain. *Clinical Neuroscience Research*, 1(3), 175–182. <https://doi.org/10.1016/S1566-2772%2801%2900003-2>
- Kempermann, G. (2015). Activity dependency and aging in the regulation of adult neurogenesis. *Cold Spring Harbor Perspectives in Biology*, 7(11), a018929. <https://doi.org/10.1101/cshperspect.a018929>
- Leontiev, A. N. (1981). *Psychological development*. Lisboa: Livros Horizonte. [In Portuguese]
- Luria, A. R. (1963). *Restoration of function after brain injury*. New York, NY: The MacMillan Company.
- Luria, A. R. (1966a). *Higher cortical functions in man*. New York, NY: Basic Books.
- Luria, A. R. (1966b). *Human brain and psychological processes*. New York; London: Harper & Row.
- Luria, A. R. (1970). *Traumatic aphasia: Its syndromes, psychology and treatment*. The Hague: Mouton.
- Luria, A. R. (1987). *Thought and language*. Porto Alegre: Artes Médicas. [In Portuguese]

- Maguire, E. A., Spiers, H. J., Good, C. D., Hartley, T., Frackowiak, R. S. J., & Burgess, N. (2003). Navigation expertise and the human hippocampus: A structural brain imaging analysis. *Hippocampus*, 13(2), 250–259. <https://doi.org/10.1002/hipo.10087>
- Maguire, E. A., Woollett, K., & Spiers, H. J. (2006). London taxi drivers and bus drivers: A structural MRI and neuropsychological analysis. *Hippocampus*, 16(12), 1091–1101. <https://doi.org/10.1002/hipo.20233>
- Milad, M. R., & Rauch, S. L. (2012). Obsessive-compulsive disorder: Beyond segregated cortico-striatal pathways. *Trends in Cognitive Sciences*, 16(1), 43–51. <https://doi.org/10.1016/j.tics.2011.11.003>
- Montoya, V. (2010). *Effects of cognitive training on brain circuits in children with attention deficit hyperactivity disorder through functional magnetic resonance* (Abstract of doctoral dissertation). Barcelona: Universitat Autònoma de Barcelona. [In Spanish]
- Núñez, I. B., & Ramalho, B. L. (Eds.). (2018). *Galperin and the theory of step-by-step formation of mental actions and concepts*. Campinas, Brazil: Mercado de Letras. [In Portuguese]
- Perry, B. D. (2004). *Maltreated children: Experience, brain development and the next generation*. New York, NY: W. W. Norton.
- Quintino-Aires, J. (2012). A perspective of post-classical psychology in criminal forensic investigation. In F. Almeida & M. Paulino (Eds.), *Profiling, vitimologia e ciências forenses* (pp. 17–47). Lisboa: LIDEL. [In Portuguese]
- Quintino-Aires, J. (2016a). Emptiness in psychological science and practice. *Psychology in Russia: State of the Art*. 9 (4), 16–22. <https://doi.org/10.11621/PIR.2016.0402>
- Quintino-Aires, J. (2016b). Vigotsky-Luria in clinical psychology in the 21st century. In D. Marques & J. Ávila-Toscano, *De las neurociencias a la neuropsicología* (pp. 302–385). Barranquilla, Colombia: Ediciones Corporación Universitaria Reformada. [In Portuguese]
- Quintino-Aires, J. (2020a). Heritage of Reitan and Luria to 21st century developmental neuropsychology. In D. G. Nemeth & J. Glozman (Eds.), *Evaluation and treatment of neuropsychologically compromised children* (pp. 27–52). London: Academic Press.
- Quintino-Aires, J. (2020b). What is ADHD from a historical-cultural neuropsychological perspective? Concept, diagnosis and treatment. In J. Glozman (Ed.), *Understanding children with attention deficit hyperactivity disorder (ADHA)* (pp. 23–72). New York, NY: Nova Science Publishers.
- Quintino-Aires, J. (2021). Neuropsychological education in oppositional defiant disorder. *Lurian Journal*, 2(1), pp. 42–62. <https://doi.org/10.15826/LURIAN.2021.2.1.3>
- Robbins, D. (2003). *Vygotsky's and A. A. Leontiev's semiotics and psycholinguistics: Applications for education, second language acquisition, and theories of language*. Westport, London: Praeger Publishers.
- Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R. C. (2010). The epidemiology of obsessive-compulsive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry*, 15(1), 53–63. <https://doi.org/10.1038/mp.2008.94>
- Semenova, O., & Kotik-Friedgut, B. (2021). Neuromyths in the light of the theory of systemic-dynamic brain organization of mental functions. *Lurian Journal*, 2(2), 23–45. <http://dx.doi.org/10.15826/Lurian.2020.2.2.2>
- Solovieva, Y., & Quintanar, L. (2018). Galperin's theory: Guidance for psychology and neuropsychology. In I. B. Núñez & B. L. Ramalho (Eds.), *Galperin and the theory of step-by-step formation of mental actions and concepts* (pp. 101–132). Campinas, Brazil: Mercado de Letras. [In Portuguese]

- Solovieva, Y., & Quintanar, L. (2019). *The formative methodology in cultural-historical psychology*. Madrid: GIUNTIEOS. [In Spanish]
- Solovieva, Y., & Quintanar, L. (2020). Mental actions and the problem of the stages of their formation: Following Galperin and Talizina. *Obutchénie. Revista De Didáctica E Psicología Pedagógica*, 4(1), 59–85. <https://doi.org/10.14393/OBv4n1.a2020-56472> [In Spanish]
- Tyler-Smith, C. (2002). What can the Y chromosome tell us about the origin of modern humans? In T. G. Crow (Ed.), *The speciation of modern Homo Sapiens* (pp. 93–114). London: The British Academy. <https://doi.org/10.5871/bacad%2F9780197263112.003.0012>
- Veraksa, A., Quintino-Aires, J., Leonov, S., & Musálek, M. (2018). The Vygotskian approach in physical education for early years. In N. Veraksa & A. Sheridan (Eds.), *Vygotsky's theory in early childhood education and research: Russian and Western values* (1st ed., pp. 179–190). London: Routledge.
- Vygotsky, L. S. (1930/1996). *About psychological systems* (C. Berliner, Trans.). São Paulo: Martins Fontes. [In Portuguese]
- Vygotsky, L. S. (1934/2001). *Thought and language*. (P. Bezerra, Trans.). São Paulo, Brazil: Martins Fontes. [In Portuguese]
- Yun, J.-Y., Boedhoe, P., Vriend, C., Jahanshad, N., Abe, Y., Ameis, S. H., ... Kwon, J. S. (2020). Brain structural covariance networks in obsessive-compulsive disorder: a graph analysis from the ENIGMA Consortium. *Brain*, 143(2), 684–700. <https://doi.org/10.1093/brain/awaa001>
- Zeigarnik, B. (1976). *Psychopathology*. Madrid: Akal. [In Spanish]
- Zohar, J., Fostick, L., & Juven-Wetzler, J. (2009). Obsessive compulsive disorder. In M. G. Gelder, N. C. Andreasen, J. J. Lopez-Ibor, & J. R. Geddes (Eds.), *New Oxford textbook of psychiatry* (2nd ed., pp. 767–773). Oxford: Oxford University Press.

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Possibilities of Remote Neuropsychological Work with Children: a Case Analysis

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Возможности дистанционной нейрокоррекционной работы с детьми: анализ случая

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Abstract. In the current realities of the pandemic and self-isolation, we are forced to make adjustments to the usual way of living and adapt to existing conditions. The number of children requiring neuropsychological support is not decreasing, and they have no time to wait for conditions in society to return to normal. In addition, many locations within our country have no qualified neuropsychological specialists, which many children desperately need. Therefore, an online method of neuropsychological work is the only possible way to overcome these challenges. However, in certain situations even online support is not always suitable. Some factors which influence this include; the age of the child, the severity of his/her violations, his/her emotional state and so on.

Within this article is an example of a case whereby the specialist does not participate in the remediation process by herself, but at the same time completely controls it. The format was "experimental," after neither offline nor online methods of work previously were showing significant results. Together with the mother of the child we decided to go beyond the usual interaction with the child and began to look for alternative solutions. A new method was agreed, which required huge discipline and full inclusion of the parents into the remediation process.

A study was completed that qualitatively and quantitatively estimated the effect of this format of remediation work through the dynamics of longitudinal neuropsychological observation. The obtained results indicated strong positive dynamics in the formation of cognitive, regulatory and neurodynamic functions.

The article raises an important topic of accessibility of neuropsychological support for each child who needs it. The results underline the importance of a more detailed study of remote neuropsychological work with children in the near future.

Keywords: *distance learning; online format; neuropsychological remediation; learning difficulties; longitudinal observation; parents' involvement; case study analysis*

Аннотация. В нынешних реалиях пандемии и самоизоляции мы вынуждены вносить коррективы в привычный ход вещей и приспосабливаться к имеющимся условиям. Детей, которым нужна нейropsychологическая помощь, меньше не становится, и у них нет времени ждать, когда условия вернутся к прежним. Помимо этого во многих населенных пунктах нашей страны нет квалифицированной нейropsychологической помощи, в которой многие дети так нуждаются. Поэтому онлайн-вариант нейropsychологической работы является для них единственным возможным способом преодоления трудностей. Однако и онлайн-формат работы подходит не для всех детей, что может быть обусловлено возрастом ребенка, тяжестью его нарушений, его эмоциональным состоянием и т. д.

В статье на примере конкретного ребенка описывается один из возможных вариантов дистанционной работы, при которой сам специалист не участвует в коррекционном процессе, но при этом полностью контролирует его. Формат оказался своего рода «экспериментальным», поскольку ни очный, ни онлайн-вариант работы до этого не показали значимой динамики. Совместно с мамой ребенка мы приняли решение выйти за рамки привычного взаимодействия с ребенком и начали искать другой путь. Решение было найдено, при этом требовало огромной дисциплины и полного включения родителей в процесс. Было проведено исследование, которое качественно и количественно оценило эффект такого формата коррекционной работы в динамике лонгитюдного нейropsychологического наблюдения. Полученные результаты указали на стойкую положительную динамику в формировании когнитивных, регуляторных и нейродинамических функций.

Статья поднимает важную тему доступности нейropsychологического сопровождения для каждого ребенка, нуждающегося в нем. Полученные результаты подчеркивают важность более детального изучения удаленной нейropsychологической работы с детьми в ближайшей перспективе.

Ключевые слова: *дистанционное обучение; онлайн-формат; нейropsychологическая коррекция; трудности обучения; лонгитюдное наблюдение; вовлечение родителей; анализ случая*

Introduction

Due to the circumstances of the current epidemiological situation, we have to live and work in a new way. Despite the relaxation of numerous rules in cities, some parents prefer not to put their children at risk by undertaking offline classes with specialists if there is an opportunity to study online. Others, on the contrary, categorically dismiss the option to work by using technological devices and consider the format ineffective. Many experts also

continue to argue about the effectiveness of online neuropsychological and psychological practice.

Aside from the features associated with the pandemic and post-pandemic, we should seriously consider the importance of online neuropsychological remediation for the following reason: in our country, many locations simply don't have access to certain specialists, such as neuropsychologists. Besides, many families do not have the opportunity to visit larger cities for long remediation courses, even if their child requires such assistance.

The pandemic has become a catalyst to expand the previously perceived working borders of specialist services, including neuropsychological assistance.

However, an online format is most likely not suitable for all children. This may be due to the age of the child, the severity of his/her violations, his/her emotional state and so on. The situation seems hopeless as, on the one hand, the child doesn't have an opportunity to study with a neuropsychologist in person. On the other hand, he/she is not suitable to study online. In my practice, there was one case that demonstrated the successful integration of a bespoke approach for such child — it is a focal point of the article.

Description of the Case

In November of 2019 a mother visited me with her son (8 years and 8 months) for an examination with the following complaints: "My son is restless, inattentive, impulsive and has highly chaotic actions. He also practices onanism, holds in his stool, struggles academically, has poor behavior at home/school and often argues/protests."

Anamnesis

The boy is the only son in the family, age of the mother at the time of pregnancy — 25 years, age of the father — 24 years. The parents still live together. Contraction of pyelonephritis during pregnancy. Due to an increase in leukocytes the mother received treatment in hospital. She notes one occasion of acute respiratory disease in the first half of pregnancy and constant irritability during the entire pregnancy. The child was born in the 39th week, the birth was natural with external stimulation and mechanical manipulation of the fetus. In the first year of the child's development the following was observed: motor anxiety, disruptive sleep patterns, functional immaturity of the gastrointestinal system, multiple acute viral respiratory diseases (up to 12 times per year) and angina. At 2 years old he received a mild head trauma by falling down and hitting his occipital area on the edge of the stairs. There was no apparent injury, so they did not visit the hospital.

It was difficult to estimate the early motor and speech development of the child because the mother did not remember the majority of details. From the available data on motor development: head held at 6 months, at 9 months began crawling, crawled a lot, at 12 months started to walk. Details of speech development: at 6 months basic sounds such as "ba-ba-ba," at 10 months — "mom," 2.7 years — phrases of two words, at 3.6 years "already spoke."

The mother notes that since early childhood until now her son has been left-handed.

When he was 3.6 years old, he started kindergarten, slept poorly during the day or did not sleep at all. At this time there were no signs of aggression and only hyperactivity was observed. During this period, he never visited a neurologist.

His first neurologist's appointment was at the age of 8. He was diagnosed with ADHD, encopresis and behavior disturbance (protest and defiance).

EEG results: general-volume changes of bioelectric brain activity were observed, bilaterally synchronous flashes of slow wave activity in the frontal areas, sometimes with the inclusion of sharp waves. Signs of dysfunction of the middle structures were noted. Typical epileptic activity was not registered. A further EEG examination was recommended 2–3 months later.

Ultrasound of neck and head had normal indicators.

After visiting the neurologist, the following treatment was recommended: consultation and classes with psychologist and neuropsychologist, medication: Magne B6, Fevarin, Teralijen, Picamilon, Mexidol.

According to his mother's feedback, Teralijen and Fevarin led to the following side effects: inadequate reactions and responses from the child, stubbornness, aggression and general degradation of behavior. With the help of the doctor the treatment was adjusted but his behavior did not change. Then it was decided to gradually reduce dosages, and soon the use of all medications was stopped.

After visiting the neurologist and after his recommendations they came to me for the first appointment. A full neuropsychological assessment was carried out.

Methods

While exploring the level of the formation of higher mental functions (HMF) of the child, firstly I conducted a neuropsychological examination using samples offered by A. R. Luria (1969) and adapted for children's population by J. M. Glozman (Glozman, Potanina, & Soboleva, 2008; Glozman & Soboleva, 2013) to identify the difficulties in learning and behavior caused by functional immaturity (delay in development) of certain brain structures.

Conners' scale (Conners, 1997) helped to identify the presence or absence, as well as the degree of attention deficit and hyperactivity disorder.

In the primary assessment a questionnaire of early child development (for parents) (Glozman et al., 2008) was used to identify the features of pre-, perinatal and early child development including possible problems in the family and among other children. From the assessment it was possible to reveal socio-biological risk factors of the existing disturbances of the child.

To determine the profile of the lateral organization of the child, I applied a questionnaire M. Annette and samples "clock," "telescope" (Homskaya, 2005).

The analysis of the child's medical documents was also made.

I will explain each method in more detail.

Luria's Methods of Neuropsychological Examination

In accordance with the neuropsychological test battery (Luria, 1973) for children of different ages (developed by A. R. Luria (1969) and adapted by J. M. Glozman (Glozman et al., 2008; Glozman & Soboleva, 2013), I conducted a comprehensive neuropsychological examination of children in seven areas (general characteristics of the child, neurodynamic indicators of mental activity, movements and actions, gnosis, memory, speech functions, intelligence) of mental functioning with qualitative and quantitative processing of the results of the examination (Glozman, 2012).

For quantitative evaluation, a penalty point system was used. It was based on a qualitative analysis of defects and the possibility of their correction in the conditions of Luria's dialogue interaction with the surveyed, which had the following indicators:

- 0 — error-free sample realization;
- 0.5 — single errors with self-correction or slow entry into the task;
- 1 — non-significant errors with self-correction or light stimulation by the examiner;
- 1.5 — numerous errors corrected in the external organization of the child's attention;
- 2 — multiple errors with incomplete correction even after expanded tips;
- 3 — it is not possible to perform the test with any kind of help from the researcher.

Because a different number of tests are used to study each of the functions, in order to get a penalty point for each of the studied higher mental functions, I summarized the penalty points for each test and divided the resulting sum by the number of tests. To obtain a total penalty neuropsychological score of severity of deficiency in all areas, I summarized the results for all functions. When conducting neuropsychological examinations, in addition to the quantitative penalty score evaluation, the presence/absence of symptoms of deficiency of each higher mental function was fixed in percentage of the maximum possible number of symptoms (qualitative analysis). On repeated diagnostics, I evaluated both changes in the neuropsychological pattern (decrease of percentage of detected symptoms) and decrease in their severity (penalty points).

The obtained results allow us to reveal the nature of disturbances of mental functions (neuropsychological symptoms), and not just their presence, to establish the primary disorders directly related to the disturbed factor, as well as to identify the intact links for further remediation work with the child.

Before conducting Luria's neuropsychological examination, with the help of M. Annette questionnaire (Homskaya, 2005) and additional samples "clock," "telescope" I identified lateral organization in children on hand, leg, eye and ear. The child was asked to depict with a pencil and ball various actions: "brush the hair," "brush the teeth," write something on paper, bounce the ball with one hand, cross the arms, lock fingers, jump on one leg, lean on the seat of the chair by one knee, look into the "telescope," listen how the wrist watch is ticking and answer the "ringing" phone. I will explain in a more detailed way the mental areas I have studied.

The general characteristic of the child. The assessment began by talking with the child to establish contact with him and obtain data into the sphere of his common knowledge (orientation), awareness of his problems, adequate attitude to them and

adequate behavior during the examination (surname and name, age, birthday, time of the year, place of living, with whom the child lives, names of parents, current year, month, date and day of week, what year in school the child is, names and places of parents' work, child's location at current moment, problems with which the child led to assessment — according the child's opinions). Thus, the conditions of three areas of mental functioning were estimated:

- orientation;
- adequacy;
- criticality.

Research of neurodynamic parameters of mental activity. The child performs the test by finding the numbers from 1 to 25 of the Schulte Tables as fast as possible. This test is repeated 3 times and the average time is calculated.

Research of movements and actions. In the study of motor functions in neuropsychological examination I used and evaluated the implementation of the following tests from the Luria's battery:

- Reciprocal coordination test.
- Praxis finger pose test.
- Dynamic praxis test.
- Copying of three-dimensional image of a house with two fences and a tree.
- Self-drawing and copying the table.
- Tests for the conditional choice reactions.
- Test for reproduction of rhythmic structures.

Research of gnosis. The study of gnostic functions included the following:

- Samples for subject gnosis (recognition of real and noisy images).
- Samples for acoustic gnosis.
- Recognition of spatially oriented simple shapes (Benton test).
- Test for identification of emotions.
- Test for letter gnosis.
- Test for tactile gnosis.
- Test for stereognosis.

Research of speech functions. The study of speech functions covered the following:

- Evaluation of spontaneous speech (smoothness, expansion, grammatical, and lexical correctness).
- Studying of automated (ordinary) speech.
- Studying of phonematic hearing.
- Samples for naming.
- Tests for understanding of the words (correlation with pictures).
- Tests for understanding logical and grammatical structures.
- Studying of writing of the words, phrases and text (correlation with pictures).
- Studying of the process of reading words, phrases, and text.

Research of memory. The study of amnesic functions included the following:

- Tests on auditory memory (memorization of series of unrelated words and their subsequent reproduction after heterogeneous interference).
- Test for motor memory (memorization of series of movements and their transfer to the other hand).
- Visual memory test: memorizing a series of real images in a given sequence.

Research of intellect. In the study of intellectual functions, the following tests and tasks were offered:

- Test to understand the meaning of the story.
- Test for understanding of the meaning of storyline pictures and series of storyline pictures.
- Derivation of analogies.
- Generalization and exclusion of concepts: verbal test «5th extra».
- Series counting.
- Resolving arithmetic tasks.

The Conners' Scale

Conners' scale was created to assess the presence and degree of severity of attention deficit hyperactivity disorder. This questionnaire is widely used in Russia and other countries to supplement the overall picture of the child's disease. It helps in the evaluation process; identifies children with difficulties, determines the degree of severity and it is used to create special training programs for children with ADHD; helps in the development of treatment plans, as well as assess its effectiveness.

In the assessment I used the parents' version of the scale in a short form consisting of 10 questions (*Table*), according to which parents indicate the frequency of the occurrence of a certain behavior of their child within the previous 6 months.

Table

Conners' scale, short version (for parents)

Surname, Name _____ Age _____

Below is a table displaying problems which commonly appear in children. Please rate how often they have occurred in your child over the last 6 months by placing a tick in the corresponding cell.

Observed features	Degree of feature manifestation			
	absent (0)	low (1)	quite high (2)	very high (3)
1. Motor anxiety (constantly being in movement)				
2. Irritability, impulsiveness				
3. Interference in other children's activities				
4. Frequent and quick attention switching				

End of Table

Observed features	Degree of feature manifestation			
	absent (0)	low (1)	quite high (2)	very high (3)
5. Constant fidgeting				
6. Inattention, distraction				
7. Impatience and rapid disappointment				
8. Tearfulness				
9. Fast and sharp change of mood				
10. Tendency for explosive or unpredictable behavior, other manifestations of rage				
Total amount				

Evaluation criteria of attention deficit and hyperactivity/impulsivity are supplemented by a psychometric scale: absent, low, quite high, very high. The maximum score on the scale is 30 points. A diagnostic value is the result of more than 15 points. A score from 16 to 19 indicates a mild degree of ADHD, from 20 to 24 — an average, and from 25 to 30 — a strong severity of ADHD (Conners, 1997; Passolt, 2004).

These completed forms help to identify emotional, behavioral and academic disorders. Together they help to make an exhaustive list of characteristics of the child's behavior.

Questionnaire of Early Child Development

Additional information about the child is provided by a questionnaire filled out by parents (Glozman et al., 2008). The questionnaire provides information about the structure of the family, about the features of peri-, pre-, and postnatal development of the child (that is, how was the pregnancy, childbirth and the first year of life of the child), their problems in the family and amongst other children, injuries and chronic diseases, etc.

The complaints of parents of the child's behavior and development are investigated in detail. The data reveals at what age pathological manifestations appeared first, their nature and changes in the course of the disease in the process of growth, features of development, behavior of the child, their relationship with coevals and adults, propensity to certain activities and the actual level of readiness of children for school. A separate section of the questionnaire is devoted to the peculiarities of neurological and somatic manifestations.

Since biological and social factors play an important role in the development of the child, it can be assumed that these factors become even more important in the development of problem children.

Results

These Results of Primary Neuropsychological Examination of the Child

The boy finds it difficult to adapt to the situation of the assessment, not always answering to neuropsychological questions. During the implementation of all tests the following peculiarities are revealed: a motor uncontrolled activity and constant movement, inability to hold the work posture, increased distraction from tasks, poor spatial awareness, lack of boundaries, uncontrolled behavior, provocative, inadequate emotional reactions to the situation of examination, negativity (sometimes with manifestations of aggression), low mental brain activity and its fluctuations, and rapid exhaustion were revealed. In the Schulte Tables it was advised to make only one table out of three because the fulfillment time was significantly bigger than the normative one: 207 seconds compared to the time of this age 45 (40–60) seconds (Glozman & Soboleva, 2013). From the child's perspective there is no interest in the assessment results. The process of understanding and following the instructions is very difficult, each task requires multiple explanations. The total amount of points for the Conners' scale to determine the hyperactivity is 19, which is the indicator of the presence of ADHD. Lateralization of functions is mainly performed on the right hemisphere type (the boy is left-handed), but tests to cross the fingers reveals the domination of the right hand.

Objectively revealed:

In the motor sphere — tension, symptoms of inertia inside one motor program and when switching to the second series of movements, stereotypes in dynamic praxis tests. In the graphic test there are severe disturbances of kinetic melody, dissymmetry and stable perseverations of elements, as well as the inability to hold a straight line in writing. The praxis finger poses test was not fully performed due to the refusal to fulfill it and boy's negative attitude. However, in performed tasks light search movements and synkinesis in the second hand are revealed. Strong synkinesis of the face is noticeable. Reciprocal coordination test is performed with tension, with the tendency to alter execution and/or failures in program execution. Tests for the conditional choice reactions are accompanied by a single echopraxias, corrected by the child. Reproduction of rhythmic structures according to the sample is carried out with extra impulses.

Visual gnosis is formed according to age norm. In the study of *acoustic gnosis* multiple overestimations in perception of rhythmic structures are revealed. In *literal gnosis* tests there are multiple spatial errors.

The volume of *auditory memory* of the child is significantly lower than the age norm (5 of 10 words remembered after five repetitions). Difficulties of inclusion to the amnesic process (2 reproduced words of 10 after the first presentation) were identified as well as exhaustion during memorization. The test also revealed low productivity of memorization in the process of learning words, multiple confabulations and sound and semantic substitutions during reproduction. The stability of memory traces to interference is sufficient. There are difficulties in memorization of the meaning elements of the text, even when the text is repeated.

In the study of *visual memory* there was a lack of perseverance, perceptive substitutions, difficulties in holding the stimulus sequence and the general difficulty in the following of instructions.

In the study of *motor memory* all situations of examination revealed difficulties in assimilating of motor programs (only pairing execution). Remembering of the second series of movements is carried out only with the hint of the first element.

In the *expressive oral speech* of the child, errors in the grammatical formation of statements are observed and nominative function is not formed sufficiently. Reading is by syllables, it is monotonous, without intonation, slow with guessing in some places. The handwriting is uneven. The writing contains multiple kinesthetic errors, phonemic and regulatory types, absence of highlighting the start of a sentence start, as well as a disparity in letter sizing and the inability to write in a straight line. The study of the *impressive speech* was not available fully due to the strong exhaustion of the boy, elements of negativity and his challenging behavior. It was revealed that the phonemic hearing is not fully formed.

In the *sphere of intellect* an understanding of the meaning of separated plot pictures and a series of story pictures is available. Generalization function is formed. However, the quality of tasks suffers due to the manifestations of impulsiveness. Significant difficulties are noted in operations that require calculations. The working is not automated, requires compensatory visual mediation (fingers, pencils, ruler, etc.).

Thus, the child has insufficient formation of a number of mental functions — motor sphere (kinetic, kinetic and spatial factors), literal and acoustic gnosis, auditory, visual and motor memory, as well as some speech-thinking functions — based on the neurodynamic, regulatory difficulties and psycho-emotional problems.

Figure 1 shows how the office looked like after the assessment.



Figure 1. The office after the primary neuropsychological assessment with the child

According to the results of neuropsychological examination the following *recommendations* were given to the mother:

- Consultation with a child psychiatrist.
- Remediation with a neuropsychologist.
- Individual sessions with a teacher.
- Course of family psychotherapy (parents together with a child) aimed at resolving problems of child-parent relationships.
- Sessions with child psychotherapist, aimed to work on emotional and personal problems of the child.
- Observation of neurologist.
- Systematic general-strengthening procedures aimed to stabilize the level of neurodynamics (massaging of neck area, water procedures — under the control of a neurologist).
- A favorable emotional climate and emotional support in the family and at school.
- Study — rest balance.

According to my recommendations the child with his mother visited a child psychiatrist. The child was diagnosed: “F92.9. Mixed disorder behavior and emotions not refined.” The doctor recommended hospitalization to specify diagnosis and treatment (recommendations of medications: Strattera, Fevarin, Rispolept in fluid) or the psychiatrist’s observation at the place of residence. Additional medication recommended was Driptane and Atarax. The parents refused to put the boy into the hospital, they did not accept anything from prescribed medications and they never pursued the neurologists recommendation of a control EEG.

The boy began to study with a psychotherapist to correct behavior and working on emotional and personal problems. Sessions lasted for about a month, then the parents decided to have a 10-month break before the sessions with the child resumed again. At the same time the mother worked individually with a psychologist during the year.

From the age of 9 the parents used their own initiative and the child started classes with a speech therapist regarding dyslexia (in mother’s words).

Remediation Work

58 lessons have been conducted with the child so far (20 offline sessions, 10 online sessions and 28 sessions in a special format, described below).

Work with the child began with offline neuropsychological sessions. The sessions included the methods of motor (sensomotor), cognitive, and respiratory remediation (Kurdyukova, Glozman, & Chibisova, 2010; Kurdyukova, Glozman, Shevchenko, & Konina, 2016; Pechak, Savkina, Rotar’, & Shevchenko, 2014, 2020).

The work was not easy due to the pronounced negativity of the boy and the instability of his emotional background. There was no special positive dynamics. Recommended homework was seldom performed without arguments/fights and a persistent refusal from the child to study.

Because of the pandemic and self-isolation we were forced to modify our sessions from offline into an online format. Remediation process became even more complicated. Hysterics, negativity and refusal from the sessions had not disappeared but at the same time the child got opportunity to run away from the studying room and hide somewhere in the house. We were limited with the session timing and very often at this time the boy was not in a good condition and was not ready for the remediation process. Thus, we had to look for other options of work and derived the following plan:

- a specialist writes a detailed lesson plan, makes a video of exercises if necessary and sends it to the mother;
- the mother and child perform these tasks when it is convenient for them, making a video as well, and send it to the specialist to receive feedback.

Initially the mother received such plans twice per week, then we changed this routine to once per week, and then once per fortnight, at the same time increasing the volume of tasks. According to the video reports provided by the mother the first sessions were not too different from the previous offline and online classes with the specialist. With the course of time positive work dynamics became more obvious. The child began to perform tasks with less screaming and hysterics, and then they disappeared almost all together, and appeared only in rare cases. Due to a calmer emotional background, the results of remediation work were clearly visible.

After 28 sessions in such format, we carried out a control neuropsychological assessment. The dynamics was revealed in all shown areas (*Fig. 2*).

At the same time a number of defects in each sphere has also decreased (*Fig. 3*).

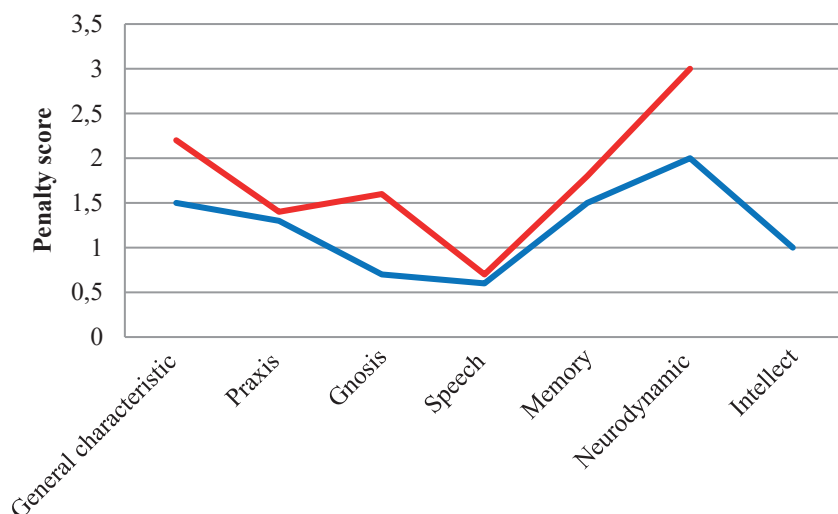


Figure 2. Comparative data of neuropsychological evaluation of the child before remediation course and after 58 sessions with him.

Note. The red line is primary assessment (average), the blue line is secondary assessment (average)

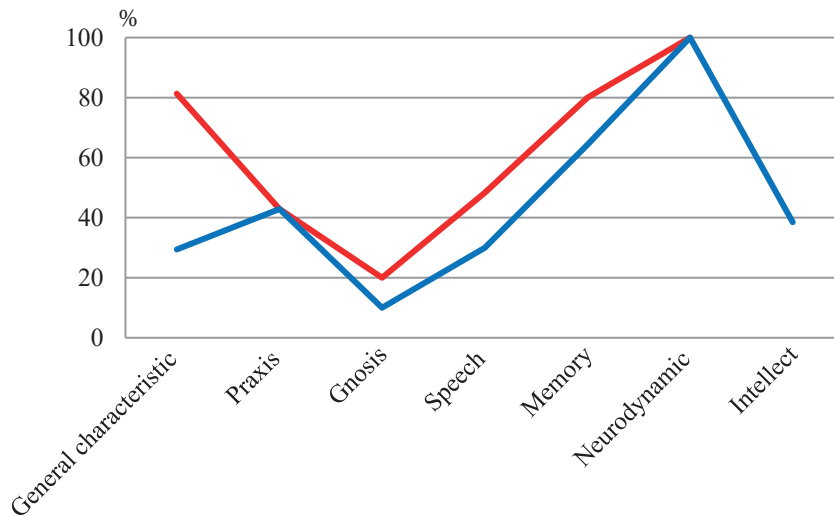


Figure 3. Representation of defects of neuropsychological evaluation of the child before remediation course and after 58 sessions with him.

Note. The red line is primary assessment (average), the blue line is secondary assessment (average)

Comparative Data of Neuropsychological Evaluation of the Child Before Remediation Course and After 58 Sessions with him

During the control neuropsychological assessment in comparison with the primary evaluation the child is completely oriented in time, is confident in telling the year, month, current date, his date of birth; as well as current time of the year and day of the week. He can objectively list some of his learning difficulties in school. During the implementation of all tests at primary evaluation the following was revealed: uncontrolled motor activity and constant movement, inability to hold the work posture, increased distraction from tasks, poor spatial awareness, lack of boundaries, uncontrolled behavior, provocative, inadequate emotional reactions to examination, negativity, sometimes with manifestations of aggression, low mental brain activity, its fluctuations and rapid exhaustion. In the control assessment all the above-described features were reduced. In addition, the efficiency of the child and activity productivity have significantly increased.

Objectively revealed:

In the *motor sphere* there is a positive dynamic in the formation of switching functions (Fig. 4) and in the development of interhemispheric interactions processes. Synkinesis became less pronounced. Yet, spatial defects can be observed but the severity of symptoms decreased.

Positive changes are visible in samples of *acoustic gnosis*. Study of the *literal gnosis* still revealed significant spatial errors and insufficient form of the image of the letter.

In *visual memory* the child could hold better the sequence of given information, there were a reduced number of perceptive substitutions.

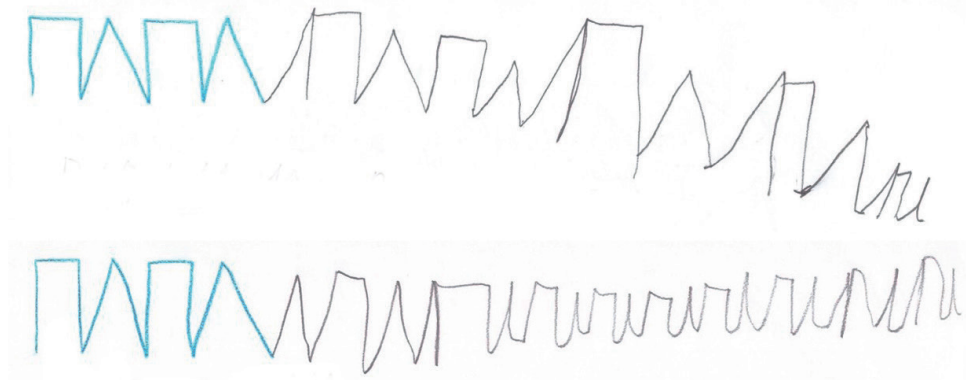


Figure 4. Dynamics of the execution of the graphical test at primary (above) and control (below) evaluations

The volume of *auditory memory* of the child is still lower than the age norm, but there was increased productivity in memorization of the process of learning and the volume of memorized information compared to primary evaluation. Repeating of the text was possible without any significant difficulties.

In *expressive oral speech* difficulties of nomination still exist. The reading is difficult in all situations of assessments — it is by syllables, monotonous, insufficiently intonated and sometimes with replacement of letters. The writing contains multiple kinesthetic errors, phonemic and regulatory types. The handwriting became smoother and clearer, the child managed to hold a straight line in writing (Fig. 4). In the *impressive speech* there still exists insufficient formation of phonematic hearing and there are still difficulties to understand logic-grammatical relations.

Mental operations are generally formed. Difficulties to interpret the meaning of plot pictures and difficulties in the categorizing of groups is connected with speech defects and pronounced symptoms of impulsiveness, which increases because of exhaustion to the end of assessment. However, compared to primary evaluation, the child managed to perform the entire proposed number of tasks, including laborious samples for thinking. Significant difficulties are still being noted in the implementation of the counting tasks. Mental calculations are automated, requires compensatory visual mediation.

Thus, we can state a *strong and persistent positive dynamics* in the formation of a number of mental functions. Due to increasing neurodynamic parameters of mental activity there is positive dynamics in the development of voluntary regulation and control processes, switching functions and inter-hemispheric interactions. We can also speak about improving spatial and kinesthetic organization of movements and actions, auditory memory and speech-thinking functions. At the same time, the process of neuropsychological remediation is not finished. The difficulties in the mental functioning of the child described above allow us to clearly identify the strategy for further work with the child.

The mother also observes a considerable progress of her son. Her opinions are the following:

- During the lessons my child became more stable with his usual movements; does not disrupt a lesson and has fewer behavioral complaints from his teacher; he became better with the multiplication table.
- He is doing well in extra classes (speech therapist, defectologist, psychologist), the specialists praise him.
- In games with other children, he has become quieter and more focused. Less impulsiveness, although still can break out sometimes. Began to talk more about life in general, not only about narrow interests like computer games. Began to express sympathy.
- Can keep the conversation going, doesn't run away. Likes to talk with adults. Asks questions, reasons. It became easier to explain something to him — he understands and memorizes.
- Learned to tie shoelaces. Can embroider a little.
- He became more responsible, remembers what and where he put things, he looks for/collects his things by himself without help from someone, feeds animals, better memorization of requests and performs orders — remembers the instructions for longer.
- He wants to do a lot of things by himself: lessons, getting ready to go somewhere and so on.
- He is more mentally stable and demonstrates patience and perseverance even when something is wrong. Except for lessons.
- Became more interested in everything around. Goes fishing with the father — before it was difficult because the boy was running around and interfered.
- Became excited to complete hobbies such as swimming, motocross and skiing.
- Became more resilient, does not get tired as he used to. Completes greater volume of homework compared to last years and quicker.

Therefore, according to the control neuropsychological assessment results and from subjective evaluation by his mother we have achieved good results and significant progress working in such “special” remote format of work.

Conclusion

Without any doubts the obtained results are based not only on neuropsychological work with the child, but also from a complex approach to the resolving of his difficulties. Neuropsychological remediation, pedagogical support, medical support, parents' work with psychotherapist on child-parent relationships, child's work with child psychotherapist on emotional-volitional personality sphere — all together allowed the child to progress.

The format of neuropsychological remediation work was kind of experimental for all participants in the process. At the time we were in the hopeless situation, when, on

the one hand, the child could not study online, and, on the other hand, he needed qualified neuropsychological assistance. “Thinking outside the box” from typical interactions with the child for remediation process allowed us to develop and successfully implement another way of work.

The results of the work showed us that the complex neuropsychological remediation in this format reveals a clear positive dynamics, and this option of work should be developed and studied, as it could be a good solution for many groups of children. An additional benefit to this format of work is that the work with the child can be completed at any time (that is comfortable for them), not only at a strictly specified time of offline/online sessions. From my point of view there is one very important nuance: the parent must have a high degree of responsibility and inclusion to the process to provide such type of work.

This article does not claim to provide a comprehensive analysis of the new work format. The obtained results mark the importance of a more detailed study of remote neuropsychological work with children in the near future.

Limitation

The limitations of the study are related to the novelty and insufficient study of this format of work and absence of sufficient sample of the subjects.

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References

- Conners, K. C. (1997). *Conners' Rating Scales-Revised: Technical manual*. North Tonawanda, NY: Multi-Health Systems.
- Glozman, J. (2012). *Neuropsychological assessment: Qualitative and quantitative evaluation of data*. Moscow: Smysl. [In Russian]
- Glozman, J., Potanina, A., & Soboleva, A. (2008). *Neuropsychological evaluation in preschool age*. St. Petersburg: Peter. [In Russian]
- Glozman, J., & Soboleva, A. (2013). *Neuropsychological assessment of school-children*. Moscow: Smysl. [In Russian]
- Homskey, E. D. (2005). *Neuropsychology* (4th ed.). St. Petersburg: Peter. [In Russian]
- Kurdyukova, S., Glozman, J., & Chibisova, M. (2010). The formation of the indicative framework and control actions as a method of remediating ADHD. In J.M. Glozman (Ed.), *Practical neuropsychology: A help to learning disable students* (pp. 207–222). Moscow: EKSMO. [In Russian]
- Kurdyukova, S., Glozman, J., Shevchenko, I., & Konina, S. (2016). The formation of the indicative framework and control actions in ADHD remediation. In J.M. Glozman (Ed.), *Practical neuropsychology: Experience of work with children having learning difficulties* (pp. 210–225). Moscow: Genesis. [In Russian]

- Luria, A. (1969). *Higher cortical functions in man and their disturbances after local brain lesions* (2nd ed.). Moscow: Moscow University Press. [In Russian]
- Luria, A. (Ed.). (1973). *Outlines of the neuropsychological assessment*. Moscow: Moscow University Press. [In Russian]
- Passolt, M. (Ed.). (2004). *Hyperactive children: Remediation of psychomotor development* (2nd ed.). Moscow: Academia. [In Russian]
- Pechak, E., Savkina, O., Rotar', M., & Shevchenko, I. (2014). Set of exercises to develop programming, regulatory, and verification functions. In J. M. Glozman & A. E. Soboleva (Eds.), *Complex remediation of learning difficulties at school* (pp. 64–91). Moscow: Smysl. [In Russian]
- Pechak, E. E., Savkina, O. M., Rotar', M. A., & Shevchenko, I. A. (2020). Developing programming, regulatory, and control functions. *Journal of Russian & East European Psychology*, 57(1), 10–14. <https://doi.org/10.1080/10610405.2020.1717847>

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SCIENTIFIC LIFE

НАУЧНАЯ ЖИЗНЬ

The 1st International Symposium on Cultural-Historical Psychology *Urgent Problems of Cultural-Historical Psychology*

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Первый международный симпозиум по культурно-исторической психологии «Актуальные проблемы культурно-исторической психологии»

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Abstract. Addressing cultural-historical psychology is one of the responses to the challenge of our time in the search for a new psychology. The appeal, “forward, back to Vygotsky,” made by A. A. Puzirey (1996) indicates the path and the final result of such a search. In the work of the symposium, the following problems of our time: crisis of modern psychology; development of personality, creativity, higher mental functions; the problem of personal freedom, especially aggravated in the context of digitalization; issues of the impact of digitalization in preschool and school education; questions of defectology and problems of training were identified. The solution of these problems is possible with the help of cultural-historical psychology.

The article contains excerpts from the speeches and presentations of the participants of the symposium.

The e-version of the video materials of the symposium is available on the Novosibirsk State Pedagogical University website: <https://cloud.mail.ru/public/smn9/wniFTMogW>. The e-version of the collected works is available on the Novosibirsk State Pedagogical University website: <https://reg.nspu.ru/sites/index.php?s=51>.

Keywords: cultural-historical psychology; personality; development; creativity and art; defectology; digitalization; training

Аннотация. Обращение к культурно-исторической психологии является одним из ответов на вызов современности — поиск новой психологии. Призыв «вперед — назад к Выготскому», сделанный А. А. Пузырей (1996), указывает на путь и конечный результат такого поиска. В работе симпозиума были обозначены следующие проблемы современности, решение которых возможно с помощью культурно-исторической психологии: кризис современной психологии; развитие личности, творчества, высших психических функций; проблема свободы личности, особенно обострившаяся в условиях цифровизации; влияние цифровизации на процесс дошкольного и школьного образования; вопросы дефектологии, проблемы обучения.

В статье представлены отрывки из выступлений и презентаций участников симпозиума.

Электронная версия видеоматериалов симпозиума доступна на сайте Новосибирского государственного педагогического университета: <https://cloud.mail.ru/public/smn9/wniFTMogW> Электронная версия сборника научных трудов доступна на сайте Новосибирского государственного педагогического университета: <https://reg.nspu.ru/sites/index.php?s=51>

Ключевые слова: культурно-историческая психология; личность; развитие; творчество и искусство; дефектология; цифровизация; обучение

Introduction

The 1st International Symposium on Cultural-Historical Psychology was held on November 17–19, 2020. About 5500 people, of which more than 300 participants from 19 countries (Australia, Belarus, Brazil, Germany, Spain, Kazakhstan, Canada, Mexico, Norway, Peru, Portugal, El Salvador, USA, Ukraine, Philippines, Finland, Czech Republic, Sweden, Japan) took part in its work. The symposium was broadcast twice a day, creating conditions for participation for people from both hemispheres.

The aim of the symposium was the development of cultural-historical psychology, strengthening international scientific cooperation, and consolidation of scientific achievements in the field of humanitarian disciplines.

The symposium attracted various specialists who made presentations. They were psychologists, clinical psychologists, neuropsychologists, teachers of preschool, secondary and higher education, defectologists, psychophysicists, geneticists, philosophers, as well as heads of organizations and parents.

The opening of the symposium was accompanied by the words of J. M. Glozman: “That day on November 17, 1896, L. S. Vygotsky was born, and traditionally, on the initiative of E. E. Kravtsova, the Readings or a conference, or a symposium named after L. S. Vygotsky start on November, 17 for many years. What cultural-historical psychology is, how it develops and its usefulness in modern times are discussed there.” According to J. M. Glozman the basic principle of constructing the symposium program was outlined by L. S. Vygotsky: “Every theoretical proposition is verified by practice [...] and its truth

is established only when the practice built on it justifies itself.” Theoretical propositions revealed in plenary reports and lectures were deepened and confirmed with the help of the results presented in session reports, collective video presentations, master classes and round tables.

Questions of the Place of Cultural-Historical Psychology in the Scientific Knowledge of the Last Century and Determining its Potential for Modernity

(1) J. M. Glozman characterized the historical conditions for the birth of cultural-historical psychology as, on the one hand, the presence of enormous tasks of studying the person's behavior and, on the other hand, the impossibility of reflexology to cope with them. She testified that L. S. Vygotsky and A. R. Luria, together, carrying out a search for a new psychology, set it the following tasks: “To study a person as an integral biological, social and psychological complex [...] to study the psyche of a real human personality as a whole, and individual mental phenomena as functions, links of this single whole organism (A. R. Luria, 1921).” S. A. Smirnov, in his report *Anthropological Turn in the 20th Century and the Place of Lev Vygotsky's Project: Lessons and a Step of Development in it* called the historical state of the beginning of the last century anthropological crisis. The representatives of various sciences tried to start thinking differently, and this “different way of thinking” consisted of overcoming all sorts of reductions and speculations, of Western and domestic speculative metaphysics and quasi-spiritual religiosity, modernity, conciliarity and total unity, all that which led away from the understanding of a man. The representatives of new thinking, according to S. A. Smirnov, during the anthropological crisis were the Bakhtin brothers, S. Eisenstein, P. A. Florensky, O. Freidenberg, M. Kagan, O. Mandel'shtam, B. Pasternak, L. Pumpyansky, G. Shpet, P. Sorokin, L. Vygotsky, and others, among Western scientists they were E. Cassirer, M. Heidegger, M. Scheler, L. Wittgenstein and others. “The main task was to develop new means of analysis that would allow a person to adequately understand himself/herself. Each representative of the anthropological turn carried out his/her own author's search for a new paradigm of thinking and action. The refusal to understand a person as an object and the refusal to reduce a person to an individual unites many of these authors. They are trying to understand a person as if rebuilding himself/herself every time.”

Comprehending how L. S. Vygotsky developed the foundations of cultural-historical psychology, G. G. Kravtsov in his report *Psychological Ways and Approaches to the Construction of Scientific Didactics* said that “L. S. Vygotsky did not have the logic of internal justification, which V. S. Bibler wrote about and L. S. Vygotsky had to create the method of psychology intuitively, from a scratch.” V. T. Kudryavtsev in his report *Cultural-Historical Psychology — The Science of Freedom* explained that L. S. Vygotsky proceeded from art, creativity, the instrument of which is freedom, and he showed that L. S. Vygotsky had his own, the third way — he was looking for objective psychology through culture.

G. G. Kravtsov emphasized in his report that “Cultural-historical theory is not a closed system, like the theory of activity by A. N. Leontiev, it is an incomplete, it is an open system. L. S. Vygotsky said that we can take any methodology and use it, it is neither the matter of methods, nor techniques, nor those accumulated data, but everything can be absorbed and subsumed, it is all about methodology [...] to reveal, to pull out a living method of cultural-historical psychology and on this basis any achievements of psychology can be absorbed, digested and successfully applied.”

(2) J. M. Glozman in the report *L. S. Vygotsky and A. R. Luria. The Miracle of Co-Creation* highlighted those necessary qualities that are the potential for creating new knowledge, the solution of contradictions of the existing situations by practice and theory. These qualities are characteristic of L. S. Vygotsky and A. R. Luria, who made it possible to create a doctrine that has survived a century and is relevant today. She marked these qualities as following:

- special sensitivity to trends in the development of science, the ability to catch “points of growth” that reveal the prospects for further scientific development;
- heuristic, ideas ahead of their time;
- the style of humanitarian thinking, interest in subjective content of mental functions, in life circumstances of a particular person and his/her role in the formation of society, a wide appeal to historical and cultural associations.

(3) In the aspect of assessing the potential of cultural-historical psychology in his lecture *Vygotsky's Legacy at the Beginning of the 21st Century: New Discoveries and New Questions* N. N. Veresov presented the disposition of views: (a) L. S. Vygotsky did not create any complete psychological system (G. S. Gurgenidze, M. G. Yaroshevsky); (b) L. S. Vygotsky managed to create a psychological system that has not yet been fully studied (A. R. Luria). N. N. Veresov pointed out that “in the 1980s and 1990s, due to the limited sources, that is, the available source texts of Vygotsky, there could not have been another, more complete and more accurate picture of cultural-historical theory (CHT) — a synthesized picture of a holistic theory. But this does not mean that such a holistic picture cannot exist now. Why? Because over the past 20 years, what I call a ‘new reality’ in relation to Vygotsky’s legacy has emerged [...]. On its basis, we can begin work on the creation and reconstruction of an integral systemic conceptualization of Vygotsky’s theory, which should give a new vision of the theory exactly as a system [...], not as a set, not as a list of insights, etc.”

We consider the designation of these possibilities of cultural-historical psychology to be the most significant, due to the fact that it allows us to both systematize the available scientific knowledge and build practice on a unified methodological basis.

The reports of B. I. Bespalov, A. A. Hoffman, N. V. Papuch, G. I. Perevozchikova, T. E. Sizikova can be viewed as indications of the ways of cultural-historical psychology development in modern conditions.

Deep study of the theory of L. S. Vygotsky, finding new works and construction of new clarifications and even discoveries have been done, for example, as N. N. Veresov did in his lecture, exploring the laws of development of higher psychological functions

in cultural-historical psychology, or as it was presented in the report by N. V. Papuch *The Hamlet of Psychology (What Actually L. S. Vygotsky Did)*.

Application of the ideas of L. S. Vygotsky is in constructing substantiations for a different developed psychological concept. In the report of B. I. Beshpalov, the possibilities for the contribution of cultural-historical psychology to the substantiation and development of the theory of life acts of people, being developed by the author were revealed.

In cultural-historical theory, those concepts that L. S. Vygotsky uses as explanatory are singled out and studied, but they were not the object of his special research. T. E. Sizikova's report showed the prospects for the development of understanding reflection from the position of modal analysis, drawing an analogy between the concepts of modality and "unit of integrity" as by L. S. Vygotsky.

(4) Application of the foundations of cultural-historical psychology in modern practice. Practical examples of scientifically grounded application of cultural-historical psychology in practice of personality development were presented in the report by G. I. Perevozchikova *Personal and Professional Education of Students in Extracurricular Activities at University by Developing Educational Environment*. She showed educational environments, organized on the basis of the Russian State University for the Humanities (RSUH), thanks to which and in which personality development and professional development are carried out. A significant contribution is the demonstration of the implementation of the principles developed by E. E. Kravtsova: (a) creating conditions for teaching in unity with upbringing, where the main mechanism is productive communication of students with each other, as well as teachers with students, activation of randomness and awareness; (b) it is necessary to create a solid psychological basis for the formation of students' professional self-awareness, since the formation of professional self-awareness is a psychological criterion for the development of a person's personality, professional self-awareness is associated with the formation of moral behavior; (c) creating conditions for the emergence of a stable image of the profession, which can be created by observing the work of different professionals. The report raised the issue of prolonging the period of childhood and indicated that the university carries out the process of growing the student up — the upbringing student initiative and responsibility — to the required psychological age.

Psychological research, the subject of which are the phenomena researched by L. S. Vygotsky is conducted, new aspects in these phenomena are identified and the influence of the factor of cultural development of mankind for almost during a century are determined. In the report of A. A. Goffman *Cultural Genesis of Intentional Forgetting: On the Way from Interpsychic to Intrapsychic Form*, the application of cultural-historical psychology in order to study intentional forgetting at all four stages of a child's cultural development was shown.

The Problem of the Subject of Psychology

As in the days of the birth of cultural-historical psychology, the problem of finding the subject of psychology is urgent.

Defining the subject of cultural-historical psychology, G. G. Kravtsov said that “only in cultural-historical psychology and nowhere else, in any other theory, the highest form of movement, development, where development would be a real object and subject of study, was not taken as a subject. L. S. Vygotsky did not distinguish between the object and the subject in cultural-historical psychology, the category of development was both an object and a subject of research, it is also the explanatory principle of his theory and the backbone of the experimental-genetic method that he proposed.”

In his lecture *Vygotsky's Legacy at the Beginning of the 21st Century: New Discoveries and New Questions* N. N. Veresov holds to the same point of view and quotes L. S. Vygotsky: “The origin and development of higher psychological functions, their composition, their method of activity and their interconnections and dependences, the laws which rule their course and their fate — all they are the exact content and true subject of these studies (Vygotsky, 2003, p. 200).” G. G. Kravtsov emphasized that L. S. Vygotsky pointed out that “development is always self-development, internally conditioned movement, which, according to B. Spinoza, is necessarily a free movement, and self-conditioned movement.”

In connection with the change in scientific rationality in modern science, psychology does not need only a new subject, but also a new vocabulary as well — this idea was pointed out by S. A. Smirnov in his report. He explained that the words *formation*, *essence*, *object*, and attempts every time to describe, package and shape a person are “the rakes and dead ends.” “The definitions of a person should move to the act of development,” S. A. Smirnov said, and that echoes the call of G. G. Kravtsov to the study exactly of the development of personality as a subject of cultural-historical psychology, which is in demand today.

The Problem of Freedom

G. G. Kravtsov quoted the following words that are in Vygotsky's notebooks: “The highest problems of psychological science are the problems of human freedom.” In traditional psychology that laid the foundation for all streams of modern psychology, there is no place for freedom. G. G. Kravtsov explained that V. S. Bibler wrote in *Thinking as Creativity* about the need for a different logic, a logic of justification not through something else, he wrote about the construction of a logic of internal self-justification, but such a logic has not yet been built.

G. G. Kravtsov said that L. S. Vygotsky was not only a Marxist, but also a “hard-core Spinozist”; a portrait of Spinoza hung over his desk. Spinoza's idea of the self-causality of movement underlies L. S. Vygotsky's understanding of personality development, “development of the personality is always self-development of the personality,” said

G. G. Kravtsov, quoting L. S. Vygotsky. Also G. G. Kravtsov pointed out that according to Spinoza, any self-determined, self-conditioned movement is free. In psychoanalysis there is no place for freedom, in role theories, where the personality is a set of roles, personality is given antipersonality. In the theory of A. N. Leontiev, where the core of the personality is the motivational-need sphere, there is no room for freedom, because everything is subordinated and explained through the logic of the other, the external, and this determinism comes from the formal logic of Aristotle, and leads to the absence of any freedom. A. N. Leontiev in his activity theory followed the track of Newtonian mechanics. The activity theory could not hold on to the methodological height that L. S. Vygotsky set by his works. None of the disciples could take from L. S. Vygotsky the thing that was the most important, but D. B. Elkonin succeeded and took the method of thinking and the method of problematization. Then he continued further that “will is a manifestation of freedom, and in the activity theory there is no will as such, there is a struggle of motives and only there it appears.”

In the report of O. V. Lukyanov *Self-determination — a Method and Subject of Educational Policy* it was indicated that “the practice of cultural-historical psychology is the practice of self-determination.”

Problems of Learning

The problem of learning has received several directions of analysis, in relation to modern conditions:

(1) The question of new scientific didactics on the example of an educational program for preschool and primary school age.

G. G. Kravtsov in his report *Psychological Ways and Approaches to the Construction of Scientific Didactics* presented the analysis of the program “Golden Key” for children of preschool and primary school age. He showed that this program is largely a response to the remark made by D. B. Elkonin, who argued that L. S. Vygotsky’s idea of the unity of affect and intellect did not receive its embodiment either in theory or in practice. D. B. Elkonin stated that in psychology, affect and intellect are split, and the very concept of personality is unjustifiably reduced to the motivational-need sphere. There is a traditional gap between education and upbringing, between family and social upbringing, and the goal of education (that is the comprehensive and harmonious development of the child’s personality) is not implemented, and is criticized, since each word must be deciphered and scientifically substantiated.

M. I. Kuznetsov revealed the embodiment of the didactic foundations of the program Golden Key in the report *Lessons from Elena Kravtsova. 25 Years of Friendly Cooperation*. He highlighted the following: family atmosphere; involvement in creativity and educating of not only children, but also their parents and relatives; groups of different ages, in which two teachers-educators work at the same time, making up a common family environment with children; the application of the method of play, for example, the game-travel

to Egypt, Greece; mastering one's own culture through comparing other cultures, balls of the Pushkin era, and more; embedding program material, corresponding to preschool and primary school age from 3 to 10 years (where age is not physical, but psychological one), into games and communication; and other things. Much work in this program was carried out on the additional education of teachers; the work has been done not only on involving educators, but also parents. Summarizing, he said about the program Golden Key: "There is a scientific group that studies personality and has achieved more understanding in it than others, there is a practical implementation of such an understanding in the form of an educational program and the basis of this program, its implementation is a mini-society."

G. G. Kravtsov pointed out, that the Golden Key program solved the issues of the unity of affect and intellect (L. S. Vygotsky) and implemented the idea of amplifying the development of children (A. V. Zaporozhets), i. e. the idea of providing children in the educational program and the system of teaching with maximum opportunities for disclosing the individuality of the child and the abilities, inherent in them. Problems of children psychological readiness to study at school have been solved. The strategic result of the 30-year work of the program turned out to be not in demand by mass educational practice, including modern ones. Modern psychology and pedagogy still rejects the systemic principles on which this educational program is built.

(2) Issues of unity and intelligence in learning.

It was indicated that L. S. Vygotsky's theory about the unity of affect and intellect is inscribed in a wide context: sociological, philosophical, anthropological, etc. The development of this theory led to the birth and development of many new theories of our time: the theory of emotional intelligence, the theory of communication, and it influenced the development of differential psychology. The report of O. M. Razumnikova *The Relationship between the Components of Emotional and General Intelligence* revealed both age-related and gender differences in the unity of affect and intelligence. In his report *The Principle of the Unity of Affect and Intellect and its Violation in the Space of Modern Information Technologies*, L. V. Menshikov showed that the means of digitalization distort the image, which is one of the main categories in this theory and cause impoverishment of thinking and, as a result, distortion of this unity. In general, the influence of values and meanings on this unity as well as alexithymia as violation of this relation were revealed.

(3) Application of the foundations of cultural-historical psychology in teaching subject disciplines.

D. V. Kashirsky showed how to influence the development of the personality of a student when teaching mathematics in his report *Development of the Personality of Students in the Process of Teaching Mathematics at School: A Cultural-Historical Approach*. D. V. Kashirsky pointed out that for L. S. Vygotsky, the main question was: "How does human development take place? How does the cultural development of personality take place?" He explained that in the 1920s and 1930s cultural-historical psychology was traditionally viewed as the basis for the design of education. D. V. Kashirsky presented

nine interconnected (intertwined) concepts of cultural-historical psychology to build their possible projections on the process of teaching mathematics at school:

- (1) “Tracing the cultural development of mental functions, we draw a path for the development of the child’s personality (Vygotsky, 2003, p. 84),” it is not possible to separate the psyche from the personality, personality from development and personality development from cultural development. The projection of this concept into the sphere of teaching practice means that any genuine knowledge is always personal; the entire didactic toolkit should be aimed not so much at transferring knowledge to students, but at interacting with the student and, thanks to it, at the development of personality; it should not be teaching mathematics, but the development of students with the help (means) of mathematics; it is necessary to find answers to the question “What are we to do with the content of education so that the student can master it?” in the process of interaction with the object of teaching and assimilating the content.
- (2) “The law of selectivity of mental activity in teaching mathematics. The projection into the sphere of practice is not the transfer of ready-made knowledge (meanings), but the creation of conditions for students to discover the meaning of the educational material; development of a need-semantic theory and methodology for teaching mathematics (a vector of movement is from sense to meaning)”.
- (3) “The general genetic law of cultural development (History of the Development of the HMF, 1983, vol. 3, p. 145). The projection means that the content of the lesson will become a personal belonging if it caused experience (in the 20s of the last century, the psychogenetic was considered through experience, if there is no experience, then there is no memory left, thinking is not active, etc., therefore it is not a coincidence that the unit of psyche analysis according to L. S. Vygotsky is experience).”
- (4) “Development of the consciousness of students at mathematics lessons. Consciousness reveals itself in numerous connections (mediations) of the subject with the world of developing human culture. L. S. Vygotsky understood consciousness as a systemic and semantic formation created by the dynamics of the HMF and expressing the unity of intellectual and emotional processes. The projection is the development of consciousness, incorporating cultural experience (mathematics, etc.); learning must be meaningful and deliberate; the result of training is qualitative changes in the content and structure of the student’s consciousness; the development of different sides of the consciousness of students is by means of reactive, spontaneous or blended learning; orientation is towards the principle of consistency in mathematics and education (mathematics is part of the cultural experience of mankind); the leading role of communication is in training (the unity of communication and training, communication and generalization).”
- (5) “The idea of instrumentality and sign mediation (or mediation, as an exit to the intermediary function of generalization (positional communication: ‘great-grand — we,’ ‘above,’ ‘under,’ etc.). The projection means that mathematics

is a science, as well as a humanitarian educational subject and a cultural tool developed in the history of mankind, a tool that can be 'discovered' by a school-child for himself 'anew' and turned into a psychological tool for the development of his personality."

- (6) "The structural-functional model of teaching is a change in interaction, when between a teacher and a student, mathematics is a cultural means in interaction."
- (7) "We believe this methodological approach can and should be transferred to other subject and metasubject disciplines in the education system and in teaching teachers, what to teach and how to teach, developing one's own personality and influencing the development of the student's personality."
- (8) "The principle of integrity. The projection is to teach methods, ideas (one task and several ways to solve it is better than one way and many similar tasks); show how ideas add up to one system; show different interpretations of the same mathematical problem in different languages of description (the idea of 'transfer,' transformation of material, which gives development in teaching)."
- (9) "The principle of historicism. The projection means that teaching should be based on the logic of the main didactic lines."
- (10) "Understanding the pedagogy of mathematics as Practice. The projection is the use of technical means as means, and live communication as a generalization."

We support the opinion of the participants of the symposium about the need to introduce this methodological approach into the practice of education, for which, at present, all conditions, aggravated in connection with digitalization, have matured. Taking possession of a sign, a person takes possession of himself, builds his/her personality. "Not only the connection between the teacher and the student is important, but also between the method and the student, whether the method is adequate for the student," J. M. Glozman reminded to her listeners the words of M. K. Kabardov, which support the need to introduce cultural-historical psychology into modern practice.

(4) Problems of learning difficulties in preschool, school and higher education.

J. M. Glozman pointed out that "learning difficulties are most often noticed when the child has gone to the first grade, but their reasons manifest themselves much earlier, for example, the child has difficulties in drawing and neuropsychologists can help in resolving them so that there is no the need to work with dysgraphia. The sooner difficulties are noticed, the more effective the help will be. Different specialists — teachers, psychologists, neuro-psychologists, parents and others — should take part in solving the arising difficulties."

Neuropsychology is now developing research methods for qualifying learning difficulties and it should implement the qualitative approach by L. S. Vygotsky and A. R. Luria.

Discussing the issues of helping a child at school, regarding the development of higher mental functions, J. M. Glozman gave the following example: "The brain will not develop if the speech function, which will later become the leading one in the child, is not stimulated. Speech accompanies the child even before birth and it is very important that the mother speaks with the child during this period and after birth. Another example

is when preventive work is not carried out. The hyperactive child becomes the hyperactive adult, which is what manufacturing companies now face. ADHD, when identified the earliest, is better amenable to correction than in adulthood. The proportion of children with ADHD in the normative population is up to 20 %. In the group of children with learning difficulties, the percentage of children with ADHD reaches 70–80 %. This means that ADHD contributes greatly to the very problem of learning difficulties. First of all, ADHD means difficulties in regulation. ADHD has two components: neurodynamic one means low brain activity and the second component is the lack of regulation. It is necessary to teach the child to regulate himself/herself by psychological methods and not by pharmacological means.”

N. A. Khokhlov made his comment on the topic raised, explaining that “ADHD does not have a completely correct translation, three forms have been identified: hyperactivity, hyperactivity with attention deficit, attention deficit without hyperactivity. The neurologist’s picture of ADHD is often not the same as the neuropsychologist’s picture.” “ADHD is well treated by psychological methods: games with stop-signal,” added J. M. Glozman. Consequently, parental education and early psychological and neuropsychological assistance are necessary in modern conditions.

In the report of A. V. Plotnikova *The Brigade Method in the Correction of Learning Difficulties in a Comprehensive Primary School*, the brigade method unites the interaction of all specialists of the general secondary school in one approach, in this case, the neuropsychological approach by L. S. Vygotsky — A. R. Luria. The team, under the guidance of a neuropsychologist, carries out diagnostics and design of correctional and developmental programs for children and educational programs for teachers. The introduction of the category and position of a neuropsychologist in general education is a significant contribution to solving the learning difficulties that are increasingly encountered in schools. The report showed the possibilities of a neuropsychologist at school. But also, it showed a wide range of individual differences among children, which were confirmed by the data of N. A. Khokhlov. This wide range of individual differences, which is especially pronounced in preschool age, must be taken into account when developing various training and correction programs. By older school age, the range of individual differences narrows, which creates new opportunities for using new methods, for the most part, group methods in work.

In the report *The Ratio of the Types of Generalizations by Children and Adolescents Aged 4–17* N. A. Khokhlov raised the problem of the accuracy of psychological diagnostics of thinking, on the basis of which those other conclusions about difficulties in learning or mental development are made. As an example of an incorrect diagnostic procedure, he cited cases when, relying on incorrect conclusions drawn from an inadequate understanding of L. S. Vygotsky, a conclusion is made about the development of thinking. “L. S. Vygotsky repeatedly pointed out that full-fledged conceptual thinking occurs in children from the age of 12. On the basis of these statements, psychologists drew conclusions: in preschoolers, conceptual thinking is absent, in elementary school it develops rapidly, and in adolescence, true concepts finally replace other types

of generalizations. The vagueness of the wording does not make it possible to understand whether this is only a theoretical model (accepted with a number of clarifications and exceptions) or it directly follows from the empirical data at his disposal. L. S. Vygotsky himself left opportunities for speculation.” Citing various examples of opportunities for speculation from the works of L. S. Vygotsky, N. A. Khokhlov raised the question of studying the development of thinking from preschool to senior school age. He revealed, with the help of testing by the method Exclusion of Objects, that in conceptual thinking “already at 4–5 years old a child has more than 50 % of conceptual notions, more than a third of concepts reaching the level of abstraction, i. e. true concepts, and fewer concepts based on a specific situational or functional attribute. Thus, a preschooler has concepts, there are a lot of them. Older preschoolers have more than half of the true concepts, but not all. This allows us to make an important conclusion that preschoolers have conceptual thinking, while older schoolchildren do not have the entirely conceptual thinking. From preschool to senior school age, there is a slight increase in the development of conceptual thinking.” Based on the data, N. A. Khokhlov reasonably assumes that the formation of true concepts is carried out earlier than 4–5 years, since at this age already 30 % of these concepts are in the operation of a child. The data obtained do not confirm the ideas of L. S. Vygotsky, which is largely due to cultural differences. In modern teaching, conceptual thinking is taught in kindergarten. The results obtained indicate that it is impossible to focus on the presence of non-conceptual types of thinking in adolescents as a sign of thinking pathology. J. M. Glozman added that a child at 3 years old is able to perform this test under conditions of verbalization (it is necessary to follow the correspondence between the method and the student).

Age Problems

(1) The problem of age is associated with the laws of development.

N. N. Veresov, in his lecture *Vygotsky's Legacy at the Beginning of the 21st Century: New Discoveries and New Questions*, substantiated that in his theory L. S. Vygotsky did not disclose three or four laws, but nine. This new look at the laws of development disclosed by L. S. Vygotsky, opens up new perspectives for the study of age, including the modern psychological age of children and adults. N. N. Veresov related the following to the laws of development:

“The Law of Four Stages in the Development of Higher Psychological Functions (Vygotsky, vol. 5, pp. 138–139).

The Law of Transition from Natural Forms of Behavior to Higher Mental Functions (Vygotsky, vol. 4, p. 221).

The Law of the Emergence of Higher Mental Functions from Social Forms of Behavior (Vygotsky, vol. 4, p. 222).

General Genetic Law of Cultural Development (from Inter [...] to Intra [...]) (Vygotsky, vol. 3, p. 145).

The Law of Uneven Development of Higher Psychological Functions (Turn-Based Differentiation of HMF) (Vygotsky, 2001, pp. 101–102).

The Law of Dominance of Functions (Consciousness is Built Hierarchically) (Vygotsky, 2001, p. 102).

The Law of Optimal Periods of Development (Vygotsky, 2001, p. 103).

The Law of Differentiation through Subordination and Re-Subordination — the Restructuring of the Old System and its Growth into a New one (Vygotsky, 2001, p. 109)."

(2) The problem of age is revealed in the study of readiness for schooling.

In the report of R. I. Aizman *The Problem of Children's Readiness for Schooling from the Standpoint of the Cultural-Historical Theory of L. S. Vygotsky* shows the existing approaches: (a) pedagogical approach — diagnostics of the development of educational skills; (b) psychological approach — the concept of leading activity, the concept of social readiness, the concept of personal readiness; (c) psychological and pedagogical approach — assessment of educational skills and development of psychological functions. All these approaches have one common drawback, they do not take into account the school conditions (curriculum, school environment and teacher skills) and they do not take into account a comprehensive understanding of health, which is influenced by environmental and social factors at all levels: physical, mental, social. He proposed a medical-psychological-pedagogical approach of readiness for learning, including a medical and biological component (state of physical and mental health, physiological readiness of the organism, its ontogenetic maturity), a psychological component (level of development of cognitive sphere, level of development of emotional-volitional sphere) and social component (personal readiness, communicative readiness). "Only healthy children with sufficient physical, mental, social and functional readiness (school maturity) can start systematic education at school." R. I. Eisman insisted and continued "the modern social situation has made a great contribution to the discrepancy between the calendar age of the child and his mental, social development (age). These conditions include: home-education; early education; limited contact with peers; replacement of communication with adult technical means, restriction of communication; disappearance of a game as a leading type of activity; inadequate requirements of adults (parents, educators, teachers)." He offered health monitoring — "electronic health passport" — a comprehensive, rather than symptomatic assessment of health, taking into account the basic patterns of ontogenetic development of preschool age: continuity and unevenness of growth and development, critical and sensitive periods, heterochronism of growth and development, acceleration and retardation of development (individual rates of development and maturation), biological reliability, organism adaptability (biological, social).

M. K. Kabardov focused attention on the need to implement the proposed complex of health assessment in general and not in parts in the context of overall digitalization.

(3) A new look at the problem of adolescence.

A step in the development of cultural-historical psychology is the proposed by V. S. Sobkin understanding of adolescence with the help of the psychology of art

by L. S. Vygotsky, in particular, through the prism of drama. In his presentation *Social Situation: Adolescence* V. S. Sobkin spoke about an adolescent's use of non-normative vocabulary: "Through abnormal, deviant forms of behavior, an adolescent is trying to prove to himself/herself that he/she is an adult" — this is an interesting form that requires special close study. The sense of adulthood, given through deviant forms of behavior, is associated with the appearance of neoplasms in adolescence. What are my attitudes and reactions to social deviations? An adolescent's experience of his/her relationship with his/her social environment changes dramatically. Profanity increases with age, and fights fall — one deviation complements the other in the system, dominants change with age, but the main motive is the motivator "insulted me, insulted my friend," a sensitivity to "I" is formed. It is important how the immediate environment reacts to deviation. Reactions of the environment change with age, if in the 7th grade the use of profanity is rare and the immediate environment notices it, and in the 9th grade 90 % of classmates do not pay attention to profanity. The reaction of the social situation to the deviant manifestations of adolescents, which has its own dynamics in adolescence, should be studied deeply, taking into account the criteria of gender, status and others. It is necessary to study the social life of the classroom in adolescence, single out the drama of education and the functions of regulation by the teacher. As a child grows up, the teacher's responsibility is more and more removed from him/her, because the teacher lacks authority and a social-role position, and he/she begins to use the social structures of the school, summon a child to the teacher's council, turn for help to the juvenile affairs commission (JAC). It causes drama. There are reasons for appearance, motivation for the appearance and reaction of the social environment. These three focuses set those points with the help of which it is necessary to read adolescent's experiences and semantic situation of adolescent's experiences. On the one hand, an interpretive scheme is set, on the other hand, it is necessary to highlight through which patterns the adolescent's adulthood is set, prohibitive patterns for certain deviant norms, removal or preservation of a norm, knowledge of the norm and maintenance and its overcoming. The social situation of development is the dominant concept for the study of age and it is important to compare incentive and prohibition (barriers), motives. This is the basis for the scenario of psychological and pedagogical work on the prevention of deviant behavior.

Issues of Creativity and Psychology of Art

D. B. Bogoyavlenskaya in her report *Life as Creativity: Vocation and Feat of L. S. Vygotsky* indicated that the study of creativity was one of the main things for L. S. Vygotsky. Game acted as a form and means of developing child's creativity, developing his/her imagination. "L. S. Vygotsky was convinced that 'The natural organism is naturally gifted,'" said D. B. Bogoyavlenskaya and this position is alternative to the position of the activity approach and, in particular, to the followers of B. M. Teplov. She indicated that "highlighting a unit of analysis by L. S. Vygotsky's allows us to consider giftedness as a systemic quality, where

intellect met affect. Only the unity of opposites forms an adequate quality that makes it possible to build a theory of the HMF. [...] It was on the way of the appearance of the HMF theory that it became possible to reveal the mechanisms of creating the new [...] the idea of the unity of affect and intellect is included in various studies on creativity, and the idea of the unit of analysis has not received its disclosure.”

Revealing the questions of the psychology of art, V. S. Sobkin, indicated that “in the psychology of art there is design in psychology, the idea of signs and mediation, because a work of art is psychology, its text is psychology, you just need to be able to read it, read it as a special generating machine of those desires and meanings, which arise in a person [...] he/she is an active participant in this process and of immersion in this artistic fabric [...] we read a machine that generates experiences, and by studying the structure of this machine, we understand psychology, because if we understand how the generation of meanings occurs, through this tonality and through this machine, then we then understand the laws of the psyche.”

Understanding the word is a key one in the psychology of art. In his report *Comments on Theatrical Reviews of L. S. Vygotsky*, V. S. Sobkin, relying on the new, archival early works of L. S. Vygotsky, emphasized that “L. S. Vygotsky believed that there is always a certain motivation behind the word, the theater in this respect is important for understanding the motivation behind the speech.” V. S. Sobkin focused on using by L. S. Vygotsky the methodological principle of “the experience of reader’s criticism” in theatrical reviews. He singled this principle out. “A lot has been written about Hamlet, I want to put all this aside in my analysis of Hamlet, and be left alone with the text in order to understand what experiences the text gives rise to when I read it” — this is an introspective analysis of the meanings that are generated in the course of reading this text. Emphasizing “significant elements of forms” and aesthetic reactions (aesthetic emotions, especially tragedy) are the main thing for L. S. Vygotsky in understanding the psychology of art. V. S. Sobkin indicated that “some psychologists, not understanding L. S. Vygotsky, reduce his psychology of art to the behavioral scheme ‘stimulus-response’; there is a text as a stimulus and a person’s response to it. They do not see the enormous semantic work that is carried out in a stimulus-responsive scheme. All cultural and historical psychology is hidden in this semantic work.”

Note, that V. S. Sobkin clearly points out the difference between the activity and cultural-historical approach. “Questions of meaning were not the key ones for the approach of A. N. Leontiev. The activity-based approach met the needs of its time, was built into the existing socio-economic system and ideological guidelines. The works of L. S. Vygotsky were burned in the fire, since neither personality (its development), nor meaning were in demand, and, moreover, they were feared. They began to speak and study personality and meaning in psychology, most of all in comparison with other categories, only in the present century. We will add that neither the behavioral-cognitive, nor the modern meta-cognitive approach, as well as others, can cover and answer questions about the psychology of meaning, personality and development using their methodological

base. And the answers are in demand by modernity and so far only the development of a cultural-historical approach can give them.”

Defectology Issues

Specifying the contribution of geneticists to the issues of defectology, Yu. V. Maksimova in her report *Modern Genetics on the Problems of Defectology in the Light of the Teachings of L. S. Vygotsky* showed the possibilities of modern genetics. Thus, considering chromosomal abnormalities, she cited data that a secondary defect — the underdevelopment of mediated memory and logical thinking in the mentally retarded — has connections with the frequency of chromosomal abnormalities, especially in spontaneous abortions, giving more than 50 % of chromosomal abnormalities. 17 % is the frequency of chromosomal abnormalities in premature babies. Questions about how a child was born, will help a teacher, psychologist and others pay attention to the presence of chromosomal pathology.

Chromosomes form the general genetic program (for example, the absence of a whole chromosome is Down's disease, and a partial violation, the absence of a part of the chromosome, gives birth defects and mental retardation (deletion that came from the mother is Engelmann's syndrome, deletion from the father is Prader — Willi syndrome). The absence of a chromosome responsible for gender is Shereshevsky — Turner syndrome, and for a long time it was believed that this also gives mental retardation, but later it was determined that this was not a lag, but a peculiar, not typical perception of the world. Yu. V. Maksimova believes that in defectology it is necessary to do chromosomal analysis, which is done according to a single standard all over the world. Syndromes of violation of telomeric sides of chromosomes are now being investigated for their connection with mental retardation. The fragility of the X chromosome (Martin — Bell syndrome) gives mental retardation and impaired intelligence. Mutation of a single gene (the catalog of monogenic diseases is 50 years old) causes many disorders, both physical and mental retardation. Yu. V. Maksimova focused on a unified approach of geneticists, pedagogues and others, in order to see the whole multifaceted nature of the problem for the rehabilitation of children with disabilities.

Cultural-Historical Psychology and Digitalization Issues

It is relevant to consider the possibilities of cultural-historical psychology in providing assistance in raising problems of the development of society and personality in the context of digitalization. Then, it helps to determine a degree and quality of the impact of digitalization on psycho-social development. Besides, it facilitates the search for solutions to the identified problems and the development of methods, ways of differentiation, regulation, reduction/increase in the digitalization impact. Humanity is currently catching up with rapidly developing technical means, which are not the result of creative developments and

the embodiment of one person or a small group of people, but of the collectively distributed activity of a large group of people covering more than one territory, one state and one culture. Due to this fact we believe that it is necessary to investigate the very creation of a technical means, highlighting not only technical, political, production components, but semantic and value orientations of the creators, social and cultural side along with the economic one. For this, it is necessary to unite different specialists of technical and humanitarian profiles on a single methodological basis not in order to get the introduction of an expert assessment of the finished product, but of the process of creation (development and implementation) of a technical means by these specialists.

N. N. Veresov rightly noted that not every social situation is a developmental situation and identified three problems that can be designated as positions in relation to digitalization: “(1) The hope that new digital means can become a powerful source of development — a classic example of fetishization. (2) Criticism of digital media and digital childhood in general (modern version of Luddism). (3) The middle position — on the one hand, it is impossible not to admit, on the other hand, it is impossible not to agree — a pseudo-contradiction, as Ilyenkov has put it.” The fourth, different one is the position proposed by N. N. Veresov, indicated by him in the question: “What can we do relying on cultural-historical theory?” (report *Who Needs Vygotsky Now?*). N. N. Veresov proposed two working ideas of cultural-historical psychology to answer this question: “(1) Sign and tool as cultural means of development. (2) The interaction of the ideal and real forms as the most important feature of child development.” Within the framework of the first idea, he emphasized, referring to the works of L. S. Vygotsky, that in mediation, the active intervention of a man, his/her active role, “his/her behavior, which consisted in the introduction of new stimuli” is overlooked “behind the play of stimuli,” as L. S. Vygotsky pointed out “To say that the stimulus determined the behavior in this case is like saying that the stick got the fruit for the chimpanzee (in Kohler’s experiments). The very emergence of new stimuli was the result of vigorous human activity. The man has been forgotten; this is your mistake. It was a person who established in advance the role and function of the stimulus, which by itself could not determine the behavior just as a stick by itself could not knock the fruit off (Vygotsky L. S. vol. 3, p. 72).” N. N. Veresov said that “for L. S. Vygotsky the question is not whether the sign mediates or something else does, but who mediates. A person, an adult or a child, actively intervenes in the situation and begins to use the means that he/she has to change the situation. From this, L. S. Vygotsky deduces two types of activity: signaling, based on the work of two hemispheres and characteristic of both humans and animals, and the second type — signification, which distinguishes, first of all, a person from an animal, from a psychological point of view. ‘Signification is the creation and use of signs, that is, artificial signals (Vygotsky L. S. vol. 3, p. 79–80).’ Mediating activity is the use of tools and the use of signs.” N. N. Veresov, referring to the translation of the word mediation into English, emphasizes that “there is a mediating activity and an activity mediated by someone; L. S. Vygotsky was interested in mediating activity as ‘the use of external signs as a means of further development of behavior (Vygotsky L. S., vol. 3, p. 148).’ Once having mastered the sign, the child gets the oppor-

tunity to use it as a means of further development. The child gets some freedom to use these signs for his further development, or not to use them for development, or use them for degradation.”

N. N. Veresov, regarding the second idea and moving from the analysis of the first, indicated that L. S. Vygotsky’s “mediation exists between something and something, on the one hand, people, on the other hand, there is an ‘ideal form.’ Therefore, the main question is ‘What cultural ideal forms does a person discover when he/she starts using cultural means?’ [N. N. Veresov, the plenary lecture *Who Needs Vygotsky Now?*]. For L. S. Vygotsky an ideal form is simply a more developed form of HME, to which a child must come in the future, but which interacts with the form that he/she gives in the present.” N. N. Veresov believes that if a person discovers developed forms for himself, then he has the prospect of development, and if he discovers destroyed social and cultural forms, then development will be aimed at self-destruction. “Social environment is the source of the emergence of all the specific human personality traits acquired by the child, the source of his cultural development, which takes place in the process of real interaction of ‘ideal’ and available forms (Vygotsky L. S. Collected Works. Vol. 4. p. 265).” “The form of interaction is very important,” N. N. Veresov said and gave an example of L. S. Vygotsky: “Mother talks to a child, she uses developed speech and for the child this speech is an ideal form; he/she cannot reproduce it, but from the very moment of interaction with the mother and with this form, he/she develops his/her speech. If there is no conversation with the mother, then the child will not develop speech or it will be very limited. ‘Ideal form’ is developed behavior, speech and more. The greatest feature of child development is the interaction of real and ideal forms.”

Based on the above said, N. N. Veresov sums up that there are at least two theoretical tools for studying the digital environment as a source of the cultural development of a child. Another tool was suggested by S. A. Smirnov in his report *Anthropological Turn in the XXth Century and the Place of Lev Vygotsky’s Project: Lessons and a Step of Development in it*. He believes that “digitalization plunges a person into a naturalistic reduction, a paradigm of action only in a natural field, a person’s semantic space is flattened,” in this regard, special work is needed to expand and develop the semantic field of both a child and an adult.

Turning to practice, in a joint study with N. I. Veraksa, N. N. Veresov poses the question: “How can digital games for preschoolers become a means of cultural development?” (N. N. Veresov, report *Who Needs Vygotsky Now?*), and suggests using a tool of assessing the developmental potential of digital games (DPDG), which includes joint play of a child and an adult, as well as a normative situation.

The importance of the role of interaction between a child and an adult, the influence of the social environment on the development of a child was studied by D. A. Bukhalenkova. By assessing the quality of the relationship between the educational environment in a preschool institution and the development of children, she proposed the ECERS-R and CLASS methods. She carried out a comparative analysis of the methods and revealed contradictions between them, which were not properly

explained in the report, but significant characteristics were identified: the structural and procedural qualities of the environment are more fully assessed by the ECERS-R methodology, the procedural qualities in a more extended version are assessed by the CLASS methodology. The use of two methods and correct analysis, taking into account the identified contradictions in preschool institutions, allow for revealing the developmental potential of the educational environment in the best way, including the environment in which digitalization is used to one degree or another.

In the report *The Connection of Screen Time with the Understanding of Emotions and Phonological Hearing in Preschool Age* M. N. Gavrilova emphasized the connection between the use of screen time and the emotional development of a child. More than 1000 children aged 5–6 years took part in the experiment. As a result, it was shown that children who devote screen time less than an hour a day better understand emotions in general and their individual components; children who devote screen time more than 1 hour better understand emotions from facial expression and have a high level of anxiety.

The whole rather than individual components of a child's cognitive development in the context of digitalization were disclosed in the report *The Relationship between the Use of Digital Devices by Modern Preschoolers and their Cognitive Development* by E. A. Chichinina. The conducted experiments took into account (independent variables) screen time, content and types of activities when using the gadget. Dependent variables: speech development, school readiness and the development of academic skills, regulatory functions, and other things were investigated. A significant contribution to the research is to draw attention to how an adult relates to the use of a gadget by a child and with whom the child uses a gadget in the interaction. This factor of mediation affects the results of a child's cognitive development. From the side of an adult, control of the child's use of a gadget is necessary, E. A. Chichinina believes, it affects the frequency of screen time use and the content through which the child learns cultural values. The obtained results of the experiment indicate that "the use of a gadget as a 'cultural tool' (searching for information, listening to music, taking photos and videos, viewing photographs, as a means of obtaining education, orientation in space and time, as well as drawing) contributes to development of the child's regulatory functions." An adult should teach a child to use a gadget for development.

Thoughts about the meaning of content and the role of an adult as influencing factors when using a gadget are consonant with the thoughts of M. K. Kabardov. In the report *Digitalization: For,* M. K. Kabardov formulated the question "How to determine if a child is an object for influence and manipulation? How safe is the safety of children?" and called on pedagogy and psychology to resist the "enslavement of children's souls" with digital technologies. He told about the necessary "to separate the technical means for performing certain tasks and the subject, which should not be an object for manipulation of information, because it is possible to harm by information."

Close attention should be paid to the gadget as a "natural remedy." E. A. Chichinina referred the game, watching cartoons and watching videos to the independent actions of a child with a gadget. "Independent actions of a child without the guidance of an adult

are natural and do not reveal the cultural properties of the object,” while the cultural properties are latent. In the report *Anthropological Turn in the XX Century and the Place of Lev Vygotsky's Project in it: Lessons and a Step of Development* S. A. Smirnov pointed out that the gadget as a “natural remedy” works in the natural field of a child and, in his opinion, narrows, folds a child's semantic field.

This statement is controversial and allows for deepening future research in the direction of defining the role of content attractive to a child, and the meaning prompted by “hidden cultural properties” affecting a child while watching a cartoon, playing, etc.

A significant result that determines the future for cultural-historical psychology is the substantiation and development of training programs for parents and teachers that will teach children how to use a gadget as a “cultural tool” for development. In this regard, it is necessary to pay close attention to the training of technical specialists who develop software and the possibility of implementing the foundations of cultural-historical psychology in educational and game contents. In the future, in connection with the development and spread of artificial intelligence in the spheres of human life, this question will be the most acute and cultural-historical psychology will have to find answers to it.

Based on the data presented in other reports, those directions that should be taken into account when developing educational programs and teaching adults to interact with children when using a gadget were the most accurately traced.

Thus, based on the analysis of literature on the influence of digital games and formative experiments conducted by V. A. Sukhikh, M. N. Gavrilova supported the conclusions of most scientists that digital games can be used to develop regulatory functions. The results of the experiments showed that there is an increase in the development of regulatory functions of children aged 5–6 years old when performing game tasks, including digital games, but the ability to transfer these skills to other activities does not develop. These data again point out the role of an adult who can help a child to carry out the necessary transfers.

In the report *The Role of Regulatory Functions of Preschool Children in the Digital Age*, A. A. Tvardovskaya and N. N. Novik presented a study on the influence of the time spent watching various material with a gadget on physical development of a 5–6-year-old child which showed that a critical time less than 180 minutes does not negatively affect the development of regulatory functions as well as physical development, if the child is given the opportunity for physical activity during the day. Time more than 180 minutes negatively affects the development of some components of regulatory functions, as well as physical development.

The highlighted regulations are fundamental in organizing training using a gadget in preschool organizations and parental control. The polemic over digitalization is incomplete and needs further development.

International Research Centers to Study Cultural-Historical Psychology

(1) Activities of the foreign research group of Brazilian scientists.

Research team consisting of Ana Ignez Belem, Cleo Alonso Costa, Izabel Hazin, Wagner Luiz Schmit Ishibashi, Edna Peters Kahhale, Priscila Nascimento Marques, Jeferson Montreozol, Ricardo Lana Pinheiro, and Gisele Toassa under the guidance of Carla Anukoate are doing studies on *Historical-Theoretical Foundations of Vygotsky's Psychology*. In session the reports: *Artistic Foundations of Vygotsky's Psychology*; *Neuropsychological Foundations of Vygotsky's Psychology*; *Historical and Cultural Psychology*; *Parents and Specific Conditions: Experience in Brazilian Context*; *Mental Health and Teacher Development: Learning Experience Confirmed by Vygotsky's Theory*; *Psychological Clinic: From an Alienating Tradition to Socio-Historical Strength of the Subject* represented different directions of research of L. S. Vygotsky's legacy with experimental confirmation by modern practice.

2. Research group "Revival of CHAT (Cultural-Historical Activity Theory) in Response to the Challenges of the 21st Century" led by Mike Cole (the USA).

Natalia Gaidamachko (Canada), Antti J Rajala (Finland), and James Wertsch (the USA) took part in the collective presentation and the following reports *Cultural Paradigms in Attention Management* by Beth Ferholt (the USA) and Barara Rogoff (the USA), *Applying Wordplay and Film Staging to the Study of Experiences* by Robert Lecusay (Sweden) and Anna Rainio (Finland), *Mobilizing for Justice: Focusing Young People's Inventiveness in Everyday Digital Practice* by Arturo Córtez (the USA), *Social Experiment: The Path to Equality* by Manuel Espinoza (the USA) and Kris Gutiérrez (the USA) were presented.

Conclusion

The aim of the symposium was fully achieved.

In modern conditions of digitalization, which is a completely new social environment for humanity, a person needs to preserve his/her freedom and develop his/her personality. The problems faced by education, psychological theory and practice can be solved on the methodological foundations of cultural-historical psychology.

In the plenary and session reports, it was shown that the broad boundaries of cultural-historical psychology allow it to develop. The application of the methodological foundations of cultural-historical psychology to solving the problems of learning and development of different age categories, with varying degrees of compliance with the norm of mental development and different cultures, was shown.

The participation of various specialists in the symposium indicated the necessary to institutionalize the form of the complex on a unified methodological basis of cultural-historical psychology, the interaction of different specialists in solving problems of learning

and development in preschool and school organizations, especially those of a defecto-logical profile.

References

Puzirey, A. A. (1996). Manipulation and maieutics: Two paradigms of psychotechnics. *Methodological Issues*, 3–4, 148–164. Retrieved from <https://www.fondgp.ru/old/lib/journals/vm/1997/3-4/v973pu20.html> [In Russian]

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IN MEMORY OF A. R. LURIA

ПАМЯТИ А. Р. ЛУРИЯ

Our Friend and Colleague Alfredo Ardila

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Наш друг и коллега Альфредо Ардила

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Abstract. Distinguished Professor of Neuropsychology at the Florida International University in Miami and Albizu University (USA, Miami) Alfredo Ardila (4.09.1946–9.01.2021) was President of the Latin American Association of Neuropsychology, member of the Board of Governors of the International Neuropsychological Society and of the Editorial Board of the International publication *Lurian Journal*. A. Ardila was a leading thinker bringing and developing the ideas of A. R. Luria's school of neuropsychology to North and Latin America. He joined the community of students and disciples of A. R. Luria in the mid-1970s while studying at Moscow State University where he earned a PhD degree under the supervision of E. D. Homskaya. In this article, dedicated to the memory of A. Ardila, the authors analyze his contribution to development of the systemic-dynamic approach in neuropsychology, and share personal memories of a lifelong friendship, recalling his memorable charm and personal modesty as well as his renewed scientific cooperation with colleagues from his *alma mater* in 2008–2020.

Keywords: *Alfredo Ardila; Lurian school of neuropsychology; cross-cultural neuropsychology; adult illiteracy, aphasiology*

Аннотация. Профессор Университета Альбизу (США, Майами) Альфредо Ардила (4.09.1946–9.01.2021), президент Латиноамериканской ассоциации нейропсихологии, член Совета управляющих Международного нейропсихологического общества, член редакционного совета международного журнала «Lurian Journal», сыграл большую роль в развитии и популяризации идей школы А. Р. Лурия в Южной и Северной Америке. Он приобщился к сообществу учеников и последователей А. Р. Лурия в середине 1970-х, когда, обучаясь в МГУ, подготовил диссертацию под руководством Е. Д. Хомской. В статье памяти Альфредо Ардила авторы анализируют его вклад в развитие системно-динамического подхода в нейропсихологии, делятся воспоминаниями о многолетней дружбе с ним и его участии в научном сотрудничестве с московскими коллегами в alma mater в 2008–2020 гг., отмечают его личные качества, незабываемые обаяние и скромность.

Ключевые слова: Альфредо Ардила; школа нейропсихологии А. Р. Лурия; кросскультурная нейропсихология; неграмотные взрослые; афазиология

After graduation from the national university of Colombia in the year 1973 Alfredo Ardila came to the Faculty of Psychology of Moscow State University for postgraduate studies in the department of neuropsychology and clinical psychology headed by Alexander Romanovich Luria. His supervisor for research *Bioelectric Indices of Brain Activity During the Solving of Mnestic Problems (in Normal Subjects and in Patients with Frontal Lobe Damage)* was E. D. Homskaya.

Once Alfredo did not appear at one of Luria's traditional patient examinations which was followed by discussions and Alexander Romanovich turned to me (B. K.-F.) and said, "Such a nice fellow but he seems to be so lonely... Would you, please, take care of him?" Coming back to the hostel, where I also lived, I met an unhappy pale young man with his throat wrapped around with a wool scarf. I brought him some pills and tea with honey. We became friends for the rest of our lives.

Essentially, Alfredo and I were the same age, but his personal experiences and knowledge of the world were much broader than my own and he was sensitive to cultural differences encountered in his travels. On one occasion in a Moscow Museum, he remarked: "Note that all the representations of Jesus in these Russian paintings depict him with blue eyes. When you will be in the Prado Museum you will see only dark-eyed depictions of Jesus." It would be over forty years before I was free to travel and visit the Prado in Spain and note the exclusively dark-eyed paintings of Jesus. Perhaps it was this exposure to cultural differences that later inclined Alfredo to adapt his neuropsychology research among Latin American peasants to their cultural uniqueness. At the time Alfredo's experiences in life and in the world brought me to look upon him as an older and wiser friend with a flair for remembering his experiences and adapting them to analysis of new situations. Another such occasion was when we were strolling at parks near Moscow State University, enjoying the panorama of Moscow spreading below us. "In any free market society," he remarked, "there would be kiosks selling sandwiches and drinks, and benches on which visitors could sit and enjoy the landscape at their leisure." A few years ago, while in Moscow for

a conference I saw, around the university a sight similar to what Alfredo had described many years before: kiosks with food, tables and benches.

In the summer of 1974 Alexander Romanovich Luria invited us to visit him at his *dacha* in Svistuha. We had to discuss some details of the planned month-long seminar for a young neuropsychologist from the socialist countries (East Europe). Alexander Romanovich initiated the program and I was an executive secretary of the organizing committee. Similar meetings at his home in Moscow usually concluded with tea and music usually recorded by Luria at concerts of classical music. But this time Alexander Romanovich tried to “entertain” us, demonstrating his collection of slides with pictures of insects’ “faces” in which he could recognize some resemblance to human faces. He called the collection “My academy friends.” Alexander Romanovich used his money for publications abroad for two of his artistic and social hobbies. The modern recording and optic equipment were used to host his colleagues and he was proud that all the pictures were taken in his yard around the *dacha*. For the memory of this day, I have some pictures which Alexander Romanovich made for us (Fig. 1, 2).



Figure 1. Alfredo Ardila and Bella Kotik near the summer cottage of A. R. Luria, the summer of 1974. Photo by A. R. Luria.

Source: The personal archive of B. Kotik-Friedgut

Once his dissertation had been approved in 1976, Alfredo returned to Bogota and taught Psychology and Neuropsychology in the university, gradually spreading out to other universities in Colombia and in Ecuador, Peru, Chile and Puerto Rico, as well as participating in pioneering conferences and research projects studying the process of literacy acquisition among Mexico’s natives. Here Alfredo’s sensitivity to cultural differences

proved invaluable as he adapted neuropsychological testing and interpretation to the milieu and perceptions of illiterate Spanish speaking peasants. These projects helped demonstrate the utility of Lurian Neuropsychology as a science adaptable to widely differing societies throughout the world.



Figure 2. Alfredo Ardila near the summer cottage of A. R. Luria, the summer of 1974.

Photo by A. R. Luria, trying to teach Alfredo to deal with a Russian Samovar.

Source: The personal archive of B. Kotik-Friedgut

One of the research projects initiated by Alfredo Ardila and his colleagues in Mexico attracted my particular attention when I was invited to take part in a project dealing with a challenge facing the Israeli educational system: teaching Hebrew as a second language to new immigrants from Ethiopia, who are illiterate in their mother tongue. Despite good will and substantial efforts, the success of these immigrants in achieving literacy in the Hebrew language has been limited.

Research of the Mexican group revealed that the observed difficulty of adults in learning to read and write is rooted in the fact that important basic brain mechanisms have not been developed in childhood: illiterate subjects score significantly lower on some neuropsychological tests (Ardila, Rosselli, & Rosas, 1989; Ostrosky-Solis, Ardila, & Rosselli, 1999). Based on these results Ardila's research group developed a method for learning to read, called NEUROALFA. This method seeks to reinforce these particular undeveloped abilities during the process of learning to read. This method has proven

to be significantly more effective than traditional methods in teaching illiterate Mexican adults. What also seems important is that after learning to read, all of the subjects in both the experimental and control groups improved their performance on neuropsychological tests, although the gain in the group who had studied using the NEUROALFA method was significantly higher on some subtests, especially on the recall tasks, verbal tasks, and such tasks as Orientation in Time, Digits Backward, Visual Detection, Copy of a Semi-complex figure, Similarities, Calculation Abilities, and Sequences (Ardila et al., 2010; Ardila, Ostrosky-Solis, & Mendoza, 2000).

So, facing a similar task trying to improve results of teaching illiterate adults, I called Alfredo asking for details on how and where to get the NEUROALFA materials. He explained to me that all the existing materials are related to Spanish and also, noted that he sees that our challenge is much greater because they have dealt with people illiterate in their mother tongue, while our task is to teach a new language to people illiterate in their mother tongue.

That is why I used their idea of reinforcing basic neuropsychological factors underlying literacy acquisition and developed recommendations for the project. I suggested enhancing the following neuropsychological abilities while teaching a second language to Ethiopian illiterate adults: (a) phonological abstraction: exercises emphasizing phonological awareness, phoneme discrimination, phonemic fluency, phonological similarity, decomposition of words to sounds and letters, grouping of words with common phonemes, and cross-words; (b) semantic categorization; (c) finding similarities; (d) visuo-perceptual abilities, spatial exercises including spatial orientation of words, spatial discrimination of letters, discrimination of ambiguous pictures; (e) exercises emphasizing verbal memory, i. e., recalling sentences; and (f) abstracting abilities, proverb interpretation (Kotik-Friedgut, 2012). To better meet social and vocational needs of Ethiopian immigrants, we revised the existing model of literacy teaching for adults and developed an alternative *communicative-multicultural-neuropsychological model*. This approach is based on cultural-historical approaches developed by Vygotsky and Luria and cultural neuropsychology, and the results are positive (Kotik-Friedgut, Schleifer, Golan-Cook, & Goldstein, 2014).

I recall an improbable episode testifying to our relation and connection over many years and continents. While working at the Rostov State University (1975–1992) I gave a talented student from Colombia, G. Vergara, a recommendation letter to Alfredo, who worked at the time at the National University in Bogota. The following year, a girlfriend of Gabriel, also my student 2 years younger, from Mexico, on her way for vacation stopped at Bogota to spend some time with her friend. When she came back, she told me, that in the airport Gabriel showed her a man at some distance at the registration for the same flight and said, “This man is a friend of Bella Samoylovna.” On the airplane she asked to be seated with him and they had time to talk. Later Alfredo in his letter said, “Isn’t it a miracle? To fly from Bogota to Mexico and to speak about you?!” (by the way, recently this girl, now a Mexican researcher Miriam Ponce contacted me via internet, asking for the copy of our last paper).

We had not seen each other for 22 years, but there always were letters. In one of his letters in 1984 he describes his activities in research in Mexico: “For a month [July] I was working with your cousin. We were talking a lot about you.” [as “My cousin” he mentions Feggy Ostrosky-Sollis, the family relation is unknown, but my grandmother was Ostrovsky]. Later in 1985: “My work is O.K. I am researching, publishing, teaching, and I feel that I am enjoying an active academic life.” In 1998 when I came to Boca Raton (Florida) where my husband Ted Friedgut had a lecture at a conference, Alfredo came from Miami where he had settled for a short visit with his wife Monica and their children. And later, when Internet became a part of everyday life, our professional collaboration became much easier.

While working at the Hebrew university in Jerusalem, I initiated the translation into Hebrew of L. Vygotsky’s *Thought and Speech* and started to teach neuropsychology for teachers based on the Lurian Systemic-dynamic approach. It became important to translate for educators and to introduce the neuropsychological meaning of the concept of extracortical organization of higher mental functions as a basis for development and usage of scaffolding in the teaching-learning cooperation process (Kotik-Friedgut, 2002). After that our professional interests coincided even more closely and we cooperated in promoting the Lurian approach in development of cultural-historical neuropsychology. As mediators (material or symbolic) are considered to be intrinsic components of higher mental functions, the Vygotskian principle of the extra-cortical organization of psychological processes is fundamental in the development of Lurian neuropsychology and his interpretation of the brain’s organization of cognition (Kotik-Friedgut & Ardila, 2004). Living conditions have so dramatically changed during the last 100 years with development of new media and new virtual ways of communication that it has to be taken into account in analysis of development and brain organization of cognitive functions (Kotik-Friedgut & Ardila, 2014).

We all witnessed how the last year changed our life and cultural neuropsychology remains important for dealing with its consequences in the future.

During the last decade one could meet Alfredo at international conferences in Portugal (Fig. 3) and in Russia (Fig. 4, 5, 6) and the last meeting at the Summer International Neuropsychological School named after A. R. Luria in August 2020 which was online virtual because of the COVID pandemic (Fig. 7).

In 1984 Alfredo Ardila and Feggy Ostrosky-Solis edited a very comprehensive volume of reviews of state of the art analyses of a range of different aspects of brain functional asymmetry. He was rightfully proud of the result and wrote: “I am sure you have already received The Right Hemisphere: Neurology and Neuropsychology. Isn’t it beautiful?” It included my (B. K.-F.) chapter “On the Role of the Right Cerebral Hemisphere in Speech of Bilinguals” (Kotik, 1984). That was the time of very active worldwide interest in the problem and some data of historical importance we used in preparing a new manual for the neuropsychology course (Azarova & Kotik-Friedgut, 2021).



Figure 3. Alfredo Ardila, Monica Rosselli, Ted Friedgut, Bella Kotik-Friedgut at the 4th Estoril Vygotsky Conference (Estoril, Portugal, June 2016).

Source: The personal archive of B. Kotik-Friedgut



Figure 4. Bella Kotik-Friedgut, Alfredo Ardila and Monica Rosselli at the Fifth International Luria Memorial Congress (Kisigach, Russia, October 2017).

Source: The personal archive of B. Kotik-Friedgut

In 2008 inspired by some nostalgic feelings Alfredo Ardila started to communicate with colleagues neuropsychologists of the Moscow University and proposed to give a lecture, “I would prefer to talk about ‘On the Evolutionary Origins of Executive Functions’ (that’s a topic I am currently most interested in [Ardila, 2008]. I can present the lecture in English (or in Russian-English).” The first lecture was a success and a beginning of an active cooperation with colleagues and a regular course in English *Some Fundamental Questions in Contemporary Neuropsychology*, for students and researchers of the faculty of psychology. The main themes in the course were: How localized are the language areas in the brain? A new neuropsychology for the 21st century; Vygotsky in the 21st century; Executive functions and language; A proposed reinterpretation and reclassification of aphasia syndromes; Origins of the language from the aphasia perspective; Cross-cultural neuropsychology. Later Monica Rosselli joined him in this course adding topic related to developmental neuropsychology (Fig. 5).



Figure 5. Monica Rosselli, Alfredo Ardila, and Yuriy Mikadze (organizer of a series of lectures) in the auditorium of the Faculty of Psychology of Lomonosov Moscow State University. Source: The personal archive of Yu. Mikadze

A. Ardila initiated a cycle of publications to show that ideas of Luria continued to influence significantly during the 21st century. Thus, new scientific achievements and clinical observations have significantly supported many of his suggestions and hypotheses. One article describes the basic concepts of neuropsychological evaluation and rehabilitation, associated with the method of syndrome analysis developed by Luria for diagnosis mental function and focus on the qualitative interpretation of the results neuropsychological diagnosis (Mikadze, Ardila, & Akhutina, 2019).

Another paper presents the views of A. R. Luria on the brain organization of speech and aphasia. Although A. R. Luria developed his concept of the relationship between cognitive processes and brain work several decades ago, scientific, and technological achievements in our days largely confirm many of his ideas and hypotheses. A. R. Luria's basic views of the brain and language are considered in this article in the light of modern neuroscience. It is shown that his interpretation of the cerebral organization of speech as a specific contribution of various brain regions to the speech system continues to be widely used, and his significant contribution to neurolinguistics is widely recognized. Many ideas of A. R. Luria have been integrated into contemporary aphasiology, while some questions of his proposed classification of aphasia remain debatable (Ardila, Akhutina, & Mikadze, 2020). Another paper focused on the influence of A. R. Luria's on cultural neuropsychology in the 21st century (Kotik-Friedgut & Ardila, 2020).

He was teaching every year till 2019, modestly asking for himself only accommodation in the hotel situated at the university building, where he lived as a young student. His friends tried to entertain him and Monica and make his visits not only related to lectures, but also to walks around Moscow. Dinners at Georgian restaurant after lectures became a tradition since Alfredo and Monica liked Georgian food (*Fig. 6*).



Figure 6. Old and new friends: Antonio Puente, Yuriy Mikadze, Monica Rosselli, Tatjana Akhutina, and graduate students of the Faculty of Psychology Elena Lysenko and Maria Bogdanova in a Georgian restaurant.

Source: The personal archive of Yu. Mikadze

In 2020 the pandemic situation and health problems interrupted this work, though in August Alfredo took Part in the Summer International Neuropsychological School named after A. R. Luria (*Fig. 7*).

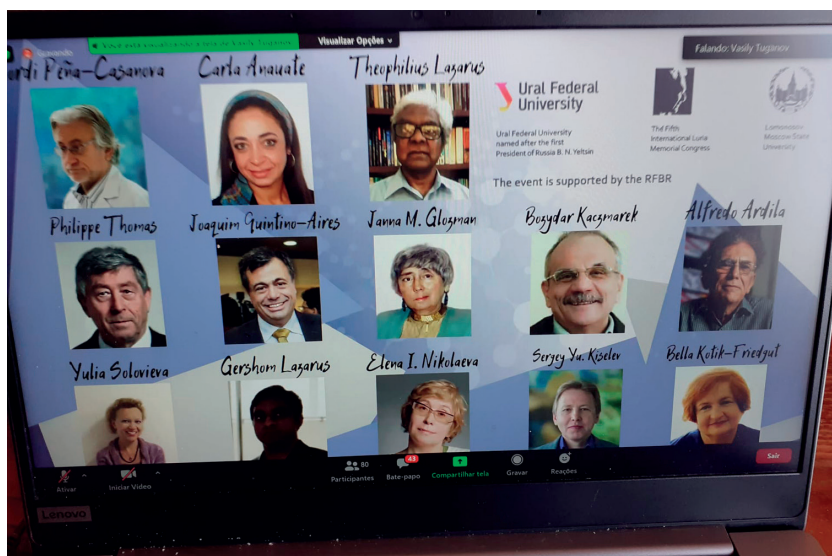


Figure 7. Lecturers of the 2nd Summer International Neuropsychological School named after A. R. Luria (August 2020, online)

Alfredo became well known for his generous sharing of knowledge and welcomed in Moscow. He also collaborated and gave lectures for the department of psycholinguistics and international communication of the Sechenov university. Active collaboration with the RUDN university in addition to lectures also included publications the RUDN journal *Psychology and Pedagogy*. All this unfortunately was short and tragically ended in January 2021. His memory will be cherished by friends and colleagues.

References

- Ardila, A. (2008). On the evolutionary origins of executive functions. *Brain and cognition*, 68(1), 92–99. <http://dx.doi.org/10.1016/j.bandc.2008.03.003>
- Ardila, A., Akhutina, T. V., & Mikadze, Yu. V. (2020). A. R. Luria's contribution to studies of the brain organization of language. *Neurology, Neuropsychiatry, Psychosomatics*, 12(1), 4–12. <https://doi.org/10.14412/2074-2711-2020-1-4-12>
- Ardila, A., Bertolucci, P. H., Braga, L. W., Castro-Caldas, A., Judd, T., Kosmidis, M. H., ... Rosselli, M. (2010). Illiteracy: The neuropsychology of cognition without reading. *Archives of Clinical Neuropsychology*, 25(8), 689–712. <https://doi.org/10.1093/arclin/acq079>
- Ardila, A., Ostrosky-Solis, F., & Mendoza, V. (2000). Learning to read is much more than learning to read: A neuropsychologically-based learning reading program. *Journal of the International Neuropsychological Society*, 6(7), 789–801. <https://doi.org/10.1017/s1355617700677068>
- Ardila, A., Rosselli, M., & Rosas, P. (1989). Neuropsychological assessment in illiterates: Visuospatial and memory abilities. *Brain and Cognition*, 11(2), 147–166. [https://doi.org/10.1016/0278-2626\(89\)90015-8](https://doi.org/10.1016/0278-2626(89)90015-8)

- Azarova, E. A., & Kotik-Friedgut, B. (2021). *Human interhemispheric cooperation*. Rostov on Don; Taganrog: SFU Publisher. Available from https://www.researchgate.net/publication/356382265_E_A_Azarova_B_S_Kotik-Fridgut_MEZPOLUSARNOE_VZAIMODEJSTVIE_U_CELOVEKA_Ucebnoe_posobie [In Russian]
- Kotik, B. S. (1984). On the role of the right hemisphere in speech of bilinguals. In A. Ardila & F. Ostrosky-Solis (Eds.), *The right hemisphere: Neurology and neuropsychology* (pp. 227–240). London: Gordon and Breach. Retrieved from <https://books.google.ru/books?id=BDDVEQDPwfoC&lpq=PP1&hl=ru&pg=PA227#v=onepage&q&f=false>
- Kotik-Friedgut, B. (2002). A. R. Luria's systemic-dynamic conception and neuropsychology today. *Voprosy Psichologii*, 4, 68–76. [In Russian]
- Kotik-Friedgut, B. (2012). The challenge of teaching a second language with literacy to students alphabetic in their mother tongue. *Hed Haulpan*, 99, 29–33. [In Hebrew]
- Kotik-Friedgut, B., & Ardila, A. (2004). Systemic-dynamic Lurian theory and contemporary cross-cultural neuropsychology. In T. Achutina, J. Glozman, L. Moskovich, & D. Robbins (Eds.), *A. R. Luria and contemporary psychology* (pp. 55–63). New York, NY: Nova Hauppauge.
- Kotik-Friedgut, B., & Ardila, A. (2014). Cultural-historical theory and cultural neuropsychology today. In A. Yasnitsky, P. van der Veer, & M. Ferrari (Eds.), *The Cambridge Handbook of Cultural-Historical Psychology* (pp. 378–400). Cambridge, UK: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9781139028097.021>
- Kotik-Friedgut, B., & Ardila, A. (2020). A. R. Luria's cultural neuropsychology in the 21st century. *Culture & Psychology*, 26(2), 274–286. <http://dx.doi.org/10.1177/1354067X19861053>
- Kotik-Friedgut, B., Schleifer, M., Golan-Cook, P., & Goldstein, K. (2014). A Lurian systemic-dynamic approach to teaching illiterate adults a new language with literacy. *Psychology & Neuroscience*, 7(4), 493–501. <https://doi.org/10.3922/J.PSNS.2014.4.08>
- Mikadze, Yu. V., Ardila, A., & Akhutina, T. V. (2019). A. R. Luria's approach to neuropsychological assessment and rehabilitation. *Archives of Clinical Neuropsychology*, 34(6), 795–802. <https://doi.org/10.1093/arclin/acy095>
- Ostrosky-Solis, F., Ardila, A., & Rosselli, M. (1999). NEUROPSI: A brief neuropsychological test battery in Spanish with norms by age and educational level. *Journal of the International Neuropsychological Society*, 5, 413–433. <http://dx.doi.org/10.1017/S1355617799555045>

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