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FROM THE EDITORIAL BOARD

Anthropology of Everyday: Transformation of Human Behavior Under Technological and Social Change

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ОТ РЕДКОЛЛЕГИИ

Антропология повседневности: трансформации поведения людей в условиях технологических и социальных перемен

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Abstract. The article uses an approach of romantic psychology developed by Alexander Luria to reflect on the changes in education and everyday consciousness as a result of technological and social-historical transformations of the way of life. It focuses on the fact that the pandemic has become a catalyst for the emergence of *blended education*. The article discusses the role of cultural-historical psychology in the elaboration of variable education as an expansion of opportunities for personality development. Reasons for repressions of psychological science in totalitarian systems that suppress various manifestations of social and psychological diversity are interpreted.

Keywords: *variable education; blended education; evolution; adaptation; pre-adaptation; repressed science; romantic psychology; threshold of unpredictability; construction of worlds*

Аннотация. В статье с позиций романтической психологии Александра Лурия анализируются изменения образования и обыденного сознания, возникающие в усло-

виях технологических и социально-исторических трансформаций образа жизни. Акцентируется внимание на том, что пандемия стала катализатором появления «смешанного образования». Обсуждается роль культурно-исторической психологии в проектировании вариативного образования как расширения возможностей развития личности. Интерпретируются причины репрессий психологической науки в тоталитарных системах.

Ключевые слова: *вариативное образование; смешанное образование; эволюция; адаптация; преадаптация; репрессированная наука; романтическая психология; порог непредсказуемости; конструирование миров*

The World of Blended Education

In our country as in others around the world, the idea that if someone dives online, he will never return offline, belongs to the category of legends.

To put it simply: when a person has two hands — and he is told to use only one of them — he will not perceive it adequately, will be sad about it. So far, the mankind has developed several hands in the sphere of education. One of them is online, the other — offline.

Thus, in the nearest future we will find ourselves in another world. This world can be toughly called *a world of blended education*. It's necessary to underline: not *blended learning* as one of the technologies, but *blended education* that is directly related to transformation of reality. Evolutionally this focus is more vantage than choosing only one format: either online or offline education (Asmolov, 2012).

J. R. R. Tolkien wrote a book *The Hobbit, or There and Back Again* (1937). Like its main character Bilbo Baggins, young generation today has a possibility to wander to and fro. And no matter how much they could be disposed to online life, this virtual reality inevitably encounters many challenges of real life.

Quality of Online Learning Environment

It's noteworthy that very unusual things happened to students (to a greater extent than to teachers). Usually you enter the lecture hall — and I have been entering it at the Faculty of Psychology of Moscow State University for 50 years in a row — and you see how many people have come. Usually they are about the same number.

Then, when we started to "zoom," was surprising to find more students than usual offline. And they ask unusual questions. "When we met before you did not ask such questions" — I said to them. "We are from St. Petersburg University, we were given a link and attended your lecture" — they retorted.

It means that open educational space appeared, which did not exist before. This reality is much more adequate for the students, or digital natives, rather than for myself, who is more likely to be a digital migrant.

Does the Child Really Need all this?

Every time we ask this smart question: "Does the child need this?" — we fall into a trap. After all, what the child needs is often voiced by us and he responds by nodding or shaking his head. But this is always a big secret. Very often we take up a role of over-protector and begin to think that the child should live the same life that we've lived. But he lives his life.

We always, it should be repeated, want our children to be like us. And this is correct, because without this we will not understand each other and the space of differences will be so big that the value and digital divide will scatter generations in different directions. But simultaneously with the space of differences, there is also a space of similarities. And when you say about your child: "He is like me, he in many ways accepts what I do and shares what I dream about, but he is incomparable with me," you thereby emphasize that he astonished you by going his own way springing all sorts of surprises.

This is true of the First of September. As the Minister of Education Sergei Kravtsov promised, this day will not be a network reality, but a reality given to us in senses, literally. That is, there will be flowers, the first teacher and a celebratory assembly. Rather, with caution: "All these moments can be." Because everything he says can be a complete distortion of reality. We cannot predict what will happen. But there is a rhythm of decades. It was once again proclaimed by the Minister of Education as a supporter of normal conservatism in the world of education. Education, thank God, is one of the most conservative systems on earth.

Technology of E-learning

This question, I would say, is related to the anthropology of everyday life. It is impossible to ignore the fact that families have different opportunities. The pandemic situation showed that the parents of primary school students suffered from the greatest burden. In addition to all the worries of parenting they had to take up an almost full-time job as teachers. But this is not enough. How to organize distant learning in a big family?

For example, if I have one child in the fifth grade and another in the second and they are torn between different iPods, tablets and computers — this is a lucky family. And if a family has one computer for all or — if to run into the extreme — one mobile phone for all? Thus, we are let down by the modern civilization. And not just once.

What earlier seemed to be redundant and luxurious became as necessary as air. It is essential that the government should think over, literally, an algorithm for providing each family with equipment for e-learning. If it fails to solve this problem, we will face a high degree of social inequality and lack of social justice — a real situation that can be seen now in education as well in the country on the whole.

Contemporary education is a key factor in three processes.

One of them is called the *social lift*: due to quality education a freshman can become the president of the country. Or would prefer to be the world's best animal tamer or great traveler. It should be remembered that we and our children have different success models.

Another one is *a social mixer*, when different layers are mixed due to education.

But there is also the third process, the saddest one — *a social pit* — when poor quality education deprives a person of chances for success and development in social life. Obviously, this is a tragic and deplorable situation.

Communication

Communication is one of the key things. Currently our children have found themselves in a situation of network communication. This is a specific type of communication, a quick one, with a big amount of new phenomena emerging there. When the teacher is bad, the fourth-grade student can say: "Come on! I will ban him." And he will go on with his own business. That is, we must understand that a different communication in a different language has appeared on the Internet. At the same time, no one rejects face to face communication. It will always be preserved, just take other forms.

Evolution does not favor "narrow-gauge" ways; it wins when it goes along mixed routes. Therefore, the new and old forms of communication that are familiar to us will coexist. The communication situation will be expanding rather than narrowing.

We have such examples in the history of culture. Silent movies were replaced by talking pictures. And the unique actors who excelled at communication without speech (that is called non-verbal communication by the psychologists) became incredibly important and necessary.

Let's have a look at non-verbal communication that is prevalent today, how we communicate with different signs. It's noteworthy that a new evolutionary stage is starting in the history of mankind. A revolutionary leap forward is ready to occur. As it is sometimes reported, the world is moving from the Gutenberg era to the Zuckerberg era.

A leap always portends a big amount of risks, among them anthropological ones. Human lives might be destroyed — it seems to be unavoidable. What happened to the monks when the printing press was invented? They ceased to be only chroniclers and many of them lost their jobs. It happens from century to century, from millennium to millennium.

When a new technology appears, it is declared to be a solution to all human problems. Therefore, I feel ironic towards the colleagues who believe that artificial intelligence and machine learning will pave the way to an era of global happiness for some and global distress for others.

In this regard I advise to reread more often the work of one of my favorite writers *The Tale of the Fisherman and the Fish*. Artificial intelligence is often perceived like a goldfish that is ready to make our desires fulfilled. Do you remember the fate of the old woman who was left in front of a broken-down trough? From a psychological point of view

this tale is about an inadequate level of claims. In fact, this is exactly what happens with technology these days.

I would like to remind you of an episode from the movie *Moscow Does Not Believe in Tears*, when the character exclaims: "What radio! There will be only television!» We are in 2020 now. Has his prediction come true? The same refers to the future of any technology.

Nowadays there are textbooks, books, non-verbal and face-to-face communication. Therefore, many horror stories of our era proclaim that the world is changing and we must be ready for it. Thus, the key task of the school is to prepare the child for the change. If we don't, we will fail.

Problem of Teachers

There is no average temperature in a hospital as well as standard prescription in education. When we deal with a talented teacher, a psychology genius, who is able to assist a student in developing his individual self, everything will work out — difficult as it might be.

In school with its atmosphere of human meaning and spirit, a true professional will succeed in finding such an activity for an introvert girl who scares everything and prefers to stay locked in herself, that will help her feel like a queen. Dealing with introversion shouldn't be hasty. I don't trust such innovations as speed reading. I feel the same about quick thinking. The history of the ancient world has proved that this is a road to nowhere.

The question is how to train such a talented and efficient teacher. A stumbling block on this way is conservatism of teachers' training institutes that are currently outpaced by schools in their development. The latter are constantly dealing with angry parents and insightful students. The pedagogical institutes, on the contrary, remained to be ivory towers. They train teachers who could work in the middle of the previous century. And this is a problem. Children became different.

If we want our country to be happy, we should start by creating a teacher who will help our children and parents.

Liberal arts are gradually coming to Russian schools. For me, this area of education is primarily based on choice. When we are engaged in liberal arts — including mathematics — we give cultural content to people. The school must be a place that provides dialogue of cultures. This way is paved by liberal arts.

To date, only some pedagogical universities are beginning to tackle these areas. It is developed at St. Petersburg State University; an interesting format of training in the style of liberal arts was introduced at the Academy of Civil Service under the President of the Russian Federation (RANEPA). The rector of Moscow City Pedagogical University Igor Mikhailovich Remorenko puts a special emphasis on this as well. That is, the system is moving forward.

But this movement has not yet acquired the wide scope. At the state level, everything rests on the reflection of the tragedy of pedagogical universities in Russia. In this

respect I always quote the words of my friend, the poet Naum Korzhavin, who once said: "The death of the Soviet Union is prepared in pedagogical universities." By and large, he was right. I don't want to talk about sad but if this problem is not solved, we will soon face the monstrous phenomenon of teaching lumpenization. And then — no one will care about liberal arts any longer.

School has ceased to be the only monopoly source of children socialization. It has never fully been such but played a dominant role. Nowadays a huge number of children growing sources are springing into existence. And many parents choose family education as a form of raising their offsprings. And this can be justified. If parents dare and manage to give their children a high-quality education — good luck and Godspeed!

But school is not only about the transmission of knowledge. School is a place where generations meet, it is a place of the dialogue between teachers, children and parents, children with each other. It was formed historically that without it the opportunities for communication in primary school or among adolescents are decreased.

Other places for adolescents to communicate with each other like communication in adolescent subcultures deprive the school of its role as the only transmitter in the world of socialization. But at the same time there are schools that the graduates are willingly visit — over and over again. Even 15–20 years after graduation.

Childhood is Life Itself

Everyone has different perception of what childhood is. You say to your beloved: "My baby" and at the same time look at her gray hair. And for you she is still your child. A child lives and does not stop living in each of us. The child has fewer stereotypes and is more sensitive to life diversity.

Therefore, in my heart of hearts I feel disappointed when I hear people saying that childhood is a preparation for adult life. No, childhood is life itself. Life that never ends. That is why we not only come from childhood (a classic phrase) — but we remain in childhood and see its value and importance for development.

This is one of the reasons why Janusz Korczak, a genius for all time, wrote the book *When I am Little Again*. This is one of the reasons why it was so great as a child and so difficult to admit adulthood even past the age of 70. Although behind this there is sometimes a dream that you have parents by your side who are responsible for you and love you as no one did.

The word "parents" is used symbolically in this context. Friends, parents, other precious people. When they see and accept a child in you, their communication with you takes up a form of a completely different pattern, it is embroidered in a different way.

In 1972 a situation happened to me that affected me positively. It is related to the topic *My Favorite Teachers*. One of them, Alexander Romanovich Luria, asked me to hand over the manuscript of the book to Lev Semyonovich Vygotsky's wife. And we were supposed

to meet somewhere in the park. When she agreed with Alexander Romanovich about a meeting with me, they had the following dialogue:

— How will I recognize him? — Vygotsky's widow asked, referring to me.

— Well, you remember young Lyova? — Luria answered, referring to Lev Vygotsky.

Psychology as a Science of Constructing Worlds

I have always wanted my teachers to create such a psychological science that would be soul-ology. I have always dreamt psychology to be psychology of soul rather than psychology of psyche. And this, to a great extent, is coming true. Psychology as the science of constructing worlds, psychology that has become a reality — this is one of the things that I did, am doing and will go on doing while I am strong enough.

In 1982, I published a small article in MC, which was entitled *Psychologist in the Soviet Union as a Smile of the Cheshire Cat*. There is a smile, but there is no cat. The fact that I was able to construct, together with my wonderful colleagues, the practical psychology of education in the USSR and Russia, the fact that psychologists appeared as masters in supporting individuality and diversity even in spite of the fact that there are few of them — this is what I have always dreamt of.

Every graduate of the Faculty of Psychology in 1972 dreamt of becoming a bit of Vygotsky, a bit of Luria, a bit of Kahneman. Time passes, I will be 72 next year. And I ask myself the question: how much — or not much — have you managed to fulfill? And, paradoxically, brooding over this question, I feel calm (Luria, 1982).

Psychology in the Soviet Union witnessed different stages of its development. Intellectual professionals (not cold-hearted ones) have always realized that there is nothing more important in the world than understanding the laws of behavior of various complex systems. For them, psychology has been the science of changeability. As well as genetics. At the same time the sciences of changeability are combatted by totalitarian systems. In spite of their differences, both psychology and genetics had the periods of merciless pressures.

Psychology in the Soviet Union had different, very profound scientific schools. Regardless of difficulties it made its way through the asphalt of time. It survived the period of repressed science. But due to the amazing achievements and endeavors of Soviet psychologists we are recognized throughout the world today. For example, many of the best school practices that are widespread in the United States or Finland are based on the ideas of Soviet psychology.

I joined the "salt mines" of public education in June 1988, at the request of the head of the USSR State Committee on Public Education Gennady Alekseevich Yagodin. He offered me to invest my efforts into the beginning of practical psychology of education in the country. Did I succeed? Yes, I did. Did I want it to be more effective, with a higher professional level of psychologists, so that no patient would ever wish to run away from them? Of course, I did.

My second victory lies in the fact that contemporary Russian education speaks the language of variable education. It is rewarding to know that you have offered the world your own language and your own terminology: *variable education*, *development according to the student's individual trajectories*, etc.

I have a very positive attitude to the period from 1992 to 1998, which many call the Time of Trouble. Because the teachers had opportunities to innovate. Without financial opportunities, though. In other words, no matter what is said about this time, it was a period that gave rise to the transformation of the education system in Russia. If I have at least the slightest contribution into it — it makes me happy.

And a few words about failures. The romantic illusion that it is possible to change the education of Russia without changing its totalitarian system has been completely destroyed. I still hope that education boosts the country development. However, my dream of Russia moving from a culture of utility to a culture of dignity has not yet come true. Therefore, we failed to transform education into the most valuable sphere when a teacher, like a doctor, becomes a person with the highest status in the country, when people tip their hats to teachers, doctors and priests.

There was a lot of sound criticism. It continues even now, when we join efforts with Alexander Adamskiy, Artem Soloveichik and other colleagues to develop variable education. This work is always criticized as many people involved in education are solo singers. Choral songs about the education development are not good ones.

I have a peculiar attitude towards those Internet publications that say that the "Asmolovs" have destroyed Russian education. Needless to say, these words are hurtful, bitter and painful. Although, when they carry it too far, it first causes a shock, and then a smile. One of the critics called me a leader (I was flattered to be named by such a word) of liberal fascism and social darwinism in Russia. Then he wrote that Asmolov had thought it out when he communicated with Bukharin. It is clear that I have never met Bukharin — for obvious reasons.

I consider these people to be fanatics, they combat the "Asmolovs," but in reality these attacks cause the destruction of our children's future. They want the world to be unchanged as it was millions of years ago. Maybe this is not bad but, on the other hand, it would lead to a kind of Groundhog Day. These people are so combative that they are longing to live in the past — and I reckon they can succeed in it. How do I feel about them? I treat them psychotherapeutically. I sympathize with them. Because, as it is said in the famous work: "Forgive them; for they know not what they do."

What is infantilism? This is an escape from decision making. When today they talk about infantilism, in fact, it is connected with the phenomenon of responsibility aversion — as it has always been at all times. The child says: "Why are you asking me to do this? I can't do it, I'm a wee child."

Infantilism is also associated with the phenomenon of prospect collapse. When you start living your happy childhood day. Even a special term appeared — prospecticide, that is, what kills prospects, by analogy with suicide. In a pandemic situation the risks of prospecticide have risen. At this point the escape into infantilism occurs. Because

as long as you are infantile you still have a future. And virtualization of reality affects these processes. It develops a reversibility effect in a child. In analogy with a computer game: the child can win and if he loses, he can replay.

One of the risks of virtual reality is when you give gadgets the ability to make decisions and thereby your mind loses its faculties. For example, instead of counting 6×9 in your head, you use a computer thus making your brain lose its powers. This is a dangerous phenomenon.

It results in a great degree of helplessness: without our virtual assistants we find ourselves in a situation of social asphyxia. A phenomenon of phantom pain appears: when you left your phone at home you feel so bad as if your arm was cut off. Some of my colleagues believe that this kind of degradation is already beginning. But we should blame ourselves for that rather than computers or gadgets.

I haven't heard of such scales in human history that could precisely weigh our gains and losses. As we said technology brings new reality and new changes. And what the Internet, artificial intelligence, neural networks and machine learning bring to our lives has never happened before. Why is that so? Because they have an effect their creators haven't thought about. This is the Pygmalion effect. Something was created but no one knows exactly — what is it?

A key feature of these technologies is that they provide a higher degree of freedom. You can write something with a pen. Or at least, if someone attacks you in a dark alley you can use it for self-defense. Thus, we have two ways of using it.

How many ways can IT technologies be used? Few people know. Therefore, another characteristic feature of IT technologies is multiplying the unpredictable. The technologies have become social phenomena that change people's lives rather than instrumental or technical ones.

Using the language of evolutionists, elaboration of these technologies led to a huge leap of *homo sapiens* development. What lies ahead? Will today's younger generation say that they have found the missing link between the ape and man — and this link is their parents? Time will show. The winners are those who are willing to take risks.

Frightening Unpredictability?

There is a fear of entering an open door. Unpredictability and generation of greater uncertainty. And instead of working with this unpredictability and using it as a resource for development we start to run away from it, as we run from changes. We are afraid of our pre-adaptation and it prepares us for the future and for working with these technologies. We are beginning to limit our use of Internet, we are beginning to consider technology as a means to lead to total control; though. It should be repeated, it is not technologies that should be blamed for the emergence of the "Big Brother," but human beings, like you and me (Asmolov, Shekhter, & Chernorizov, 2017).

I always point out that the individual pre-adaptation is a price for the species development. When people take risks, when they act like a trickster or jester, like Pyotr Chaadaev or Andrei Dmitrievich Sakharov or Janusz Korchak (2020) or Viktor Frankl, their payment for making human life better is their life, their theory, their ideology.

I am not so naive as to argue that everyone manifests it the way Chaadaev (he is Chatsky from *Woe from Wit*) or Don Quixote did. But as long as there are such heroes, we are sure that those who are willing to take risks can win in unpredictable situations. Those who evade from risks in such situations tend to lose.

Therefore, an evolutionary strategy of placing a stake on unpredictability is a victorious strategy. As progress on this planet is an increase in diversity.

Arkady Strugatsky wrote a book *It is difficult to be God*. My favorite formula is: "It's difficult to be a man." At all times. New generations have much more opportunities than we had. To characterize the new generation that speaks about Russia freely and clearly, I use a non-scientific term *unbeaten generation*. When the generation appears in which you are not called a parasite, as Brodsky was for having written *The Pilgrims* and many other of his poems — this generation has more chances than ours. Due to what is happening in the world currently. But it's one thing to have chances and another thing to take advantage of them.

I have an utopian hypothesis, which has not been shared with anyone yet. Half-joke, half-truth. There are two directions for changing history. One is called *bombism* and the other is *bardism*.

Bombism is when Zhelyabov, who "didn't give Perovskaya enough sleep," takes a bomb, thinking that if "we destroy the whole world to the core," we will thereby save it.

Bardism is a unique, free movement of people like Bulat Okudzhava, Alexander Galich, Vladimir Vysotsky, Yuri Vizbor. These were people who followed the principle of "internal emigration" (as Anna Andreyevna Akhmatova put it) in Russian kitchens and around the fire, where they created what Yuri Lotman called "the laboratory of life," a space of free development. Nobody understands: but for these professionals no perestroika would have happened.

"We — by name — will remember everyone // Who raised their hand!.." — Galich sang about Pasternak, who was destroyed for *Doctor Zhivago*. I cannot answer the question whether today's twenty-year-olds will raise their hand if they are told to condemn Pasternak or Andrei Dmitrievich Sakharov or not. I am not completely sure whether they will pass this test or draw conclusions. Most never draw conclusions. As it is very difficult to be a human being.

There is a wonderful formula I love very much: "If I am not for myself, who will be for me? If I am only for myself, what am I? And if not now, when?" These famous words of Hillel, dating back to the beginning of the first millennium of the new era, are very important.

I would advise a young person — and indeed any person — to clearly understand that every choice is a choice of himself. Whatever is chosen. Choosing a career is choosing

oneself. Choosing a girlfriend is choosing oneself, not just her. The decision to go to the Senate Square is also a choice of oneself.

Whatever we do, we choose ourselves. And we pay for this choice primarily with the fate of our loved ones and our own fate. And there is no such a yardstick that can be used to measure happiness or success.

What has the Pandemic Taught Us?

The pandemic has undoubtedly taught me (like many others) several important lessons. When you as a crisis researcher talk about crises for a long time — this is one situation. Another situation is when you become a crisis practitioner and start living in a crisis situation in the full meaning of the word.

Paradoxical as it may seem, but the pandemic served as an occasion for me to reflect on what we are talking about today. In a crisis situation, the winners are those systems that value human life most of all, like Albert Schweitzer did. The systems that prioritize economy and consider a man to be a means rather than a purpose, that are guided by a formula "The end justifies the means" ascribed to the Jesuit general Ignatius of Loyola, — such systems will lose.

The pandemic confirmed the correctness of my idea of preadaptation as readiness for something that actually does not exist and cannot be. You can imagine how important it is for a researcher to confirm a hypothesis.

The pandemic taught me to cherish face-to-face communication more than I did before. I am longing for hours of communication with my loved ones, my students, disciples, researchers. It troubles me not to be able to do it. Thus, the value of communication became a lesson from the pandemic for me.

And one more lesson. The pandemic proved that Einstein's constructions about the transformation of time are completely true. I have never had such a density of life as during the pandemic. Time has condensed, it literally shrank! And, paradoxically, in this situation of condensed time much more can be done than before.

Who would have thought! If someone had told me that I would zoom — never in my life!

We found ourselves in a world of the different normality. The leading art of this world is to live with other, dissimilar people. Therefore, the paradox of our time, which has not been fully realized yet, is a massive demand for uniqueness. The crisis we are facing now is a network challenge. It is impossible to get out of the network crisis with the help of vertical control systems. Only horizontal communications and network self-organization will help to find a way out of the crisis. Let's remember a principle developed by Prigogine: in the situation of bifurcation even a weak signal can change the system evolution. We must make the most of the power of weak ties. That is why today, more than ever, Kropotkin's ideas about cooperation and mutual assistance are coming to the fore.

The Garden of Forking Paths

My favorite symbol is the Garden of Forking Paths. We should allow diversity and learn to choose off-beaten tracks. Only living things can swim against the current. Each of us has a unique set of capabilities. Culture will emerge from the crisis and become resilient if it learns to be tolerant to uncertainty, strangeness and dissimilarity. How would a man differ from an animal if there were only necessary in him — and nothing odd? In no case should one discard alternative ways of development, including apocalyptic ones. I aimed to show the value of these pathways, rather than homeostatic schemes, in my article.

Emergent evolution, that is, sudden, which we have encountered lately, has peculiar characteristics. These are the properties of diversity, variability, redundancy and anticipation, that is, pre-adaptability. It requires a readiness for something that never happened, and the ability to construct reality ourselves. As Nikolai Bernstein put it, a task gives birth to an organ. Many reserve opportunities are being taken out of our evolution today. They used to be hidden in us earlier. And now they can help us find a way out of the crisis. For humanity this crisis, with all its complexity and tragedy, is time to develop new perspectives.

When we talk today about boundaries, up to a distance of two steps between people, we deal with forced atomization. But at the same time let's monitor all information flows. Each of us is looking at what happens in Rome, Madrid or New York. Today we are interested in planetary identity — more than ever. My position, or, if you like, a value belief, is that the atomization has instrumental nature, it is only a measure of social hygiene, established for the current period, that helps to buy time to cope with coronavirus. But the focus on impenetrability of borders, on disintegration down to social atoms, will not bring success in the long run. When we share our thoughts and make our research findings transparent, we develop a collaborative model of success. It is the only thing to bring an end to the crisis.

Different analysts in different cultures are beginning to see clearly that joint efforts, mutual aid and cooperation are becoming key values and a basis for strategy of behavior in the crisis. Reflection of mutual assistance as a factor of evolution becomes a direction for overcoming the crisis. This implies building horizontal ties that will structure human communities.

In my opinion, the last person who knew what is "good" and what is "bad" was Vladimir Vladimirovich Mayakovsky, I mean. In this respect, I can say that the current crisis is a productive one, no matter how paradoxical and difficult it is. It will bring to the fore the pre-adaptive properties of our evolution that will allow us to overcome this crisis. On its other side, we will find ourselves in an era of normalcy that will be understood differently. In this regard, this crisis functions as a catalyst for new opportunities that will give rise to a new phase in human history.

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Significance of Activity Theory Concepts for Qualitative Neuropsychology

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Значение теории деятельности для качественной нейропсихологии

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Abstract. The article analyses theoretical and methodological aspects of neuropsychology. Neuropsychology might be considered as a part of neuroscience, but also as the part of psychology. In this last choice, neuropsychology has to conceptualize the ways for studying of psychological process before passing to the level of relation, which exists between psychological processes and brain level in order to identify specific mechanisms or components of psychological processes related to the functioning of special brain zones. Such a study can be based on different general psychological theories. One of the possibilities is historical and cultural approach and activity theory. From the point of view of activity theory approach, brain functional systems might be understood as psycho-physiological dynamic mecha-

nisms of actions and operations fulfilled by a subject. All actions of the subject are always accomplished within the context of one or another cultural activity. Neuropsychological level of analyses might be understood as the elementary functional level of human activity. Neuropsychological analysis might be organized as assessment of actions instead of assessment of isolated functions. The article shows the benefits and significance of activity theory general concept for the field of neuropsychological research and practice of assessment and rehabilitation. The discussion stresses the importance of argumentation of relation between general psychology and neuropsychology.

***Keywords**: theory of neuropsychology; activity theory; cultural and historical psychology; neuropsychological assessment; neuropsychological methodology*

Аннотация. В статье анализируются теоретико-методологические аспекты нейропсихологии. Нейропсихология может рассматриваться как часть нейробиологии и как часть психологии. Как часть психологии нейропсихология сначала должна концептуализировать пути изучения психологического процесса, а затем перейти к анализу взаимосвязи, которая существует между психологическими процессами и уровнем мозга, чтобы идентифицировать конкретные механизмы или компоненты психологических процессов, связанных с функционированием специальной зоны мозга. Такое исследование может основываться на различных общепсихологических теориях, в частности на теории деятельности. С точки зрения теории деятельности функциональные системы мозга рассматриваются как психофизиологические динамические механизмы действий и операций, выполняемых субъектом. Все действия субъекта всегда совершаются в контексте той или иной культурной деятельности. Нейропсихологический анализ можно понимать как элементарный функциональный уровень человеческой деятельности, представляющий собой оценку действий вместо оценки отдельных функций. В статье оцениваются преимущества и значение общей концепции теории деятельности для нейропсихологических исследований и практики диагностики и реабилитации. Подчеркивается важность аргументации связи между общей психологией и нейропсихологией.

***Ключевые слова:** теория нейропсихологии; теория деятельности; культурно-историческая психология; нейропсихологическая оценка; методология нейропсихологии*

Introduction

In psychological sciences, it was L. S. Vygotsky who started to analyse traditional way of considering of the human psyche and to criticise basic conceptions and concepts of this science. Vygotsky defended independence of psychology from other close disciplines, such as sociology and physiology (Vygotsky, 1997). Independence doesn't mean impossibility of relations and complex research, but it means orientation of proper inner concepts and reference to the same level of analysis. The concepts depend on determination of object

of study, unit of analysis and specific methods of analysis of concrete data. These methods should be proper for the object of study.

Vygotsky was specifically interested in consideration of proper qualitative essential features of human psychological processes, which differ him from all other known human beings. These features are as follows: possibility of voluntary regulation of own processes, inclusion of external and internal cultural means and conscious meaningful reflection of own processes and their results (Vygotsky, 1995). Such are the main characteristics of what Vygotsky has called as superior psychological functions. These functions can't be explained by genetic biological automatic processes; they are acquired during the child's interaction with adults and cultural objects; they are just a potential possibility, as cases of absence of such functions are also possibly. The object of study would always be psychological development, in many different senses, for example in the sense of development of cultural interaction between adult and child in periods of infancy (Vygotsky, 1996); in the sense of development of characteristics of regulation, mediatization and conscious reflection in childhood and adolescence (Vygotsky, 1995); in the sense of development of methods of teaching and usage of empiric and scientific concepts (Vygotsky, 1991).

In the case of neuropsychology, it is possible to study how complex functional systems (Anokhin, 1980) at the level of superior nervous system might be conformed in different ages and according to different interaction and organization of child's own activity. In any case, such a developmental approach proposed a dynamic and dialectic way of analysing and understanding of functional brain mechanisms instead of static and statistical approach, which is a predominant in cognitive neurosciences.

Vygotsky (2016) has exposed surprising hypothesis about dynamic participation of different levels of brain organization in childhood and in adulthood in cases of brain lesions. Vygotsky wrote that the same localization of brain lesion would conduct to different consequences in children and adults. At the same time, same difficulties might appear in children and adults, but in cases of diverse localization of lesion. Vygotsky had no kind of experimental confirmation of such hypothesis at his times, but it's clear today that this dialectical approach is the write one. Nevertheless, consideration of static and equal localization of such psychological processes as language, attention, emotions still is the most traditional and common among psychologists, neuropsychologists and specialists in medicine and neurosciences.

It isn't possible to affirm that Vygotsky has finished all his proposals. His work was continued and spread between his followers and even critics in some of the aspects of this theory (Vygotsky, 2017). Probably, Vygotsky would eager to change or modify some of his initial theoretical positions. It's also true to say that his ideas became an impulse for a huge number of research and concepts, so that new concepts within psychological paradigm called as activity theory (Leontiev, 1975).

Main Principles of Activity Theory

Vygotsky (1991) has defined systemic character of superior psychological functions; the difficulty of his conception consisted in the absence of new level for psychological analysis instead of the term *function*. According to continuation of cultural tradition in psychology (Leontiev, 1975, 1983), the terms *activity* and *action* are much more appropriate for systemic analysis of cortical and subcortical mechanisms in neuropsychology.

The concept of activity in psychology should not be understood as equal to the concept of function. The term function has too broad meaning and might be applied to all levels of consideration: anatomic, physiological, neurological, genetic and so on. The concepts of activity and of action belong to cultural level of a subject and include motive, goal, orientation and result (Gal'perin, 1998; Leontiev, 2000; Talizina, 2009, 2018). Activity and action might only be formed as result of cultural-social interaction between subjects (adult and child) and of learning process; these processes aren't given *as natural process*. There is no sense for separation of *natural development* and *learning process*, because all cultural actions are the result of learning process and are not given *by nature*.

An important position for neuropsychology is that functional systems of brain cortical and subcortical mechanisms do not appear either *naturally*, but only in actions and activities, where child is involved by adults during ontogenetic development.

According to our opinion, the main positions of Vygotsky about the features of human psyche and the object of study as psychological development were completely preserved in activity theory (Talizina, 2018). Some differences and complements to this theory consisted in clear definition of the role of culture as the main feature of development of human society and of possibility of dialectic analysis of human activity at different levels (Leontiev, 1975). On the basis of the concept of activity and action, there was no need to divide the psychic phenomenon into indefinite quantity of isolated psychological functions any more (Talizina, 2009). The concept of activity itself offered two main orientations in the field of psychological research. It was possible to use the term of activity as the object of psychological analysis of different phenomenon and, at the same time, activity became a methodological principal of formulation of psychological development as its essential condition and medium of expression (Salmina & Filimonova, 2001). Another valuable advantage of activity theory was inseparable unite between personality (psychological subject of activity) and activity, which means that activity is always conducted by a subject and directed to an object (external or internal). There is no sense to speak about activity without a subject (personality), but also activity is considered to be the basis for development of personality, so that there is no personality without activity (Leontiev, 1975). It's well known that the absence of clear relation between personality and cognitive functions is one of the main weak aspects of cognitive theory (Dansilio, 2012). Within this theory, it's possible to study any cognitive function with no relation to personality or psychological subject, while it wouldn't be possible within activity theory. There is no psychological activity without psychological subject (Leontiev, 1975).

Methodologically, the main structural element of psychological activity is the motive as essential impulse of activity. Motive, as an object of directed activity, attracts the subject to realization of this activity even if the subject isn't conscious of this motive (Leontiev, 1975). At the same time, consciousness of the subject is a potential possibility, which might be achieved as a possibility of psychological development. High developed personality is always conscious of own motives and goals (Asmolov, 2001).

The motive as an object of directed activity, might be presented by real concrete object presented in front of the subject, by perceptive concrete or abstract image, by recalled image, by another subject, by internal concept or verbal expression. There are many different options for consideration of the object of activity. During ontogenetic development, firstly, concrete persons and real objects appear as the motives of directed activity and impulse activity of a child's development; later on, perceptive images, meanings of external words and finally, internal concepts and images might appear as the motives of subject's psychological activity (Gal'perin, 2000).

According to us and with some kind of modification of previous publications (Talizina, Solovieva, & Quintanar, 2010), the main principles of activity theory might be resumed as follows:

1. Primary character of external activity as the potential basis for appearance of internal activity.
2. Invariant structure of human activity at external and internal plans.
3. Existence of different levels of analysis for same kind of psychological activity.
4. Necessity of consideration of the whole structure of activity, even if concrete study obliges to precise only one element of the structure of activity.
5. Different kinds of cultural activities appear and guarantee psychological development of a child in different qualitative periods.

Neuropsychology and Activity Theory

What are advantages of psychological conception of activity for the field of neuropsychology?

The first advantage is that activity theory is a solid psychological conception of human development. Human development would never be understood within consideration of the history of cultural activity, which is ontological basis of this development. Study of history means understanding of different qualitative changes and modifications of multiple aspects of social life. Neuropsychology, as any other science interested in human development, has to propose a unit between cultural development and brain mechanisms involved in this development in cases of pathology and normality.

From the point of view of activity theory, the subject or personality has to be represented as subject of his own activity. The unit of psychological study is action and not function. According to Talizina (2009), the action could be understood as an elemental level of human activity, which conserves all significant components, such as motive,

objective, result and means of execution. Examples of actions are writing of sentences, drawing of a house, playing with a doll, reading a text. All mentioned actions have same psychological invariant structure, but different content and might be analysed as shared actions or as individual actions of a child in each concrete case.

Different psychological phenomenon might be described in terms of actions instead of the terms of functions. For example, the possibility of remembering and reproduction of information, which is related to traditional function of memory actually depends on specific actions of subject. Such action can be action of semantic or significant organization, action of coping of words, drawing of scheme and so on. Such processes can be realized as conscious or as automatic. In the second case, as automatic processes, they are operations and not actions, according to Leontiev's conception (Leontiev, 2000).

How might we include neuropsychological analysis to these activity theory terms?

Neuropsychological analysis could be proposed as assessment of cultural actions of a child instead of classic analyses of isolated psychological functions. For example, it is possible to propose the assessment of learning activity instead of assessment of memory, attention, perception and so on. The neuropsychological analysis of learning difficulties can be based on activity theory approach. In this case it is necessary to identify the structure of learning activity, which includes motive, object (material, perceptive, verbal or combined), objective, orientation base of action and the sequence of operations. Each component can be fulfilled only in the case of conservation or adequate development of different neuropsychological mechanisms.

Through neuropsychological analysis, it is possible to identify brain specific mechanisms or components of psychological processes related to the functioning of special brain zones. Such a study can be based on different general psychological theories. Relation between level of brain mechanisms and psychological processes can be established by different manners. One of these possibilities is activity theory.

Neuropsychology, as a particular branch of psychology, studies dialectical relation between psychological processes and brain level of organization of these psychological processes. Dialectical relation means neuropsychology studies possible relations between brain level and psychological level of activity. Different kinds of cultural activity and different levels of acquisition and automatization of this activity may involve different brain functional mechanisms. According to this dialectical conception, there is no static and unique way of localization of psychological processes in brain structures or neural nets. This opinion is the opposite to a common conception about unique role of anatomic structures or neural nets for some elemental or complex psychological processes (Bassett & Gazzaniga, 2011; Damasio, 2010; Gazzaniga, 2012; Gazzaniga & Mangun, 2014).

According to Leontiev (1983), one of the levels of psychological activity is the level of psychophysiological mechanisms or systems of this activity. The level of psychophysiological mechanisms doesn't exist independently from cultural activity and can't be understood as a result only of maturation of brain structures. The introduction of this level as an object of analysis opens broad possibilities for understanding that functional brain systems appear and might develop only as specific level of cultural actions

of psychological subject. This argument is direct consequence of methodological usage of the concept of activity into neuropsychology. It offers the new possibilities for study of the process of psychological development in childhood and of neuropsychological rehabilitation in different ages.

One of the tasks of neuropsychology is to study activity and action from the point of view of brain cortical and subcortical mechanisms, which take place for their realization. The level of psychophysiological and neuropsychological mechanisms of actions is the level, which permits to establish dialectic relation between culturally formed actions and the level of organism functioning. The mechanisms might be studied at different levels, for example, from the point of view of neurophysiology (Anokhin, 1980; Bernstein, 2003) with complex of the unity of action and brain mechanisms (Machinskaya, 2012).

From the point of view of activity theory approach, brain components might be understood as psycho-physiological structural and systemic mechanisms of conscious actions and subconscious operations fulfilled by a subject in the context of one or another general activity. In other words, neuropsychological level of analyses could be understood as the elementary level of human activity.

According to Luria (1973), none of psychological functions could be localized directly in the human brain. Such proposition is based on theoretical comprehension of psychological functions or psychological processes. Psychological functions represent complex acquisitions, which pass through gradual development on different stages during the child's life (Elkonin, 1989; Vygotsky, 1996). All psychological processes appear firstly as external shared and collective material actions between adult and child (Vygotsky, 1996). Cultural objects are an integrative part of these actions and we might understand them even better as extra brain processes. Only later, psychological processes might be represented as internal individual processes.

From the point of view of social development and of ontogenetic acquirement through the "history" of each particular child (Luria, 1973; Vygotsky, 1991), each cultural action has its "own cultural history" and possibility of development and gradual interiorization. Such particular "history" always depends on particular features of social general culture and social situation of development in each concrete case (Elkonin, 1980; Obukhova, 2006; Vygotsky, 1996).

According to modern neuroscience, it is possible to notice that complex processes are not localized in these models but are represented as distributed systems with diverse components. The problem with this modern position is that there is no conceptual clarity for distinction between basic and complex cognitive processes. Which processes are basic and which are complex? There is no clear definition of these differences in cognitive approach. These basic processes appear to have specific content, but they also might be understood as independent components of kinds of attention. According to such models, the brain processes are given directly by brain's functioning and maturation and there is no place for dialectical understanding of complex process of psychological development or consolidation of functional systems starting from the early childhood. In other words,

there is no conceptual difference between the level of brain mechanisms and complex psychological processes.

According to Vygotsky (1995), complex processes are those of cultural origin, mediatized structure and voluntary functioning. Such processes represent psychological actions of the subject and might be fulfilled on different plans of development: material actions, perceptual actions, verbal external and verbal internal actions. Functional systems and brain mechanisms involved in these systems would be different as this stages of development, or fulfilment of each concrete action of the subject. At the same time, alteration or lesion of one the components, might be overcome by inclusion of another new element into the complex functional system. This argument became methodological basis of proposals for rehabilitation of motor actions (Leontiev & Zaporozhets, 2012) and intellectual actions as a consequence of brain damage (Luria, 1969; Tsvetkova, 1998). These principles of rehabilitation as the principles of re-organization of functional systems at different levels of nervous system (Leontiev & Zaporozhets, 2012). According to Luria, psychological functions are understood as complex cultural actions as writing, reading, speech comprehension, problems solving and so on. Each cultural action is represented in the brain as a complex functional system with dynamic functional elements or factors (Luria, 1973). The term of psychological activity helps to precise systemic and dynamic relations between psychological processes and brain functional mechanisms. The category of activity is the primary on in relation to the category of functional system. The common way of thinking is an opposite: brain, as biological structure, is the primary category in relation to intellectual development or actions, even if these actions are helpful for intellectual development (Ferreiro, 2004; Piaget, 2008).

All present arguments allow to speak not only about cultural-historical psychology, but also of cultural-historical neuropsychology.

Activity Theory for Child Neuropsychology

One of the main positions in cultural psychology and neuropsychology is that there is no possibility for maturation of functional brain systems out of consideration of the type of activity, in which the child is included as it's psychological subject. In other words, there are no actions, which are "free of culture" on the level of human activity. Such affirmation also means that there are no functional brain systems as the basis of cultural actions; these functional systems aren't "free of culture" either.

Cultural and historical origin of psychological actions is important position for neuropsychology. All actions of the child such as communication, playing with toys and roles, speech understanding and production, drawing, problems solution, reading and writing have their own cultural history. Each child has unique history of development (Vygotsky, 2017). Gradual psychological development and levels of acquisition of these actions continues to be an important object of multiple psychological investigations.

Functional system with diverse cortical and subcortical components should become an object of research within developmental cultural neuropsychology.

Not only cultural actions, but also functional systems are the result and consequence of interaction, learning and joint social life. It is clear that functional systems might be *historically* changes together with the changes of cultural actions. Writing, reading, drawing, typing and calculation are only some of examples of cultural actions, which have suffered essential changes through history of mankind and are changing nowadays. Cultural differences of writing and reading are studies by different branches of sciences, but cognitive neuroscience speak of their precise fixed localization and dependence of genetic processes. On the contrary, in neuropsychological studies it was shown that brain representation of same abilities and actions, for examples, actions of visual perception, is different in adults and children (Akhutina, 2001, 2002; Simernitskaya, 1985; Stiles, Reilly, Paul, & Moses, 2005). Different functioning mechanisms might be involved in cases of attention deficit disorder (Glozman & Shevchenko, 2014; Machinskaya, Semenova, Absatova, & Sugrobova, 2014; Solovieva & Quintanar, 2014a, 2015a). Our recent studies of children with attention deficit disorder have shown that brain mechanisms of this syndrome differ from age to age and that there are qualitative differences in troubles shown by pre-scholars and children of primary school and pre-adolescents (Solovieva, Pelayo-González, Méndez-Balbuena, Machinskaya, & Morán, 2016; Solovieva & Quintanar, 2015a, 2015b, 2019a).

The task of neuropsychologist, during qualitative assessment, is to determine precise functional stage (preservation or level of development) of each mechanism within specific functional system. Functional system is the level of brain representation of cultural action. From this point of view, cultural action would be represented in central nervous system as complex functional system; such system would include different (never only one) *neuropsychological factors* or functional mechanisms.

From the point of view of cultural-historical neuropsychology, it would be possible to study specific cases of formation of functional brain systems as results of specific interaction between child and adult of group of children in different ages (Solovieva & Quintanar, 2014a, 2014c, 2016a). This topic is extremely new and not yet completely studied by psychologists or neuropsychologists. We consider that it's important to study different levels of interaction between adult and child in normal conditions and in situations of neurological and social risk of development. It's also very important to provide the studies of conditions for successful psychological development and its effects for conformation of brain functional systems.

It's possible to notice that the circle of interests has become wider in recent twenty years. The children with and without learning disabilities and development problems are frequently included as subjects of neuropsychological assessment. First years of life and cases of genetic syndromes became also attractive for researchers (Pelayo-González & Solovieva, 2018; Solovieva & Pelayo, 2019). Groups with cognitive and behavioural problems without clear neurological signs are described in literature (Akhutina & Pilayeva, 2012; Quintanar & Solovieva, 2000).

The problems in school learning and development should necessarily have neurological base, which depends partly on the process of maturation of correspondent brain structures. Such opinion shows a big contrast with commonly used typology of disorders according to DSM–V (American Psychiatric Association, 2014), which doesn't provide any objective relation between behavioral external description of difficulties and the status of central nervous system.

Another proposal exists within Luria's methodological approach. According to this approach, neuropsychological analysis should be conducted on particular level, that is, level of psychophysiological level of activity. These elemental mechanisms of human activity were called as neuropsychological factor (Tsvetkova, 1998).

For Luria (1973), disturbance of factor is a cause of systemic difficulties in patients with brain damage, as for example, alterations of kinetic melody is the cause of speech difficulties in motor efferent aphasia. This level should be differentiated from the level of cultural actions and from neurological neuroanatomic level of brain structures.

The term neuropsychological factor refers to the result of work of brain structure (Mikadze & Korsakova, 1994). We believe that it is useful to add that this is a result of functional participation of structures for completing specific roles inside different kinds of cultural actions (writing or reading of sentences or words, for example). These cultural actions might never be represented in the brain by one component or mechanisms, but by functional union of widely distributed mechanisms form diverse cortical and subcortical levels. One mechanism may participate in different actions and each action should include multiple mechanisms (Luria, 1947, 1969).

This kind of factorial functional analyses is nowadays successfully applied in the field of child neuropsychology for analyses of cases of children with learning disabilities and retardation in psychological development (Akhutina, 2001; Akhutina & Pilayeva, 2003; Mikadze & Korsakova, 1994; Santana, 1999; Semago M. M., Akhutina, Semago N. Ya., Svetlova, & Bereslavskaya, 1999; Quintanar & Solovieva, 2000, 2008).

In case of child neuropsychology, as not all cases of difficulties in development and learning at school are related to brain damage, the term of factor might also be useful. It's possible to detect dysfunctional stage of diverse brain mechanisms as result of immaturity at levels of subcortical regulation. Actually, inclusion of different levels of subcortical regulation as essential level brain functioning in childhood is an important contribution into child neuropsychology (Akhutina, Korneev, Matveeva, & Agris, 2015; Luna-Villanueva, Solovieva, Lázaro-García, & Quintanar, 2017; Pronina, Korneev, & Akhuitna, 2015).

An action is the essential process of activity, and its motive corresponds to the same of activity. For example, the action of solution of arithmetic problem is only one of the actions, which belong to the activity of learning at school. At preschool age, one of examples of actions might be drawing of an object or of a landscape (Solovieva & Quintanar, 2012, 2019a).

We might remember proposal of Gal'perin to understand developed attention as internal function of control (Gal'perin, 1998). Before converting into internal action of control, external objectal type of control is always necessary. According to this conception

of cultural development, brain mechanisms of external collective action and individual internal action could not be same.

Psychological functions as attention, memory, thinking and so on can represent direct object of psychological study, but even psychological studies often don't consider ontogenetic and qualitative changes of these processes. Neuropsychology has to study not only the brain as material structure, but mostly types of relations between these processes and take into account developmental aspects. It's necessary to recognise that such relations aren't permanent or static, but dynamic and flexible. In order to understand these dynamic changes properly neuropsychology has to propose its own level of analyses by its own units different from psychological terms. In Luria's words, neuropsychology studies specific factors or components of psychological processes, which can be related to the functioning of central nervous system (Luria, 1973). We propose to apply this proposal to dynamic changes of confirmation of functional systems in different ontogenetic periods.

Neuropsychology might be integrated into conception of cultural development of psychological activity not only in words, but also in a proper way of consideration of consolidation of complex functional systems in different psychological ages. According to our opinion, it is impossible to work as a child neuropsychologist without acceptation of general psychological explicative system in which brain factors or components of actions would be inserted. In our opinion, it could be useful to apply general psychological activity theory to qualitative neuropsychological approach especially for cases of assessment and correction of learning disabilities and developmental problems in children of different ages.

Examples of Analysis of Learning Process

Let's explain how activity theory concepts might be useful for neuropsychology.

The learning process can be represented as specific activity of a child which consists of variety of different actions such as writing of words, pronunciation of sounds, counting, problem solution, reading and analyses of texts and so on. Each action and operation is realizing with the help of variety of elementary components at brain level. Neuropsychological analyses can provide the means and instruments for identification of preserved and disturbed mechanisms. Such an assessment can be useful for understanding of the learning process and of children with learning disabilities.

We can also suppose that in these terms and following Gal'perin's ideas (Gal'perin, 1998) traditional psychological functions represent automatized internal actions of organization (memory), control (attention). These actions depend not only on biological base but also on development or stage of other components of action: motive, objective and means. No action can be fulfilled by only one of traditional psychological functions. The action includes different combinations of all functions according to the nature and grade of acquisition of the action.

The learning process can be represented as specific activity of a child which consists of variety of different actions such as writing of words, pronunciation of sounds, counting, problem solution, reading and analyses of texts and so on. The high grade of internalisation and acquisition of these actions convert them in subconscious automatic operations. This level of functioning of activity permits to achieve new high goals and senses of personality. In our opinion, this has to be the real goal of teaching and could be new perspective for organization of learning process at school.

The structure of the action depends on its real goal and on the grade of acquisition of action. For example, each particular task refers to particular goal. The task can be: "write the sentence" or "write the first letter of each word" and so on. Operations or means of each action might be different for the subject, for instance, the subject might pronounce loudly each sound, each word or might count the sound or words with the fingers or lines on the paper. Each learning action might be fulfilled by a subject on different moments of learning process by many different means, levels and external helping.

The *Table 1* represents action of writing in situation of dictation of a new sentence at school. The conscious goal of the action is to obtain correct sentence. This action includes at least four operations, which are necessary means of this action, they aren't its conscious goal. In other words, the pupil isn't conscious of these means of the action. The problem or difficulty with any of these operations affects the action as a whole.

Each action includes series of operations, which are the essential means of realizations of the action. As we have said the action is always conscious while the operation is no reflected in the consciousness of the pupil. Such relation is dynamic and changes from the beginning to the end of the process of child's education. The teacher has to know that conscious actions can convert into automatic operations correctly only in case of their adequate representation at the initial level of education. That is, all four aspects of the action of writing has to be reflected in consciousness of the pupil ate the initial stage of learning process in order to pass to internal level at the end of this process.

What might neuropsychology introduce to such analyses of learning process?

In order to explicit neuropsychological analysis of school action, we present psychological structure of action of coping of a sentence and the action of drawing of a house. Each action is fulfilled on graphic level. Action of copying is related at verbal level and the action of drawing at perceptive concrete level. Different operations are involved in both processes; two different functional systems correspond to them.

The *Table 1* presents an example of analysis of psychological structure of action of coping of a sentence. The action is directed to a conscious goal; in this case the goal is coping of exact sentence. The operations involved in this action are operative automatized processes, such as observation, organization and verification of the sentence aren't reflected in the conscious of a subject, if the process is properly understood and automatized. At the same time, each operation might represent independent psychological action if the subject needs specific orientation and understanding of each element of the action. According to Leontiev (1975), actions and operation aren't static phenomenon, but changeable and flexible. Same psychological process might be action or operation in dif-

ferent situations and according to different goals and levels of automatization. Different levels of automatization mean different functional systems, so that neuropsychological assessment should take all these aspects into account. This also means that brain basis of action of writing of a sentence aren't same in different periods of school learning, different method of school learning and different functional stage of each pupil.

Table 1
Psychological structure of action of writing

Copy of a sentence (operations)
1. Visual observation of a sentence
2. Organization of writing (representation of graphic sings)
3. Verification

The *Table 2* presents an example of analysis of psychological structure of action of drawing of a model. The action is directed to a conscious goal; in this case the goal is representation of exact image of a house. The operations involved in this action are operative automatized processes, which aren't reflected in the conscious of a subject. As in case of the action of writing of a sentence, the action of drawing might consist of diverse operations, but also might be represented as different independent psychological actions.

Table 2
Psychological structure of action of drawing

Copy of a model of a "house" (operations)
1. Visual observation of a model
2. Organization of drawing (representation of concrete image)
3. Verification

It's possible to notice, that operations in both actions are similar. The difference consists in different content of the process. In the case of copy of the sentence, the content is presented by graphic symbols (letters). In the case of drawing, the content is presented as concrete perceptive image (house).

Both actions are accomplished on the basis of specific functional systems. Each action and operation are accomplished by variety of elementary components at brain level. Such components might be understood as psychophysiological mechanisms of actions and operations or as elemental level of human activity. Neuropsychological analyse consists of these actions in identification of precise functional components involved in these actions and the functional stage of each of them. The *Table 3* presents functional components of the actions of copy of a sentence, while the *Table 4* for the action of copy of the house.

According to the *Table 3*, different brain functional mechanisms take place in the action of copy of the sentence. Any kind of functional deficit or complete alteration of any of these mechanisms might lead to difficulties in this action. At the same time, isn't often to find situations, in which all these mechanisms would be disturbed. Normally, neuro-

Table 3

Neuropsychological structure of action. Action of copy of a sentence

Operations	Neuropsychological mechanisms
Visual observation of a model	Eye movements Visual primary perception
Organization of writing	Spatial global perception Motor kinetic organization Spatial analytic perception
Verification	Programming and control General cortical activation

psychological qualitative assessment permits to precise functional stage of each of these mechanisms and decide about strong and weak aspects of each child (Akhutina & Pilayeva, 2012). Discovery of weak mechanisms in each case of developmental disorders or learning disabilities is very useful, because it converts in the basis for creation of the program of correction and positive development. At the same time, the clarity with brain functional mechanisms allows to provide useful hypothesis about possible brain zone (level), involved in each particular case.

Table 4

Neuropsychological structure of action. Action of copy of a house (drawing)

Operations	Neuropsychological mechanisms
Visual observation of a model	Eye movements Visual primary perception Spatial global perception
Organization of drawing	Spatial analytic perception Motor kinetic organization
Verification	Programming and control General cortical activation

As in *Table 3*, different brain mechanisms take part in the action of drawing an image by model. Actually, we may notice same functional mechanisms in both tasks. Difficulties might appear as the cause of functional deficit of the same mechanisms in both tasks.

As for the level of difficulty, we have to admit that the task of copy of the sentence in more difficult than the action of drawing by copy, as the first actions involves more functional mechanisms in comparison with the second action.

At the same time, one neuropsychological mechanism takes part in different actions. Diverse variations of the possibilities of formation and development of these mechanisms with relation to aspects of cortical and subcortical maturation should be taken into account, especially in cases of youngest children (Lebedinsky & Lebedinskaya, 2018). The mechanisms mentioned in the *Table 2* might be included in diverse actions and

operation in different ages according to systems of education and nursery (Quintanar & Solovieva, 2008; Solovieva & Quintanar, 2013, 2019a).

According to neuropsychology each mechanism is related to the functioning of concrete zone or conjunction of zone at brain level. Luria called such mechanisms with particular term *factor* (Luria, 1948, 1973). We have proposed to use the term brain cortical or subcortical mechanisms instead of the word "factor" (Quintanar & Solovieva, 2008; Solovieva & Quintanar, 2007, 2014b, 2015a, 2016b). Possible relation between functional mechanisms and brain cortical and subcortical zones are shown in *Table 5*. We proposed to the term *possible relation* because these relations may change in dependence from ontogenetic age and the level of automatization of the process. Cortical and subcortical levels of analysis of mechanisms should be involved together with continuation of research and analysis of each mechanism in different ages. It's important to remember that traditionally, neuropsychology and neuroscience don't show the possibility of broad involvement of different zones for one functional mechanism. The literature pretends to study unilateral relation between psychological function and brain zone.

Table 5

Possible relation between brain zones and some neuropsychological mechanisms

Neuropsychological mechanisms	Brain zones
Phonemic discrimination	Temporal cortical-subcortical zones of both hemispheres
Kinestesic analysis and synthesis	Parietal cortical-subcortical zones of both hemispheres, thalamic zones of kinestetic integration
Audio-verbal retention	Broad temporal inferior, different levels of brainstorm, broad subcortical levels, limbic circle
Global perception	Posterior zones of both hemispheres
Analytic perception	Posterior zones of both hemispheres
Visual and spatial retention	Occipital zone of both hemispheres, different levels of brainstorm, posterior zones of both hemispheres
Motor kynetic organization	Frontal posterior (pre-motor), subcortical structures of organization of movements, basal ganglia, thalamus
Programming and control	Broad frontal lobes and nearest subcortical structures, basal ganglia, thalamus
General activation	Profound subcortical structures/ broad levels of brainstorm (diencephalic and mesencephalic levels, limbic circle)

According to the *Table 5*, same functional mechanism might be related to different brain levels and units. This fact may depend on ontogenetic level of development, level of automatization of actions and, probably, many other different aspects related to life

and activity of each subject. The options of the levels of cortical and subcortical levels presented in the table means that it's possible to find real patients, adults and children, in which these levels might be detected during neuropsychological assessment and another objective procedure, such as register of electric brain activation in the state of repose (Machinskaya, 2012; Machinskaya et al., 2014). In different cases, different dysfunctions of these mechanisms might be detected as the causes of development difficulties and learning disabilities.

Discussion

Why activity theory is important for neuropsychology?

Firstly, activity theory might become a solid theoretical conception in historical and cultural neuropsychology. This theory provides general conception of human cultural development, based on interaction between people in direction to established goals. Cultural development is accomplished during one's life, interaction and external help from the others, without which is difficult to explain and understand child's cultural development (Leontiev, 2000; Tomasello, 2013; Vygotsky, 1996). Any kind of cultural activity, participation in a dialogue, dancing or learning of mathematics, cannot be accomplished without participation of initial external help from the others. Such topics are profoundly studies and described by representatives of cultural-historical psychology and activity theory related to cooperation in groups in childhood (Bruce, Hakarainen, & Bredikyte, 2017; Veraksa & Sheridan, 2018; Wertsch & Tulviste, 1992). At the same time, these activities involve its material base (brain structures). According to historic-cultural psychological conception and activity theory, development of neuropsychological mechanisms depends on their inclusion in concrete cultural activity (Leontiev, 1975). Activity is cultural by origin, which depends on the history of humankind and is specific for different historical periods and social situations (Leontiev, 1983, 2000; Tomasello, 1999). Activity is flexible and dynamic process, but this process might achieve high levels of automatization and perfection. At the level of brain functioning, these levels are characterized by appearance of specific functional organs, corresponding to each kind of activity (Leontiev, 1983). The brain is given by nature, but functional systems and organs may emerge only as a result of cultural activity.

Secondly, all ideas exposed above show new way for assessment and diagnosis of difficulties as the necessity of consideration of the level of psychological development of child in each period of ontogenetic development together with precise qualitative description of features of his/her social situation of development (Vygotsky, 1995).

Thirdly, activity theory might serve as theoretical and methodological basis for strengthening relation between assessment and rehabilitation and correction of difficulties, especially on the basis of Galperin's conception of gradual formation of mental actions by stages (Solovieva & Quintanar, 2019b). It's often to find the absence of such relation. The methods and strategies for rehabilitation frequently aren't based on any other psy-

chological conception then behaviourism or therapeutic approach. Behaviourism uses positive or negative reinforcement, while therapeutic approach suggests global interaction with intention of explanation of the situation and accommodation of the patient to new clinic difficulties.

On the contrary, activity theory approach offers broad possibilities for subject's own activity with the help of adult (or specialist) in the way of overcoming of self-difficulties. Such rehabilitation leads to development. We use this idea from Vygotsky's, who claimed that learning leads to development (Vygotsky, 1995). We are convinced that neuropsychological rehabilitation and correction should lead to development and to simple and passive adaptation of the patient to his/her own difficulties.

From the point of view of the theory of neuropsychology, such rehabilitation leads to re-organization of functional systems or even to creation of completely new functional systems, especially in cases of children. Re-organized functional systems or new functional systems became psychological bases of re-organized or new psychological activity of the subject (Anokhin, 1980; Leontiev, 2012; Leontiev & Zaporozhets, 2012).

Conclusions

Our study shows possible relation of historical and cultural psychology, activity theory and neuropsychology. The term of cultural-historical neuropsychology was proposed and justified, as modern neuropsychology can't be understood as isolated branch of knowledge, which studies only dysfunctions in adults and children. Neuropsychology needs to be based on fundamental concepts of general psychology. Activity theory is on of such options of general psychology.

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Neuropsychological Education in Oppositional Defiant Disorder

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Нейропсихологическое обучение при оппозиционном расстройстве

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Abstract. Oppositional defiant disorder (ODD) and conduct disorders (CDs) is a prevalent condition (between 5 % and 10 %). It is common for symptoms to manifest for many years, sometimes continuing into adulthood, such as severe personality disorders, including alcohol and drug abuse and criminal behavior. Prevalence has shown to have increased considerably over the second half of the twentieth century. The historical cultural neuropsychology allows us to think and work in a new, different way, which has shown itself to be very promising, with good results. This article presents the work of our team in neuropsychological education, guided by neuropsychological rehabilitation proposed by Luria with these children and young people. It also refers the way we use the theory of the formation of mental actions step-by-step by P. Gal'perin, both in structuring the therapeutic session with the child or adolescent ODD and CD, as well as in the pedagogical work with the parents. The case A. B., 10-year-old boy, adopted at the age of five, helps to illustrate the way these cases are usually followed in child psychiatry and clinical psychology, and what may be different within the approach of historical cultural neuropsychology. A brief review of neuroscience research is presented, particularly in neuroimaging studies, so that we can better integrate the clinical work with the boy A. B. The results of our clinical practice suggest that this may be a good working approach for the treatment of ODD and CD. More systematized and extended studies are needed with a greater number of clients.

Keywords: *oppositional defiant disorder; historical-cultural neuropsychological; rehabilitation; formation of mental actions; child psychiatry; clinical psychology*

Аннотация. Оппозиционные (ODD) и кондуктивные расстройства (CDs) встречаются достаточно часто (от 5 до 10 %). Симптомы обычно проявляются в течение многих лет, иногда переходят во взрослый возраст, например, такие тяжелые расстройства личности, как злоупотребление алкоголем и наркотиками, преступное поведение. Во второй половине XX в. зафиксирован значительный рост данных состояний. Новый подход, разработанный в рамках историко-культурной нейропсихологии, позволяет по-новому взглянуть на проблему; он считается эффективным и перспективным. В статье представлены результаты работы нашей команды по нейропсихологическому обучению детей и молодых людей на основе подхода к нейропсихологической реабилитации, предложенного А. Лурия. В статье также рассматривается применение теории поэтапного формирования умственных действий П. Гальперина при выстраивании терапевтического сеанса с ребенком или подростком с подобными расстройствами, а также при педагогической работе с родителями. Случай с А. В. — 10-летним мальчиком, усыновленным в возрасте пяти лет, — помогает проиллюстрировать, как с подобными ситуациями обычно справляются в детской психиатрии и клинической психологии и каким образом лечение может отличаться при применении подхода, разработанного в рамках историко-культурной нейропсихологии. Представлен краткий обзор исследований в области нейронаук, в частности нейровизуализации, с целью выработки более комплексного подхода к лечению мальчика (случай А. В.). Результаты нашей клинической практики доказывают эффективность данного подхода при лечении оппозиционных и кондуктивных расстройств. Мы считаем, что необходимо проведение более систематизированных и расширенных исследований с привлечением большего числа пациентов.

Ключевые слова: *оппозиционное расстройство; историко-культурная нейропсихология; реабилитация; формирование умственных действий; детская психиатрия; клиническая психология*

Introduction

Oppositional defiant disorder (ODD) and conduct disorders (CDs) are characterized by antisocial behaviors outside of socially acceptable norms and often intrude on other people's expectations or rights. They form the largest single group of psychiatric disorders in older children and adolescents. Prevalence of ODD and CD together varies between 5 % and 10 %, with much variability attributed to diagnostic criteria and methods utilized in studies (Harrison et al., 2018).

According to Harrison et al. (2018), in the preschool period, oppositional defiant behavior usually manifests as defiant and aggressive behavior in the home, often with overactivity. The behaviors include disobedience, temper tantrums, physical aggression towards siblings or adults, and destructiveness. In later childhood, CD is manifested in the home as stealing, lying, and disobedience, together with verbal or physical aggression. Later, the disturbance often becomes evident outside as well as inside the home, especially at school, as truanting, delinquency, vandalism, and reckless behavior, or

as alcohol or drug abuse. Antisocial behavior among teenage girls includes spitefulness, emotional bullying of peers, and running away.

Most conduct disorder remits into adult life, although a small proportion of children with disruptive behavior problems go on to show severe antisocial difficulties well into adult life. 75 % of children with conduct disorder and 50 % of those with emotional disorders at age 10 years were still affected by these problems 4 years later (Rutter, 1972). For adolescents with substance use disorders, the consensus is that 75 % will perform normally as adults — with completion of secondary school and supportive psychosocial environments being the best predictors of more positive outcomes (Costello & Maughan, 2015).

Rates are also highest in children that have been maltreated, brought up in residential care, transferred to foster care, and in those with intellectual disability. Furthermore, prevalence has shown to have increased considerably over the second half of the twentieth century (Harrison et al., 2018).

The information that has been presented so far is enough to get our attention, and to think that it is urgent to understand and interfere at a psychological level. We speak of life stories (ontogenesis) that caused different brain organizations, and that due to this difference to an enormous difficulty or even impossibility, to integrate socially and respond to citizenship demands. After several years working in clinical neuropsychology of traumatic brain injury, stroke and learning difficulties, today our work focuses on neuropsychology of human development. ODD and CD cases are frequent in our clinic.

The theoretical reasoning that guides our practice, is the psychology of Vygotsky–Luria–Leontiev. The intervention differs little from that practiced in historical-cultural neuropsychology, or systemic-dynamic neuropsychology, in other clinical and pedagogical areas (Quintino-Aires, 2020a). But there are specificities that result from not being dealing with an acquired or genetic lesion, but from a difference in development (Quintino-Aires, 2016a, 2020b). And they are clinical processes in which the family is not a complementary part, but an integral part of the pedagogical-clinical process (Quintino-Aires, 2020b).

We divided the frames that present complaints in child psychiatry, in biological frames and psychological frames. The first, include intellectual, behavioral, or emotional changes resulting from diseases with a known biological cause. Fragile X syndrome, Down syndrome, or congenital hypothyroidism (cretinism), are examples of this category. They need medical intervention, if available. Even if in a complementary way, psychological intervention may also be present. In psychological conditions, intellectual, behavioral, or emotional changes characterize a condition resulting from a different ontogenetic process. The Hyperactivity Disorder and Attention Deficit and Oppositional defiant disorder (ODD) and conduct disorders (CDs) are included in this group by both the results of the meta-analyzes that have been published and the prognosis when efficient intervention plans are implemented (Quintino-Aires, 2012). The cases of this group need psychological intervention (neuropsychological), and sometimes, in a complementary way, also medical intervention.

When talking about psychology, and neuropsychology, it is impossible not to focus on the question of *psychopoesis*, the process of formation of the human psychological ap-

paratus, basically referred as *mental*. Also is impossible do not to mention maladaptation, the possibilities that during ontogenesis, a human does not achieve the adequate capacity to adapt to the environment which lives, as brain allows. And therefore, not able to take advantage of the possibilities and opportunities that life in society in the 21st century could provide, with equal duties and rights, with their brothers of biological species.

Understanding the psychological construction of the human being, the brain's capacity to form not only with genetic information, is already ancient in science. We can perhaps place its beginning, in a scientific approach, in the 19th century with I. Sechenov (1863/1965). Later, this understanding continues with the possibility of beginning to interpret the role of culture in brain formation with W. Wundt, spatially in his work already done in Leipzig.

But the most complete system is already developed in the twentieth century by L. S. Vygotsky, A. R. Luria, and A. N. Leontiev. Psychology, and neuropsychology, historical-cultural. When we study the higher cortical functions in the child, we find that each higher form of behaviour comes into play twice in development. "First as a collective form of behaviour, as an inter-psychological function. It is a reciprocal psychological process. One process takes place in my brain, the other process in the brain of another with whom I have an argument" (Vygotsky, 1930/1966, p. 126). He wrote: "Each higher cortical function is originally shared between two people. Later, when the resulting development of learning has occurred, then the process takes place as an intrapsychological function." The interpsychological process and the intrapsychological process for the same higher nerve activity naturally have different brain neurodynamic (Ardila, 2018; Kotik-Friedgut, 2001).

This understanding of brain development in humans is known as the Double Development Law, as you can see from what I just wrote. And by many psychologists, myself included, expresses the General Law of Psychology, or the *Dogma of Psychology*. The developmental process stems from a relationship with a "competent veteran," giving rise to the concept of ZPD, a dynamic process whereby what was inter-psychological (social) becomes intra-psychological (psychological). As Dorothy Robbins wrote, quoting Newman and Holzman (1996), "the particular relational activity that is simultaneously and makes possible the transformation of rigid behaviour (forms of live that have become alienated and fossilized) into new forms of life" (Robbins, 2003, p. 97).

Essential in the process of development is the individual's own activity upon the world, an activity mediated by instruments of culture. It is this instrumental activity that gives rise to the structuring of higher cortical functions (Luria, 1961, 1966a). It underpins the development process described in the Double Development Law. Relationship with an "other veteran" is necessary for the presentation of the behavioural activity model and, fundamentally, for the orientation of the "other veteran" during the interpsychological phase (Quintino-Aires, 2012, 2020a).

Each stage of development, and in the history of development as a result of the individual's objective activity in relation to other humans (ontogenesis), links between the components of brain functional systems change, and new constellations emerge.

Constellations which were absent at the previous stage. The development of these new and flexible relationships between brain functional components gives rise to a psychological system (Vygotsky, 1930/1996, 1934/2001). The brain substrate of mental processes is organized into complex systems distributed throughout the brain (*neoformations*), which represent intricate cooperation between different zones.

Contemporary psychology thus gives a different idea of how personality is structured and how it can be transformed. We accompanied L. S. Vygotsky when he says that "*The brain has enormous possibilities for the emergence of new [neuropsychological] systems*" (Vygotsky, 1930/1996, p. 115). Of course, such a perspective places greater responsibility on the work of psychologists and therapists. But it also opens a wide window for intervention and rehabilitation (Quintino-Aires, 2020a).

In structuring psychological (neuropsychological) systems, Vygotsky stressed the importance of *extra-cerebral* links and justified the possibility of the formation of *new brain organs*, structural changes induced in the body (brain) from the outside. This is a new form of evolution, which is observed only in humans (Luria & Homskaya, 1970). Human brains contain the conditions and possibilities for combining functional components, in a new synthesis, and new systems are structured from the outside.

> 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 seen as totally useless. (Luria, 1966b, p. 222)

It is through complex and highly differentiated functional systems that the human can perform the very complex processes of recoding information, forming action programs, selecting essential connections and inhibiting intervening factors, and, finally, a comparison of the effect of your action with the original intention. And it is here that the work of the psychologist (neuropsychologist) should focus his attention on conducting the intervention of clinical cases.

> They are organs that function in the same way as the usual organs, with constant morphology, but are distinguished by being new forms that appear in the course of individual (ontogenetic) development. They are, therefore, the substrate of specific skills and functions that are formed in the course of the human appropriation of the world of objects and phenomena created by humanity, that is, of culture. (Leontiev, 1981, p. 289)

In conclusion, the brain is an organ that is made to do what it is asked to do. An organ capable of making new functional organs. In a process of appropriation, or assimilation, of culture, by its own action on culture when in a relationship with another human who has already appropriated that part of culture. The act in the world, the way it relates to you, to others and to the material world, depends on these functional organs, the new formations, arising in your ontogenesis, and therefore different from individual to individual.

And so, it is immediate to think that, just as we find equivalences in the brain organization of people in the same culture, the same can happen when life stories have similar traits and when the ways of acting in the world (personality and psychopathology) are of the same typology (Quintino-Aires, 2020b).

That is why it seems important to distinguish between biological frames and psychological frames, when we talk about frames that present complaints in child psychiatry. And the possibility to design and execute effective therapy plans under ODD and CD conditions. It is then up to the clinical psychologist to identify the neuro-dynamics of **specific** people, with **specific** behavioral, cognitive or emotional conditions that are presented to them, to design and implement a neuropsychological habilitation plan that allows that person, someone **specific**, a more adaptive way of life, ideally overcoming the psychopathological condition he presented.

It is within this approach, the historical cultural neuropsychology, our perception and understanding of the ODD and CD syndromes, what constitutes the work of neuropsychological education with these children and young people, and the way we use the Theory of the formation of mental actions step-by-step by P. Gal'perin, both in structuring the therapeutic session with the child or adolescent ODD and CD, as well as in the pedagogical work with the parents. To better understand the justification for neuropsychological skills in these cases, we start by reviewing what information neurosciences bring us about their brain organization.

What do Neurosciences Say about ODD and CD?

There is some evidence of abnormalities in the paralimbic system involved in motivation and affect, with limbic structures and the amygdala as well as the lateral orbital and ventromedial prefrontal cortices affected. Furthermore, children with conduct problems have been consistently shown to have poor executive functions — compromising their ability to achieve goals successfully through appropriate, effective actions (Harrison et al., 2018).

Today it is possible to know by imaging methods the differences in the brains of children with conduct disorders. We can thus have a better quality in the use of neuropsychological examination and in the development of therapeutic plans for neuropsychological education (habilitation) in these clinical conditions, for which in the past there were not sufficiently effective responses (theoretically oriented), and therefore also insufficiently efficient (even when done in practice).

In a meta-analysis article, Y. Yang and A. Raine (2009), point out structural and functional deficits in the prefrontal cortex in individuals with antisocial and violent behavior. The meta-analysis of 43 brain imaging studies indicates a significant reduction in prefrontal structure and function. The findings were located in the right orbito-frontal cortex (BA 11, 12 and 47), right anterior cingulate cortex (BA 24 and 32), and left dorsal lateral prefrontal cortex (BA 8, 9, 10 and 46).

L. Passamonti et al. (2012), studied the existence of an abnormal anatomical connection between the orbito-frontal cortex and the amygdala in conduct disorders. Previous studies suggested that some type of structural and functional abnormality in the connection between these two structures could contribute to the pathophysiology of the conduct disorder. Therefore, they investigated the integrity of the connection pathways in the white matter between the orbital-frontal cortex and the amygdala. They studied the integrity of the microstructure of white matter by Diffusion Tensor Imaging (DTI) in adolescents with onset of CD in childhood and controls matched for age, sex, intelligence, and socioeconomic status. The study was based on two methodologies. Voxel-based morphometry of fractional anisotropy (FA), an indicator of white matter integrity, and virtual dissection of white matter using tractography.

Adolescents with CD showed high FA values (indicating directional disorganization of the axons) in the right external capsule. The tractography showed an increase in the values of FA (greater disorganization of the axons) in the uncinate fascicle (fascicle connecting the orbital-frontal cortex with the amygdala of the temporal) in individuals with CD. These results indicate an abnormal maturation in the pathways in the white matter that are fundamental for the regulation of emotional behavior in CD. Similar studies have been carried out by E. Finger et al. (2012).

Also using DTI, they showed that the connection between the prefrontal cortex and the amygdala (uncinate fascicle) was structurally disturbed in psychopathic adults. They found the same functional changes in young people with conduct disorders and opposing challenging disorder. But despite the functional changes, they did not observe structural changes. In the opinion of the authors, this difference opens an important critical window for intervention and treatment.

G. Fairchild et al. (2012) innovated by studying particularly girls with CD. Their study was of voxel-based morphometry, of girls with CD and a control group matched for age, achievement IQ and dominant hand. Girls with CD showed a reduction in white matter in the anterior insula and the right striatum. Aggressive symptoms correlated negatively with the volume of the prefrontal cortex on the right lateral dorsum. The traits of "insensitive personality" had a positive correlation with the volume of the bilateral orbito-frontal cortex.

E. Haney-Caron, A. Caprihan, and M. Stevens (2014), studied microstructure abnormalities in the white matter of adolescents with CD paired with a control group. They used Tract-Based spatial statistics, fractional anisotropy (FA), axial diffusivity (AD) and radial diffusivity (RD). Adolescents with CD had significantly lower values of AF and AD in the frontal lobe and temporal lobe, including anterior/superior corona radiata in the frontal lobe and lower longitudinal and frontal-occipital fascicles. More accentuated due to the number of symptoms of CD. As axial diffusivity, but not radial diffusivity, differentiated the groups, the authors suggested that what would be characteristic in adolescents with CD is more the difference in the microstructure of the axons than the degree of myelination. The importance of this study, using more specific techniques, is to suggest that the differences in the white matter microstructure in antisocial adolescents go beyond

the uncinate fascicle as identified in previous DTI studies, or frontotemporal brain structures as suggested in functional neuroimaging studies.

S. Oostermeijer et al. (2016), added the longitudinal aspect to the study of the development of cortical thickness in DC. The 171 adolescents who received MRI were divided into three groups of different ages, more precisely 12, 16 and 19 years old. They observed different developmental trajectories in cortical thickness at the level of the dorsolateral prefrontal cortex, cortex of the anterior cingulate, insula and volume of the hippocampus (most marked on the right). Very interesting, the adolescents who in their course no longer met criteria for the diagnosis of CD, showed an attenuation of the deviation from the cortical thickness profile. In other words, adolescents who had previously been classified as having CD but who, over time, changed their behavior and stopped showing antisocial behavior, now showed less marked differences. The cortex/white matter ratio decreased, which may mean the formation of more fibers in the white matter during the process of "giving up on CD." In this same sense, De Brito et al., referred by S. Oostermeijer et al. (2016), had already reported a delay in the maturation of the orbito-frontal cortex and the dorsal anterior cingulate cortex in boys with CD.

K. Michalska, L. Decety, Th. Zeffiro, and B. Lahey (2014), using magnetic resonance imaging, used Voxel-based morphometry to verify the association between behavioural measures and white matter volume in whole-brain analyses. They found an inverse nonlinear association between the number of symptoms of conduct disorder and the volume of white matter in the upper left temporal groove, and only a "trend" in the right hemisphere. This association was more marked in girls.

While studying children diagnosed with ADHD, K. McLaughlin et al. (2014) studied the reduction of cortical thickness in children with psychosocial deprivation associated with institutionalization and found results that help us to think about our theme. These children were between 8 and 10 years old and were looking for whether there was a relationship between NMR images and ADHD symptoms. These children showed a diffuse reduction in the prefrontal, parietal and temporal cortical thickness. The cortical reduction was more accentuated due to the greater number of ADHD symptoms. The cortical thickness of the lateral orbito-frontal cortex, insula, inferior parietal cortex, precuneus, superior temporal cortex, and lingual gyrus, associated institutionalization with inattention and impulsivity. The cortical thickness of the supra-marginal gyrus associated only with inattention, and the thickness of the fusiform gyrus associated only with impulsivity. For the authors, the psychosocial deprivation associated with institutionalization disrupts cortical development, resulting in reduced thickness in regions such as the lower parietal cortex, precuneus and upper temporal cortex, leading to atypical function during the performance of care tasks in children with ADHD.

In summary, studies suggest that children and adolescents, ODD and CD, show a different development at the right orbito-frontal cortex, right anterior cingulate cortex, right external capsule, white substance in the anterior insula and the right striatum, left dorsolateral prefrontal cortex, and uncinate fascicle (fascicle connecting the orbital-frontal cortex with the amygdala of the temporal).

We do not yet have a systematic study on neuropsychology. But case-by-case analysis, in the clinic for two decades, seems to accompany these findings. It is very important to note that most of these studies are carried out with children and adolescents who were institutionalized, almost always at an early age and during childhood, and nothing in them was at the origin of these institutionalizations. In other words, the differences they present in brain and neurodynamic structure are not supposed to be attributed to genetic causes or to infectious or other acquired pathology. It is a neuro-ontogeny that mirrors their life stories. This interpretation is supported by the fact that adolescents who had previously been classified as having CD, but who over time changed their behavior and stopped showing antisocial behavior, later showed less marked differences (Oostermeijer et al., 2016). What encourages the neuropsychology of pedagogical intervention in promoting development and therapy in these cases.

Neuropsychological Education (Habilitation) with ODD Children and Young

The tasks that will consist of the materialization of 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 manual. On the contrary. The therapist must have the necessary training 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 or parents. And then, draw up a work plan for neuropsychological education (habilitation).

The therapist should be prepared to do the syndromic analysis (Luria, 1966a) and identify the factors (brain mechanisms) 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 specific client. The methodology of neuropsychological rehabilitation proposed by A. R. Luria is very well described in his books (Luria, 1963, 1966b, 1970; Luria & Tsvetkova, 1987) and also in the works of specialists who continued his work (Glozman, 2016; Glozman & Nemeth, 2020; Glozman & Soboleva, 2018; Quintanar & Solovieva, 2010, 2016; Solovieva & Quintanar, 2018, 2019, 2020; Veraksa, Quintino-Aires, Leonov, & Musálek, 2018), so I will not present them here. I would just like to leave the suggestion that, since there are English editions of the works of A. R. Luria, those who do not yet know the methodology of neuropsychological rehabilitation proposed by him, start by studying his original texts.

A second core element present in the kind of treatment we are talking about here is the attention to the Step-by-Step Theory of Brain Systems Formation, proposed by P. Gal'perin (Núñez & Ramalho, 2018; Solovieva & Quintanar, 2018, 2019, 2020). It has three key elements that are important to remember: (a) orientation, (b) the actual execution, (c) action control. Guidance and control of the action taken by the client

should receive the utmost attention from the therapist. This means that the therapist must ALWAYS be mindful of client execution, guiding and controlling, with the simplicity in expression and communication that any educator is also expected to.

In the Gal'perin'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 the words of L. S. Vygotsky, 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 (Quintino-Aires, 2016a, 2020a, 2020b).

Finally, in conducting our work, do we share with J. Craine, H. Gudeman, and M. Ahn (1981) the answer to the question "how can it best be done?" which they themselves posed in relation to neuropsychological rehabilitation: (1) Whenever it is necessary to work on various skills, the work sequence should recapitulate normal growth and development. That is, what first appears in human development must first be worked on in neuropsychological education / habilitation. (2) There must be an attitude of personalized attention on the part of the therapist to the trainee all the time that he is working with him. This includes a humanized posture that opens space for, even, the expression of positive and negative feelings on the part of the trainee in relation to their process. (3) Provide constant and systematic feedback, so that the client is continuously informed of the progress being made, the purpose of the exercises, and the performance of intermediate steps along the therapeutic journey. (4) Maximum stimulation, within the trainee's possibilities, never mind the amount of repetitions that are requested. To be effective, neuropsychological education / habilitation tasks must be repeated for as long as necessary. (5) In any program, it is essential to start training at the appropriate level. We consider it very important to always work at ¾ (three quarters). What does it mean? That the activity requested of the trainee must be neither too difficult nor too easy. And whenever it becomes easier for the trainee, the therapist must raise the level. (6) The increase in difficulty must happen by small increases. Some degree of solidification is essential before proceeding. (7) The therapist must be concerned with ensuring some success for the trainee's effort. (8) And insist on over-learning, that is, the possibility of the trainee performing the task is not enough.

Presentations on how the neuropsychological habilitation session with trainees is organized by us, has already been published by us in sufficient detail several times (Quintino-Aires, 2016a, 2020a, 2020b), so I think it is not justified to repeat here.

A. B., 10-Year-Old Boy. A Clinical Case

According to the parents, A. B. since he was with them (he was adopted at the age of 5 years old) shows deviant behaviors, such as stealing, picking up and storing all kinds of objects

he finds (he even got to pick up trash), lying and making up stories, hitting colleagues and be aggressive towards their parents and brother (adopted together). The information about A. B., which justified that the parents brought him to the consultation, is shown in *Table 1*.

Table 1

Clinical features of ODD and CD and complaints presented by parents at the first meeting

Clinical features of both ODD and CD (Harrison et al., 2018)	A. B., 10-year-old boy (February 7, 2020)
	Persistent abnormal conduct that is more serious than ordinary childhood mischief. The abnormal behaviours centre around defiance, aggression, and antisocial acts. The upset, disruption, and costs inflicted on the family, peer group, schools, and wider society can be considerable
In the **home** as stealing, lying, and disobedience, together with verbal or physical aggression	• Irresponsible. Just do what he wants. • Many blunders. If parents get angry, it makes it worse. • There is a game, it only lasts three days. • It is bad for the brother if he is upset. • Lie-Choro (remorse parents) — after all, it was a lie. • Steals money from parents and grandparents
Disturbance often becomes evident **outside as well** as inside the home, especially at school, as truanting, delinquency, vandalism, and reckless behaviour	• Steals money from classmates, teacher, parents, grandparents. • Steals garbage and accumulates garbage. • Reacted badly to colleagues, if upset. • Expelled from school compensation classes. • 2 months ago, he left school without anyone knowing. • He was hit by a car. • Permanently steals from schoolmates
Outros	• Smart, but unsuccessful at school. • Enuresis up to 8 years of age. • Hit the head with the hand. • Garbage (moldy bread) in the backpack. • Mom spends hours talking to him and crying (mom). • School psychologist at 7 years old. • Change schools (they did not accept that he would continue). • Psychologist at the new school at 9 years old. This one tells the parents: "He doesn't speak. Parents have to be calm". And send him to child psychiatry. • Child psychiatry: Risperidone® 0.5 mg + Methylphenidate® 18 mg)

Neuropsychological assessment is a fundamental element in the clinical process. It starts by serving as a guide for the preparation of the neuropsychological habilita-

tion plan, and the reevaluations allow a control of the results achieved. *Table 2* shows the results of interest to understand this case. It shows the first assessment, carried out on February 12, 2020, and the reevaluation after three months of neuropsychological habilitation, carried out on May 13, 2020.

Table 2

First and second neuropsychological assessment. BINeLL (Luria Laboratory Neuropsychological Research Battery)

BINeLL	1st assessment, 12 February 2020	2st assessment, 13 May 2020	OK
Brain dominance	Dominant left hemisphere, except in the concealed left-handedness tests, where it reveals a dominance of the right hemisphere (test of applause and "Napoleon's Pose"). In the test of reciprocal coordination of N. I. Ozerétzkiy, reveals delay of the contralateral hand	Dominant left hemisphere	**OK**
Motor functions	Accuracy errors in the Finger Count test. Exhaustion in the test of tightening-stretching fingers. Mirror performance in the Head test, with verbal help corrects. Poor ability to execute Dynamic Praxis. Weak Planning and Verification. No kinetic melody, no rhythm, no speed or brain mobility. Impulsivity in the execution of conditional reactions	Only mildly difficult to carry out conditional conflicting reactions	↑↑↑
Attention systems	Difficulty holding the instruction. Flat processing rate. Some difficulty in sweeping the field stimulate. Without verification. Difficulty in controlling impulsivity. Much help was needed	Normative	**OK**
Mnesic processes	With negative homogeneous interference effect in the delayed repetition. It makes independent associations with the blade, which does not link with the word	Moderate negative interference from the second group. Just an omission. Lower help needed	↑↑↑
Receptive speech	Difficulty in understanding logical-grammatical structures with inversion of the expressive and attributive genitive order. Poor image scanning and checking. Without analysis, planning and verification. Some help is needed	Normative	**OK**

End of Table 2

BINeLL	1st assessment, 12 February 2020	2st assessment, 13 May 2020	OK
Expressive speech	Difficulty scanning, analyzing, exploring the image (Plate). Difficulty getting out of the weak elements. Some help is needed	Normative	**OK**
Intellectual processes	Difficulties in understanding the meaning of the text and subtext of short stories. Without verification. Without planning. Without criticism. With impulsiveness. Poor ability to scan, check and visualize thematic illustration. Formation of concepts by cluster	Difficulty in understanding the explicit meaning of the illustration. Some help is needed	↑↑↑

In the personality exam, the Rorschach-Exner® system (Exner, 2007) that we have used in the team for many years, gives us objective information about personality characteristics, evaluated in a methodology different from that used during therapy. That is why we consider it an important clinical tool in our practice. On the other hand, as not all mental health professionals work on the Vygotsky–Luria–Leontiev cultural-historical approach, the results recorded therein are a good basis for communication about clinical cases, outside the team. In *Table 3* we present the results of interest to understand this case, in the first assessment, carried out on February 12, 2020, and in the reassessment after three months of neuropsychological habilitation, carried out on May 13, 2020.

Table 3

First and second personality assessment. Rorschach-Exner® system

Psychology	Rorschach	Norma	1st assessment 12 February 2020	1st assessment 13 May 2020	Evolution
Control of own behavior	FC : CF + + C	FC > CF + C	0 : 1	4 : 0	**OK**
Emotional mastery of behavior	C Puro	0	1	0	**OK**
Empathy	Comb : R	≥ 25 %	6 %	12 %	↑
Involvement in self-examination	FD	2	0	1	↑
Ability to form emotional bonds outside the family	COP	≥ 2	0	1	↑
Assertiveness	AG	2	0	1	↑

End of Table 3

Psychology	Rorschach	Norma	1st assessment 12 February 2020	1st assessment 13 May 2020	Evolution
Cognitive distortion in adaptation	X–%	≤ 10 %	18 %	12 %	↓
Cognitive distortion in opposition	S–%	≤ 10 %	33 %	0 %	**OK**

The differences in A. B. assessment after the three-month neuropsychological habilitation program was quite significant. Whether in the neuropsychological assessment, BINeLL — *Bateria de Investigação Neuropsicológica Laboratorial de Luria* (Luria's Laboratory of Neuropsychological Research Battery), or in the personality exam, Rorschach-Exner® system, the differences in the results are quite clear, showing the effectiveness and efficiency of the neuropsychological habilitation in the restructuring of the brain systems in these cases.

Pedagogical Work with Parents: Step-by-Step Theory of P. Gal'perin

Working with parents is essential in such a process. Parent training is used for a range of child psychiatric problems, and includes improving the skills of parents who have some difficulties and want help on parenting skills, as well as those who abuse or neglect their children and those with low intelligence. It is also used to assist parents of children with behavior problems that require special parenting skills — for example, the parents of children with conduct disorder or ADHD (Harrison et al., 2018).

Studies of the behavioral training of parents have now firmly established the effectiveness of this approach in improving parenting skills and parent-child relationships and reducing antisocial behaviour in children (Harrison et al., 2018). But it is not an easy job!!!

I remember one of my first parent training jobs about three decades ago. In the session we talked about the importance of increasing and improving the interaction with the 9-year-old son. I asked him to imagine a joint activity, the father with the son and at another time the mother with the son. No further information was provided to them. At the next session I asked them to tell me what they did and how it went. The father was very excited. They chose an electronic game. The father explained to me that twice a week the mother comes home later, and it is he who prepares dinner for the family. While he advanced dinner, the son played. When the son lost, he interrupted what he was doing in the kitchen, and came to play, until he lost it again to the son to play. I then asked him what each did when the other was playing. He explained to me that when the son played, he returned to the kitchen to cook some more; when he played, the son went to the room.

The father did not realize that there was no interaction here that could be understood as a psychological relationship. The mother had a different perspective and arrived frustrated because she had been unable to imagine any activity. The only thing they did together was Sunday afternoon. Without planning, they both lay down on the bed and started a tickling game. And they laughed a lot. This is often our first difficulty. Realize that we are going to work with parents who think interaction is an activity that they do without being together; and they do not perceive interaction as a playful and pleasurable activity, of mutual and altering initiative.

This helps us to become aware of the complexity and difficulty of our task. Parent training work can NEVER be understood as a simple delivery of information. If so, there would be no need for sessions. A small manual delivered to parents on the first contact would be sufficient. But the human mind does not work that way.

In relation to the case A. B., which is presented here, parenting orientation started in the first week in which the client started neuropsychological habilitation. Over the years, the parents' attempt to correct A. B. When the mother was very worn out, she started screaming and, in some situations, crying in front of her son. Of course, neither punishment, explanation or shouting has any effect on the development and correction of the behavior of children or adolescents (Quintino-Aires, 2012, 2016b). But from popular knowledge we have always heard that "no one is born taught." And when it comes to parenting, we are talking about perhaps the most complex of human tasks. Recalling an old Jewish proverb, "God could not accomplish everything and, therefore, created mothers." We understand that it expresses well the popular feeling of the difficulty of parenting. So, we looked for a methodology to guide us in our work (Quintino-Aires, 2020b).

Within the theory we are working on, contemporary or historical-cultural psychology, everything that today someone does alone before did it together with someone else. This is the law of double development or general law of psychology. An action initially shared between two people later becomes an individual procedure. Each development takes place first on a social level, shared with another person; then it happens at the individual level, and it is done only by the individual. "Each superior nerve function is originally shared between two people. It is a reciprocal psychological process. One process takes place in my brain, the other process in the brain of another with whom I have an argument" (Vygotsky, 1930/1996, p. 126). It is so in human development.

This is how we position ourselves in the work of neuropsychological habilitation with children and adolescents. Several years ago, we decided to follow the same orientation in parent training. But if we put ourselves in the role of the pedagogue or the therapist, who want to promote development in a human being to promote their parenting skills, how to know how to operationalize what happens between the two, which guarantees the transition to the second level of development, the level of individual achievement of the task? The answer to this question is found in the theory of the planned step-by-step formation of mental actions, by P. Gal'perin (1902–1988), which we also use to work with children and adolescents. We decided to apply the same methodology in parent training.

P. Gal'perin tried to explain how the process of forming internal mental actions in 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. Gal'perin works within Vygotsky's theory, and in Leontiev's theory of activity. But it unfolds, explaining each one, the stages of transformation from interpsychic to intrapsychic. Gal'perin 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) work. From the beginning, we believed that this would be the guidance we needed to work with parents.

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 pedagogical process and will allow the 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 Gal'perin'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 the words of L. S. Vygotsky, 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 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 in order 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 et al., 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 that in A. N. Leontiev's theory of activity. Leontiev, in which Gal'perin's theory begins, action and communication form a unit (Leontiev, 1981).

This stage of external language will bring what 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. We say that the skill was formed when the client:

> Develops an appropriate, conscious orientation that makes it possible, in the face of a problem situation, to represent the objectives, anticipate and plan an execution plan, and successfully resolve the situation according to the plan and according to criteria to accompany and regulate the execution of the action. (Núñez & Ramalho, 2018, p. 70; Solovieva & Quintanar, 2018, 2019, 2020)

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.

The evolution of Parent Training work is neither simple nor linear. Advances and setbacks are part of the process. It is up to the therapist to be the emotional support for discouragement. It must be he who manages the illusory hope for an immediate change in the children's behavior, which does not happen because the change takes time. Blaming without blaming when the parents' anguish begins to show (A. B.'s mother: "Fault is because I am a bad mother!"). These fears do not help, but rather harm, the evolution of the process. And it is also up to the parent training therapist to always be aware that no transformation, including that of the parents, happens from one session to the next.

Conclusion

The overall prevalence of ODD and CD together varies between 5 % and 10 %, with much variability attributed to diagnostic criteria and methods utilized in studies. Too large numbers, which require us to seek efficient therapeutic responses. Without treatment, most conduct disorder remits into adult life, although a small proportion of children with disruptive behavior problems go on to show severe antisocial difficulties well into adult life. About 40 % of the conduct-disordered children had antisocial personality disorder in their twenties, and many of the rest had persistent and widespread social difficulties below the threshold for diagnosis of a personality disorder (Harrisson et al., 2018). Historical-cultural neuropsychology seems to be a useful approach in treating Oppositional defiant disorder (ODD) and conduct disorders (CDs). The neuropsychological habilitation methodologies, developed within the approach of A. R. Luria, show good results. Especially when associated with parental training, in the methodology of step-by-step theory of Gal'perin. More systematized and extended studies are needed with a greater number of clients, studies that should be followed by fellow-up. Our clinical practice, already working for many years and many cases treated, suggests that this may be a working approach for the treatment of ODD and CD.

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Images of the Elderly in Preschoolers and Their Parents

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Образы старости у дошкольников и их родителей

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Abstract

Introduction. The paper analyses the representations of old people by the preschoolers. The changing demographic situation of the society stimulates a study of contemporary relationship between generations. Some studies reveal stereotypes and discrimination of an old subject by small children. The nature of this phenomenon and factors influencing it are contradictory and not clear.

The objective of the study is to reveal and to analyze interrelations between the elderly images in preschoolers with those of their parents. We supposed that the image of the elderly in older preschoolers depends on stereotyped parents' representations of the elderly and on the quality and accessibility of child's relationship with grandparents.

Study design. 67 child-parents dyads including 67 preschoolers aged from five to six years (56.7 % of girls and 43.3 % of boys) and 67 parents aged from 23 till 59 years (85.1 % of mothers and 14.9 % of fathers) took part in the study. We used the method of projective drawing for children and a questionary together with association test for parents. The questionary was aimed to precise the social and demographic state of the parents and the ancestors, the type of the family from the point of view of participation of grandparents in the care and upbringing of children, relationship of children and grandparents and parents' opinions about the need for participation of grandparents in children upbringing.

Results. (1) The study of parents proved, that a positive or negative image of an old person is manifested via the dynamic system of health/disease, preservation or not preservation of functional abilities and life competence. A neutral image is represented through inclusion in the new state of a retired and an ancestor. (2) The study of children proved that the quality of communication with grandparents determines the emotional component in elderly and old subject image. A limited or absent communication results in emotionally neutral and personally not valuable image. (3) We did not reveal the influence of parents' stereotyped images on children.

Conclusions. (1) A positive aging images and an efficient communication of children with ancestors form a basis for positive image of elderly and of an old subject by small children. (2) Children experience of "sufficient" communication with grandparents actualizes predominantly the emotional aspect of communication in the image of an old subject. (3) Children with deficient communication with grandparents represent an image of an old subject as somebody else or nobody' person, and accentuate psychophysiological deficits. (4) Preschoolers can have own representations of elderly not identic to parents or surrounding people or social stereotypes.

Keywords: *relationship between generations; image of elderly; parents and grandparents; preschoolers; sufficient and deficient communication with ancestors*

Аннотация

Введение. В статье анализируются представления дошкольников о пожилых людях. Авторы исходили из фактов меняющейся демографической ситуации в обществе, которая актуализирует изучение межпоколенных отношений в ракурсе современных реалий. Результаты некоторых исследований фиксируют данные о проявлении у детей в раннем возрасте стереотипов и дискриминации в отношении стареющего человека. Однако сведения о природе формирования и факторах, влияющих на это явление, мало изучены и порой противоречивы.

Цель работы: выявить и проанализировать взаимосвязь образов стареющего человека у детей дошкольного возраста и их родителей. Мы предположили, что представление образа старого человека у старших дошкольников зависит от стереотипов родительских представлений о старшем поколении и качества, доступности взаимодействия ребенка со своими прародителями.

Ход исследования. Для проверки гипотезы нами было проведено исследование, в котором участвовали 67 детско-родительских диад: 67 дошкольников в возрасте от 5

до 6.8 лет (56.7 % девочек и 43.3 % мальчиков); 67 родителей (85.1 % матерей и 14.9 % отцов) в возрасте от 23 до 59. В качестве методов исследования в детской выборке применялся проективный метод рисуночного теста, в родительской выборке — метод направленного ассоциативного эксперимента и анкетирование. Анкета включала вопросы, касающиеся уточнения социально-демографических характеристик родителя и старшего поколения, определения типа семьи респондента по степени использования поддержки прародителей по уходу/воспитанию детей, а также взаимоотношений прародителей с ребенком и мнения родителей по поводу проблемы (не)участия бабушек/дедушек в воспитании внуков.

Результаты исследования. 1. В родительской выборке было показано, что отрицательный и положительный образ старого человека взрослыми чаще всего демонстрируется через призму динамической системы здоровье/болезнь, (не)сохранения функционального благополучия и жизненной компетенции. Нейтральный образ репрезентируется как вариант вхождения в новый статус пенсионера и прародителя. 2. В детской выборке показано, что качество общения ребенка с прародителями детерминирует эмоциональную окраску восприятия формирующегося образа стариков и старости в целом. Ограничение или отсутствие общения приводит к тому, что ребенок представляет образ стареющего человека как эмоционально нейтральный, не отражающий личной значимости. 3. Влияние на детские взгляды стереотипов родительских представлений обнаружено не было.

Выводы. 1. Реальные примеры успешного старения и конструктивного взаимоотношения прародителей и внуков могут послужить надежной основой для конструирования маленькими детьми позитивного образа старого человека и старости в целом. 2. Детский опыт «достаточного общения» репрезентирует образ стареющего человека, в большей степени актуализируя эмоциональные аспекты взаимоотношений. 3. Для детей с опытом дефицита общения с прародителями образ старого человека персонализирован с «чужими» или «ничьими стариками», чаще с акцентами на возрастные психофизиологические утраты. 4. Ребенок дошкольного возраста может демонстрировать свой собственный уникальный взгляд на старого человека, совсем не тождественный взглядам родителей, окружающих и социальным стереотипам.

Ключевые слова: *межпоколенные отношения; образ старости; родители и прародители; дошкольники; достаточное и дефицитарное общение детей и старшего поколения*

…A great art is to be old… Even greater art is to be young, to understand how a young and adult has to treat an old.

E. Grieg

…The best is a combination of the experience in elderly with the energy of the young age.

G. B. Shaw

Human life process includes different ages, but all human ages exist together.

K. Marx

Introduction

Demographic changes in the contemporary society are evident: increase in life expectancy, general aging of the population, changes in age groups ratios, marriage traditions, families configurations and transformation of relationship between generations.

The old generation is now different, no more perceived as passive, dependent economically and physically, suffering from loneliness, deficient in cognition and intelligence (Rowe & Kahn, 2015; Strizhitskaya & Petrash, 2019). So, we see now the evidence of a big difference between the life of an old subject now and the life of his old parents. With this the problem of trigger ability of negative stereotypes of the elderly is still actual in the society. They provoke the destructive behavioral models in the old person from one side and from the other — discrimination and neglect of the old generation by the youngers (Butler, 1969; Elutina & Chekanova, 2004).

Some researchers revealed, that the number of negative evaluations of the old generation increases with age, and already in 25 years old people one can see a negative attitude or different signs of discrimination for old subjects (Kolpina, 2017; Krasnova, 2003).

Some studies prove that negative attitude for old people and their discrimination can appear in small children (Goldman R. J. & Goldman J. D., 1981; Johnson, 1999; Lynott & Merola, 2007). The studies of children' attitudes to old people are rare and contradictory. In the study of R. J. Goldman, and J. D. Goldman (1981) the primary school children characterized all old people as ill or having weak health. A study of attitudes in 6–11 years old primary schoolchildren for elderly population revealed a tendency to their discrimination and preference for youngers (Babcock, MaloneBeach, Hannighofer, & Woodworth-Hou, 2016). Some other studies give different evidences of representing old people as kind, friendly, even more clever and independent as younger generation (Fiske, Cuddy, Glick, & Xu, 2002; Vauclair et al., 2018). There are also research evidences about significant influence of parents' opinions on formation of stereotypes in early childhood (Degner & Dalege, 2013; Gilbert & Ricketts, 2008).

Studies of elderly representations by descendants proves that the image of elderly determines own modes of aging. This image is based on interaction with own ancestors as well as on communication with other old people (Cavallotti, Grau-Grau, Marimon, & Gas, 2017; Flamion, Missotten, Jennotte, Hody, & Adam, 2020).

M. V. Ermolayeva (2010) in her dissertation revealed, that a special psychological and pedagogical work with preschoolers favors formation of emotional features, such as empathy, ability to share feelings and it permits then to understand the wisdom and moral experience of old people.

This short review of literature proves the necessity and importance to study preschoolers' images of elderly and the factors influencing them.

It permitted us to fix *the objective of our study* — to reveal and to analyze age manifestations of elderly image in preschoolers.

We have supposed that *the image of elderly in older preschoolers depends on parents' representations of the elderly and on the quality and accessibility of child's relationship with own grandparents.*

Subjects and Methods of the Study

67 child-parent dyads living in Petropavlovsk-Kamchatsky city, took part in the study. The subjects included 67 preschoolers aged from five to six years, eight months (56.7 % of girls and 43.3 % of boys) and 67 parents aged from 23 till 59 years (85.1 % of mothers and 14.9 % of fathers) took part in the study. 55.2 % of respondents had higher education, 23.9 % — college education and 20.9 % — high school education. 88 % of respondents lived in a full family.

The study was performed in the "Center of Personality Development, Psychological, and Pedagogical Assistance" and in the Center of Child Development "Ryabinushka." The study was a part of celebrating "The International Day of Elderly." All adults signed an informed agreement form for them and their children. Parents, psychologists and teachers from the Center of Child Development confirmed that all children participating in the study had no problems in cognitive and social development.

We used the following *methods* in our study:

1. *A questionary* for adult participants, including three units: (1) Typical questions on social and demographic data of parents and grandparents as well some questions précising participation of grandparents in upbringing and education of children. (2) Questions on communication of children with their grandparents. (3) Questions on parents' opinions concerning the participation of grandparents in education of their grandchildren.
2. *Association test,* aimed to analyze parents' representations of elderly. The parents were proposed to write at least five associations for the words "an old person." 25 independent experts (students of the psychology and education department of Kamchatka State University named after V. Bering), aged from 18 till 47 years,

60 % of women evaluated the answers using Likert Scale from –3 till +3. A middle score was put for each group of associations. A middle score from –3 till –1 showed a negative image; from +1 до +3 a positive image; and from –0,99 till +0,99 meant neutral position. A supplementary qualitative analysis of answers determined semantic universal associations (the most frequent associations for each stimulus) (Serkin, 2009).

3. *Method of projective drawings* for preschoolers. They were asked to draw: "How do you represent(–ses) an old person?"

Children were proposed a sheet of paper A4, an eraser, black pencil, and a set of 18-color pencils (Venger, 2003). After finishing the drawing, the child was asked to name it and to talk about it. The time of drawing was not limited. The drawing took place in mini groups of three — four children.

Children drawings were analyzed though two criteria's:

1. Formal features of the drawing (color, size, position of objects on the sheet, accuracy and attention to details, hatch, and corrections) (Venger, 2003).
2. Experts' evaluation using Likert Scale from –3 (negative image) till +3 (positive image) of the titles of drawings and their descriptions by children. 15 independent experts were students of the psychology and education department of Kamchatka State University, named after V. Bering, aged from 18 until 47 years (66.7 % of women). The esthetic quality of drawings was not analyzed.

Results

The Image of Elderly in the P arents

The first part of the questionary dealt with social and demographic features of the ancestors (*Table 1*).

The *Table 1* shows the predominance of grandmothers with middle age 58 years with college or university education. Many authors indicate, that the majority of grandmothers before 65 years have more possibilities of interaction with grandchildren (Bulanova, 2017; Ermolayeva, 2012; Krasnova, 2000). Besides, being officially retired becomes often a trigger of "rapprochement" with grandchildren. In Kamchatka region women are officially retired after 50 years old. With this the respondents indicated that 64.5 % grandmothers continued to work. This evidence does not contradict with the data of other researchers on the dependence of the role of grandmothers in communication with grandchildren, their upbringing and education from the grandmother's social state, her level of health and the age of grandchildren. Thus, O. V. Krasnova (2000) revealed, that lower is the social state of a grandmother, more likely she is included in the grandchildren care.

Some authors prove that interaction between parents and grandparents in children care and support depend from the type of family. V. I. Sharin and I. A. Kul'kova (2019) determined three types of families: *traditional* — a large family including many generations living together, where the grandmothers and/or grandfathers take about all care

of children; *a mixt type* of family, where the grandparents live separately, but help their children if necessary, more often economically and *ordinary type*, when the old generation lives separately and mostly did not help to care and to educate their grandchildren. We used this classification of families in the questionary of our study (*Table 2*).

Table 1
Social and demographic features of the ancestors

Feature	% of ancestors (n = 191)		Fisher's Criterion (φ)
	grandmothers 72.3 %	grandfathers 27.7 %	9.05**
	Age groups		
43–55 years	62.3	49.1	1.64
56–75 years	32.6	43.4	1.38
76 years and more	5.1	7.5	.61
	Education		
Unfinished high school	1.4	1.8	.16
High school	13.0	30.2	2.64*
College	40.6	35.8	.61
University	44.9	32.1	1.63
	Family situation		
Married	23.9	62.3	4.94**
Divorced	44.9	20.8	3.23**
Widow	31.2	16.9	2.09*
	Social position		
Employed	64.5	75.5	1.49
Not employed	35.5	24.5	1.49

Note. *$p \leq .05$; **$p \leq .01$.

Table 2
Distribution of families types from the point of view of participation of grandparents in the care/education of grandchildren

Characteristics	Family type		
	traditional	mixt	ordinary
Distribution of families types	17.9 %	22.3 %	59.7 %
Help from the old generation	High	Middle	Low
Living together	Together	Separate	Separate
Professional activity of parents	High	High	Limited

The *Table 2* shows that the majority of parents ($p \leq .01$) declared a low support of grandparents. The young families consisted only from parents and children. This evidence coincides with contemporary demographic tendencies indicating weakening of interrelations between generations (Gorlin, Lyashok, & Maleeva, 2018).

We were especially interested in parents' opinion about the need and the actual level of child's communication with his grandparents (*Table 3*).

Table 3
Frequency of selected answers in the part two of the questionary

Age of the parents	23–35 years, % (n = 38)	36–54 years, % (n = 29)	Fisher's Criterion (φ)
Question: "Which utterance do you prefer?"			
Communication of my child with his grandparents is **sufficient**	40.5	34.5	.48
Communication of my child with his grandparents is **not sufficient**	50	41.4	.69
Communication of my child with his grandparents is **not mandatory**	0	0	0
Communication of my child with his grandparents is **absent**	10.5	21.1	1.18

As we can see from the *Table 3*, many parents consider not sufficient the communication of their children with the grandparents. The *Figure 1* explains the details of sufficient and not sufficient communication of children with their grandparents.

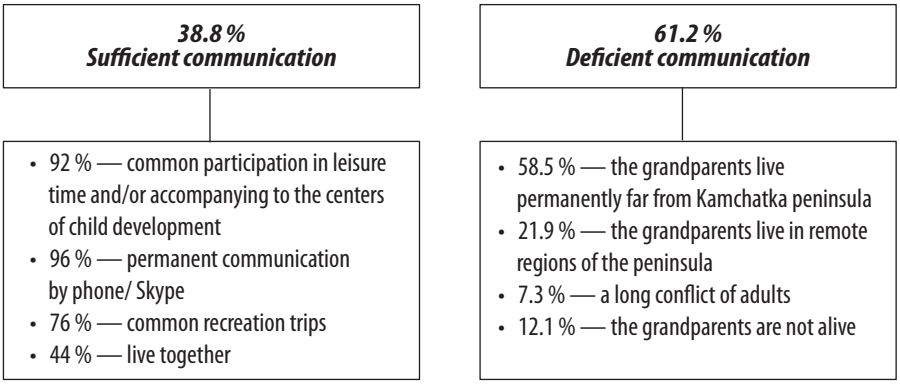

Figure 1. The structure of sufficient and not sufficient communication

Limited communication due to long distance or information processing problems for sure is a specific negative phenomenon of the region. But even the grandparents live

permanently far from Kamchatka region we don't consider it a "respectful" factor for deficient communication. We agree with Strizhitskaya and Petrash (2019) that actually the humans are mobile and different generations of the family not only live in remote regions of the same country, but also in different countries and continents. Nevertheless, the high information technologies don't limit significantly the communication of the child with his grandparents.

The *Table 4* presents parents' answers in the third part of the questionary.

Table 4

The frequency of answers in the third part of the questionary

Age of the parents	23–35 years, % (n = 38)	36–54 years, % (n = 29)	Fisher's Criterion (φ)
Question: "Which utterance do you prefer?"			
Is it better when the grandparents participate in the upbringing of their grandchildren **as much as possible**?	26.3	31	1.87*
Is it better when the grandparents **have limited participation** in the upbringing of their grandchildren?	57.9	55.2	.22
Is it better when the grandparents **do not participate** in the upbringing of their grandchildren?	15.8	13.8	.24

Note. *$p \leq .05$.

It should be pointed out that a significant increase in parents' opinion on the need for greater participation of the grandparents in the upbringing of the young generation was revealed in the age group of 36–54 years old ($p \leq .05$). The "ruffity" and the desire of independence in young parents give place to a more rational understanding of positive and negative aspects of interaction with the old generation. The parents realize more and more their approaching the state of grandparents.

Summarizing our evidences, we can state, that all respondents rejected "not mandatory" communication of their child with the grandparents. Very few respondents were ready to exclude completely the participation of old generation in the upbringing of own children, but many would like to limit this participation. This situation can reveal intrafamily conflicts and a not efficient dialogue between generations.

The *Table 5* shows the results of the *associations test.* All adult respondent gave 319 associations: 89.6 % of respondents gave five associations each, 5.9 % — four associations and 4.5 % — only two associations.

The analysis shows that neutral associations were the most frequent (43.2 %). Negative images (17.9 %) were significantly more rare than neutral ($\varphi = 3.43^{**}$, $p \leq .01$) or positive ones ($\varphi = 2.92^{**}$, $p \leq .01$).

Table 5
Categories of the image of an old subject and frequency of non-random associations

Categories of the image, %		Semantic universal associations	Examples of associations (in order of decreased frequency)
Positive	**38.8**	75 % Health Experience Respect Wealth	Good health, good memory, experience, rest, peace, wisdom, contemplation, respect, wealth, advises, resource, to live further, independence
Neutral	43.2	55.2 % Age Pension Grandchildren	Age, pension, grandmother/grandfather, grandchildren, pies, communication, work, country house, the time came, wrinkles, grouchiness, hobby, idleness, trip, grey hairs
Negative	**17.9**	84.6 % Illness Loneless Oblivion	Illness, loneness, poverty, weakness, fear, infirmity, unknown, death, bad health, forgetter, nursing home, disability

Semantic universal associations demonstrate the predominant relation of parents' positive and negative images of the elderly with the dynamic system of health/disease, preservation of functional wealth and life competence. The neutral image represents versions of the new state of retired and of an ancestor.

Preschoolers' Features of Elderly Image (Drawings Analysis)

All drawings by children were divided by the experts into neutral (53.7 %), positive (25.4 %) or negative (20.9 %).

Each category was analyzed using some formal criteria (*Table 6*).

The analysis of the *Table 6* data proves, that most children with neutral image of the elderly were not very motivated to draw, were distracted and used only black pencil. The children of this subgroup had more small drawings in the below part of the sheet. This can be explained as a lack of interest and low significance of elderly problem for this group of preschoolers.

Table 6
Distribution of formal criteria in preschoolers' drawings

Indicators	General frequency, %	Categories of images		
		positive	neutral	negative
Lack of motivation	41.8 — began immediately to draw	22.4	4.5	14.9
	58.2 — reluctance, distraction	2.9	**49.3**	5.9
Use of colors	62.7 — only black pencil	1.5	**46.3**	14.9
	10.5 — one color	4.5	4.5	1.5
	27.1 — different colors	19.4	3	4.5

End of Table 6

Indicators	General frequency, %	Categories of images		
		positive	neutral	negative
Drawings size	40.3 — small	1.5	**29.9**	8.9
	13.4 — big	1.5	4.5	7.5
Position on the sheet	25.4 — down	0	**20.9**	4.5
	17.9 — up	1.5	14.9	1.5
Eraser use	14.9 — yes	0	8.9	5.9

Note. Categories of images — significant evidence are done in bold.

Let us analyze now children drawings in relation to the level of communication with the grandparents (*Table 7*).

Table 7

Elderly images in preschoolers in relation to communication with grandparents

Category if image	Group as a whole, % (n = 67)	"Sufficient" communication, % (n = 25)	Limited communication, % (n = 42)	Fisher's Criterion (φ)
Negative	20.9	32	14.3 (n = 6)	1.69*
Neutral	53.7	8	80.9 (n = 34)	6.48**
Positive	25.4	60	4.8 (n = 2)	5.18**

Note. *$p \leq .05$; **$p \leq .01$.

These evidences prove, that in the subgroup of children with good options for communication with the ancestors both positive and negative images of elderly are greater than in the other subgroup, where the neutral image predominates.

We did a qualitative analysis of children drawings on the base of stories describing each drawing (*Table 8*).

One can see, that children from the subgroup of "sufficient" communication use own experience of relations with ancestors (predominantly grandmothers) in own drawings. It should be also noted, that children from this subgroup when describing the drawings, reveal often the emotional relations with the old generation (*kind, not wicked; good, does not blame me often, hug me, love me, kisses me and so on*). In the subgroup of limited the images of elderly are more rational and generalized (somebody said, we saw and so on). The children actualize often the stereotyped features of aging (*bad vision, uses a stick, rare hairs, no dents…).*

Sone authors describe the influence of parents on their children stereotypes. For instance, Lineweaver, Roy, and Horth (2017) describes such an influence of parents for formation of eidetism in 9 to 10 years old children and in teenagers. A study of correla-

Table 8
Examples of drawings descriptions

	Description of drawings (steno grams)
Sufficient communication	*Positive image* *Yana, 6 years 2 months: "My lovely grandma has many hearts"* This is my most loved, superloved grandma Lubochka. She is super and very kind. She loves me, my very small brother — a baby Kirushka, my mom, dad and our Bimka (a dog -authors). She always knows everything, always has time, is always merry, kisses us and gives gifts. She says us, that she loves us all, but sometimes differently, but we all are in her heart. I think, that my grandma Lubochka has many hearts and we are all in each heart as in a home. We love her, therefore her hearts will never become ill *Neutral image* *Sveta, 5 years 9 months: "Grandmother's husband"* I have drawn my second grandfather. My first grandfather passed away long ago. He was kind, he hugged and kissed me, he said, I am his chicken, but I will become soon a princess. The second husband of my grandmother does not say me nothing. In general, he is merry, весёлый, always laughing, but his look at me is severe. The grandmother likes him. He helps her to put the coat, and once he helped her to put boots *Negative image* *Oksana, 5 years 2 months: "Grandmother — Robot"* My grandmother comes often to see us, she brings food, cleans the room, she is washing and ironing, cooking and making order in the cupboards. In summer she works in the garden… After the work, she watches TV and takes tee. Twice she gave me money for my birthday. My friend said that my grandmother is a robot
Limited communication	*Positive image* *Maria, 5 years 11 months: "Retired ladies"* These women are Katya and her friends. She is our neighbor in the house. She does not go to work, because she is retired. My father said it to me. She visits her friends, they have fun together, take tee, share their secrets and then go together for a walk *Neutral image* *Veronika, 5 years 6 months: "A grandmother"* I have drawn a grandmother, an old lady. She is not kind nor wicked, she is simply old: she has glasses, a stick, her hairs are rare and are put into a bunch. She often has not a very nice necklace. She can be sad, because she has problems with vision and moves slowly. We meet often such grandmothers in the busses, in pharmacies, market, shops and at the post office. My mother says, that they take money at the post office, like a salary; nevertheless, they do not go for a work, that became difficult or bothering for them. Sometimes they quarrel at the post, not much, because the others look at them and can become angry *Negative image* *Sasha, 5 years 4 months: "Rodents of Kolya"* My friend Kolya has a grandmother and a grandfather. He says me that they always nibble and bite him, for sure not really. Kolya is my the most sad friend. I try to amuse him. You can see at the top of the sheet, how I amuse Kolya

Note. The authors express their gratitude to the students of Kamchatka State University for registration of these steno grams.

tions of 6 to 7 years old preschoolers' images with these of their parents does not revealed the influence. We also analyzed this problem in our study (*Figure 2*).

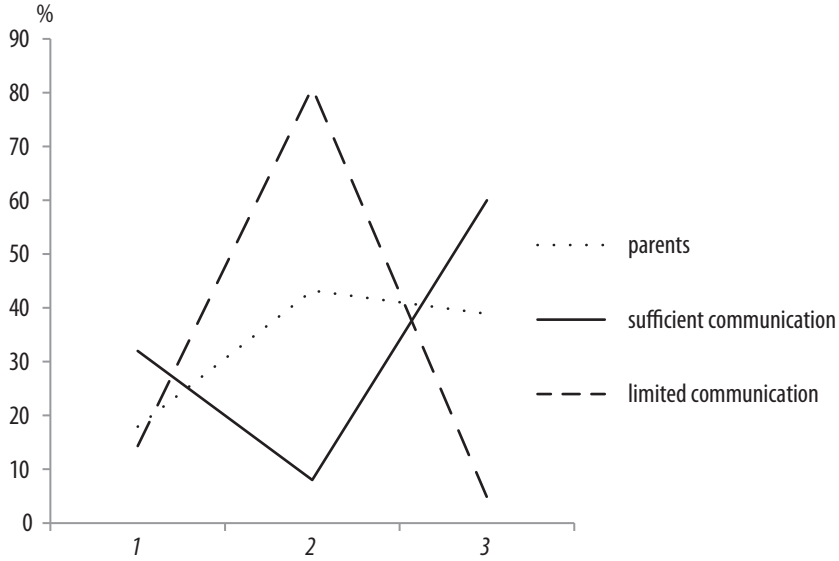

Figure 2. Frequency of different types of elderly images in parents and in the subgroups of preschoolers:
1 — negative images; *2* — neutral images; *3* — positive images

The *Figure 2* shows, that parents and children classified by experts in the subgroup of limited communication have similar graphic profiles of images positivity with predominance of neutral images. But we did not revealed any influence of parents' images on these of children ($r = .159$). Similar results were received in the study by A. Flamion et al. (2020), who proved that a 6–7 old child can have own unique image of elderly not identic to parents or surrounding people or social stereotypes.

To summarize the children have mostly a neutral image of elderly, but it depends from the level of communication with the grandparents.

Discussion and Conclusions

Modern publications discuss often the problem of contrasting the traditional Russian families where the grandparents played the main role in children upbringing to occidental "self-sufficient" families, including only parents and children (Ibragimova, 2007). The author accentuates, that contemporary Russian grandparents become more and more the "visiting governors," or perform a sporadic recreation activity, together with economical support of the grandchildren (Sharin & Kul'kova, 2019). It indicates some new tendencies and transformation of interactions between old grandparents and their children and grandchildren. Many Russian families conserve traditional poly generations

family relationships with a high importance, even priority of upbringing and socialization of the young generation.

The results of our study prove the importance and mutual advantage of constructing and preserving "bridges" between ancestors and the young generation. It makes necessary to study interrelations between old and young generations and specific features of each.

Many gerontological papers show the importance of studies of a search (transformation) of life meaning in an old subject after retirement (Antsypherova, 2001; Glukhanuk & Gershkovich, 2003; Glozman & Naumova, 2018). According to these authors, a transition of life experience to the grandchildren helps formation of the life meaning in the old generation (Ermolayeva, 2012). Some publications analyze the mechanisms of generations translating interaction as a dialogue of cultures (Vvedenskaya, 2017), ecology of communication (Mutilina, 2018), in relation to metaphoric language of tales (Ermolayeva, 2012), to adopting the old subject (Golubeva, Khabarova, & Soloviev, 2017), to the programs of generations interactions (Thompson & Weaver, 2016) and more.

It is clear, that efficient programs of children-grandparents dialogue must take into account age differences of participants. The preschool age is a sensitive period in the human social development. The nucleus of subjectivity is formed at this period and determines the further development of the subject (Kosheleva, Khoroshih, A. N., & Khoroshih, V. V., 2014; Persiyantseva & Gor'kovskaya, 2016).

D. I. Belostotskaya and V. P. Zinchenko (2012) proved the identity of emotional reactions and common understanding of stories meanings by preschoolers and old people. The authors underline the importance to respect child spontaneity, immediate emotional intuition, the predominance of child's experiences, generating the sense. With this, the immediate perception and experiences generated common sense in both children and the grandparents. These evidences permit an old subject to open a deep, sense forming dialogue with a child and to transmit him the own life experience.

Emotional openness and soulfulness of an old person, his readiness to accept and desire to reach a common decision helps the child to surmount his fear of inevitable changes with aging. It is important, that positive relations of the child with grandparents prepare the child for own aging and destroys the stereotype of elderly as uniquely a period of disability in human life (Yakovenko & Kovaleva, 2015).

So, we can summarize the following *conclusions* from our study:

1. Preschoolers can have own representations of elderly not identic to parents or surrounding people images or social stereotypes.
2. Children with deficient communication with grandparents form an image of an old subject as somebody else or nobody' person, and their relation to the represented image is not emotional, has no personal interest nor significance.
3. Children experience of "sufficient" communication with grandparents actualizes predominantly the emotional aspects of their communication in the image of an old subject.
4. Manifestations of responsiveness, emotional openness and soulfulness by an old person reduce significantly children' fear of age-related psychophysiological loss.

Besides, the real examples of successful aging and positive relations between grandparents and grandchildren form a basis for a positive image of an old person and elderly in a small child.

Limitations and Perspectives of the Study

There are two limitations of our study:

First, the lack of diagnostic technique adopted for assessment of preschoolers cognitive and psycho-emotional development limits and makes contradictory the evaluation of children' representations of elderly.

Second, only one parent, predominantly a mother, participated in our study. Some authors prove the identity of mother's and small children' ideas on inter group relations (Zadorova & Kuftyak, 2017; Degner & Dalege, 2013; Flamion et al., 2020). With this, an analysis of just a part of parents cannot reflect all potential generalizations of results.

To conclude we would like to express our expectancy that our data help to understand better the stereotypes at the preschool age.

The perspectives of further studies are an analysis of the psychological culture of an old subject, conditions and factors of his readiness or difficulties for dialogue of generations as an efficient intergeneration program.

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Resilience: A Cognitive and Psychosocial Phenomenon

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Abstract. Resilient individuals may be identified as those who are firmly grounded in today, who have benefited from yesterday, and who have the capacity of seeing themselves in tomorrow. Therefore, it is important to understand the underlying dynamics that allow these people to be resilient. The nature-nurture concept contributes to an individual's resilience. Via neuroscience research it is becoming abundantly clear that nature is the stronger factor. The contribution of nurture, however, must also be considered. What does nurture contribute to the individual and/or the environment? Does proper caretaking of the individual and the environment increase resilience, or does resilience merely depend upon the neuroscience of genetics? This article will explore the multifaceted concept of resilience.

Keywords*: resilience; cognition; psychosocial issues; adversity; choice*

Аннотация. Стойкий индивид — это тот, кто крепко стоит на ногах сегодня, использует то, что было вчера, и способен представить себя в завтрашнем дне. Поэтому необходимо определить факторы, которые позволяют людям быть стойкими. Для понимания стойкости индивида важна концепция взаимосвязи наследственности и воспитания. Исследования в области нейронаук доказывают большую роль наследственности, но нельзя не учитывать и вклад воспитания. Каков вклад воспитания в индивида и/или его окружение? Усиливают ли устойчивость хороший уход и благоприятная среда

или она зависит только от нейрогенетики? В статье обсуждается многоаспектность понятия «устойчивость».

Ключевые слова: *устойчивость; когнитивные науки; психосоциальные проблемы; противостояние; выбор*

The Cognitive Neuroscience of Resilience

When exploring the nature-nurture contributions to the phenomenon of resilience, it is important to examine four types of people. According to Nemeth and Olivier (2017), they are as follows: (1) those who know and have good psychosocial skills; (2) those who know, but have limited psychosocial skills; (3) those who do not know but have excellent psychosocial skills; and (4) those who do not know and have few psychosocial skills. A modification of the Jo Hari Window (Luft & Ingham, 1955) can be used to illustrate these positions (see *Figure 1*).

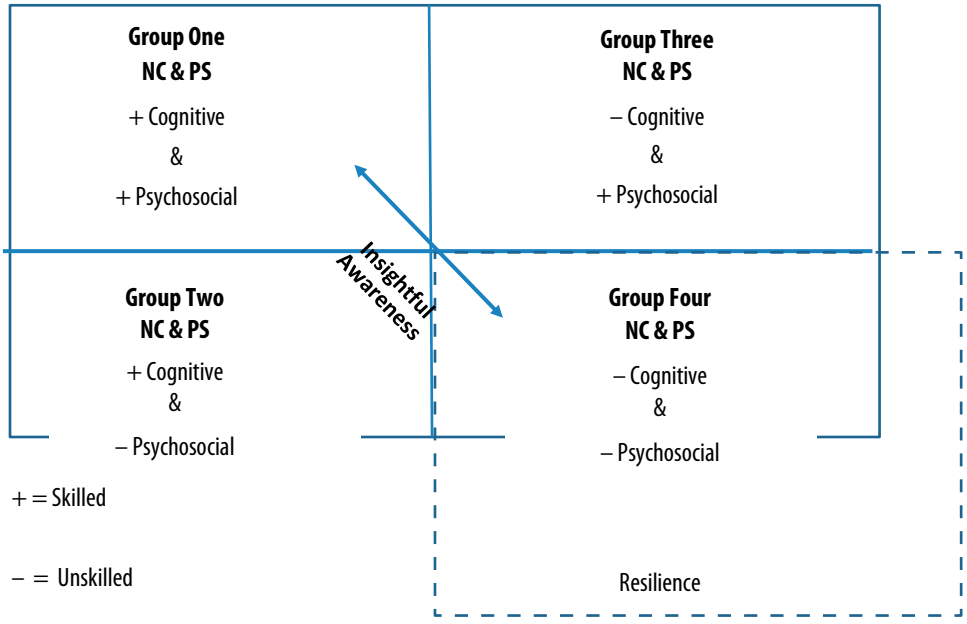

Figure 1. Modified Jo Hari Window: NC — Neurocognitive; PS — Psychosocial

Some people are born with good cognitive skills and have been able to acquire the psychosocial skills along the way to adulthood, for it is a developmental process. Others have not been able to acquire the needed psychosocial skills to become effective adults. At times, those with minimal cognitive skills have been able to maximize their psychosocial skills for effectiveness. And lastly, there are those with few skills who keep bumbling along.

The first group frequently rises to robust leadership positions. The second group has the required cognitive skills but tends to be psychosocially inept. The third group desires

to lead, but lacks the cognitive skills required to make wise decisions. The fourth group has neither and is therefore easily lead, frequently by those in Group Three. Robust leaders are rare; bullish leaders are common.

In order to move people out of Group Four, resilience intervention (teaching/learning) is required. Yes, resilience can be learned both cognitively and psychosocially. Furthermore, because our world is experiencing trauma, environmental and/or human-caused, people must become more resilient if they are to survive, let alone thrive. People must become more firmly grounded in the present so that they can learn from the past in order to make wiser decisions in the future. But, how is this wisdom acquired?

The Cognitive Neuroscience of Resilience

Over the past 20 years, the research on the biological contributions to the study of resilience has been profound; therefore, a concise understanding of these findings has been offered by Liu, Zhang, Ji, and Yang (2018), *Figure 2*.

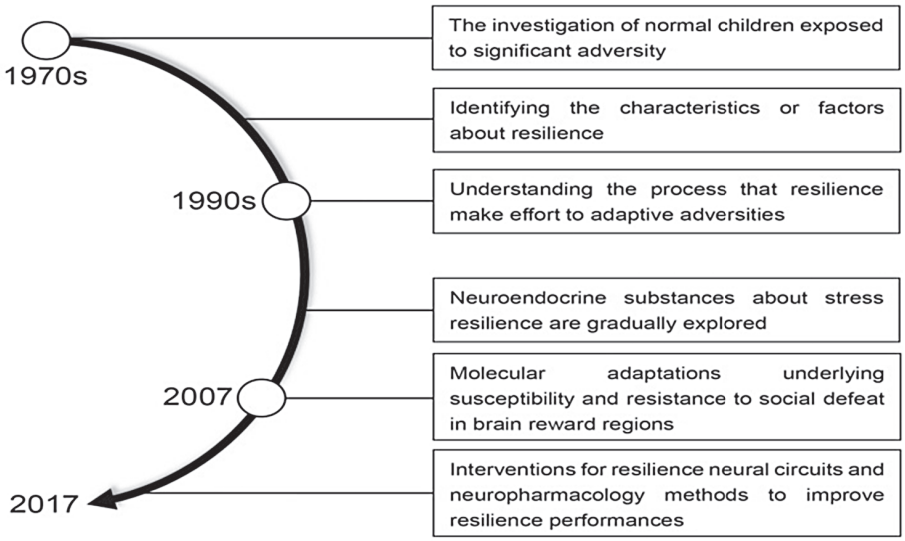

Figure 2. A brief history of resilience research (Liu et al., 2018)

Liu and colleagues conclude that factors such as the Brain-derived neurotrophic factor (BDNF), the role of the meso-limbic system, the medial Prefrontal Cortex (mPFC), the Hypothalamus-Pituitary-Adrenal Gland (HPA) Axis, the hippocampus, nucleus accumbens, amygdala, and the VTA-NAc pathway are now being carefully studied in humans. At first, these experiments were with rats. Factors such as the roles of the neuropeptide oxytocin, the neurotransmitter glutamate, gamma-Aminobutyric acid (GABA), the neuropeptide Y (NPY), ketamine, 5-HP and others are also being explored.

Resilience is no longer a nature v. nurture issue. Now, both nature and nurture are considered important in the understanding of the brain. Neuroscientists Hunter, Gray,

and McEwen (2018) define resilience as an "active process that involves using a person's adaptive capacity to achieve a positive outcome" (p. 307). Then they cite the most commonly used neuroscientific definition of "resilience as the ability to achieve a successful outcome in the face of adversity" (Ibid.).

Stress is another concept that is being widely explored by neuroscientists, who are concluding that not all stress exposure is bad. For example, research is now being conducted on good stress (e. g., military boot camp) versus bad stress (e. g., physical abuse). Allostasis, or how the body responds to stress in order to regain homeostasis, which is the body's ability to maintain equilibrium, are significant areas of study post adversity. Adaptive plasticity is another important factor. In this regard, even adult brains are now considered to have the capacity for neural plasticity. The concepts of adult neuroplasticity and epigenetics are now being included in cognitive research. How an individual's brain adapts or maladapts to various life experiences is considered crucial across the lifespan. Hunter and colleagues (2018) note that "self-regulation and locus of control are critical to how an individual is able to actively resist adversity or learn from bad experiences and recover" (p. 316). Various regulatory mechanisms in the brain, such as the hippocampus, can exert regulatory control over the HPA axis and help with recovery. Furthermore, the VTA-NAc pathway can mediate stress susceptibility and promote resilience. Thus, the balance of good stress and bad stress can increase the brain's adaptability, even under the most demanding adverse circumstances.

In childhood, brain plasticity, via exposure to the natural world, is especially valuable (Chawla, Keena, Pevec, & Stanley, 2014; Masten, Herbers, Cutuli, & Lafavor, 2008). It is clear that resilience begins in childhood, if not in utero. Positive experiences and good caregivers can positively influence a child's resilience. Other factors include intelligence, good executive functions, emotional regulation, maturation to achieve, and mastery, most of which can be learned (Horn, Charney, & Feder, 2016; Sapienza & Masten, 2011; Wu et al., 2013). Thus, the brain's ability to adapt to adversity and recover is a process that begins in childhood.

The Psychosocial Aspects of Resilience

Resilience has been defined by so many people in so many different ways (see Nemeth & Olivier, 2017, pp. 3–6). All of these definitions include concepts such as belonging, adapting, absorbing, adjusting, coping, meaning-making, engaging, reflecting, and moving on. Ideally, these skills must first be learned in the family and then fostered in the community.

Children must be taught: (a) to accept and express their feelings when things go awry, (b) to be aware of their physical reactions, (c) to enhance their self-competence via positive coping skills, and (d) to promote a sense of hope and optimism, to make-meaning of the circumstances, even though they may be dire (Berger, 2016). In this regard, flexibility and inner strength are required. These qualities can be learned from good role models.

Sometimes, however, a good role model may not be available Bowlby (1969) addresses the havoc that disturbances of attachment behavior can bring. Such disturbances can undermine a child's ability to develop resilience. Besides, these developmental factors, Pangallo, Zibarras, Lewis, and Flaxman (2015) point to two other issues that may undermine resilience: situational constraints and sociocultural processes. Therefore, these three factors may impede nurture. For example, just simply being together for social bonding has been impeded by the Coronavirus. Too much alone time is not good (Bowlby, 1973, p. 167). For children, it can be extremely frightening… for adults as well. Lastly, technology (i. e., screen time) is not a replacement for people time. Turkle (2011) defines the concept of "alterity" as being about to see the world through the eyes of another. She then concludes that "without alterity there can be no empathy" (p. 55). Those in Group Three lack the cognitive ability to empathize; therefore, they bully instead. Power and control instead of wisdom prevail. Usually these people are very lonely and have been since childhood.

According to Cacioppo & Patrick (2008) people in Group Three are not resilient. Their need for connection has long since frozen over. Instead it has been replaced by cognitive dysfunction, paranoia, and social detachment. Developmentally, they missed out on learning how to recognize, label, and share their feelings… a process that must be taught early on (Nemeth, Ray, & Schexnayder, 2003).

Children must also learn how to listen. Some children may not have attention deficit hyperactive disorder (ADHD) (Glozman, 2020); they perhaps have never really learned how to listen. Turkle (2011, p. 42) notes that resiliency can be strengthened by conversation. But conversation, rather than interruption, requires people to pay attention, clarify, and reflect before responding. As the first author sees many people who do not know how to listen, the following Active Listening Handout is utilized:

1. **Listen completely and attentively:**
   - don't think,
   - don't prepare your rebuttal,
   - don't interrupt.
2. **Summarize what you heard the other person say:**
   - don't interpret,
   - don't go beyond what was said.
3. **Clarify before you respond:**
   Give the other person an opportunity to correct any
   - misinterpretations (you),
   - misrepresentations (other).
4. **Restate your summary:**
   Understand what the other person is thinking
   - follow the person's logic,
   - understand how the person came to that conclusion.

   Empathize with the other person's feelings
   - don't focus on your feelings,
   - remember, you can empathize without agreeing.

5. **Respond:**
   - don't react,
   - consider the other person's position,
   - seek compromise,
   - don't judge, rather relate.

In conclusion, you can either be right or related, not both.

In order to be effective human beings, as Sherry Turkle, Ph.D., noted, we must reclaim the art of conversation. Although cognition is indeed a science, psychosocial skills are an art form. Both must be blended and practiced to achieve efficacy.

Castro and Zautra (2016) focus on Social Intelligence Theory, which includes four core principles: humanization, uniqueness, automaticity, and choice. They teach: reflective awareness, capacity enhancement for meaningful healing and healthy social connections, and fostering resilience when facing challenges and/or adversity. Developing these skills requires active listening and active listening requires patience. Eisenberger (2012, p. 421) notes that it is very painful not to be heard.

For so many children, aggression is the norm. Aggression is a product of categorization, dehumanization, and not being heard. These individuals tend to be members of Group Four. According to Castro and Zautra, they have not been taught to be kind, respectful, and socially compassionate. But they can learn these skills, if not at home, for many do not have homes, then at school. Schools must teach communication and resiliency skills, not just Science, Technology, Engineering & Math (STEM) skills.

As cited in Nemeth and Olivier (2017, p. 18), Judith Rodin (2014) notes that teaching resilience involves a five-step process:

1. Awareness — knowing one's strengths and assets.
2. Adaptivity — having the capacity to adjust to changing circumstances.
3. Diversity — having multiple capacities to adjust to changing circumstances.
4. Integration — coordinating one's feelings and actions as/when needed.
5. Self-regulation — being able to deal with difficult situations and disruptions without extreme malfunction or catastrophic collapse.

This five-step process to preparedness fosters insight through human connection. It is a process that is on-going and must be revisited on a regular basis. Prepared for what? How? When? The answers change on a regular basis. What worked last time may not work this time. It is an evolving process that requires both cognitive and psychosocial skills. Thus, the requirements of resilience are ever-changing, yet the process remains the same.

Childhood Protective Factors

According to Nemeth and Olivier (2017, p. 19), if people are born into Group One, they have had the benefit of the following:

1. A healthy attachment relationship and good caregiving.

2. The development of effective emotional regulation skills.
3. The development of good self-awareness skills and the capacity to visualize the future.
4. The development of a mastery motivation system that drives them to learn, grow, and adapt to their environment.

Even so, coping strategies can be taught. Most significantly, people in Group Four can be taught to

1) recognize and face their feelings and experiences;
2) acknowledge and affirm those fears and expectations for themselves and others;
3) identify and solve problems;
4) re-access and reprioritize on a regular basis (Nemeth & Whittington, 2012, pp. 114–115).

As experienced by members of Group Two, knowledge without these coping skills is often useless. These individuals often know what to do, but lack the psychosocial skills to achieve it. When faced with environmental trauma, for example, such leaders are often paralyzed and unable to make wise decisions.

As referenced earlier, it is not ***if*** an environmental trauma is going to occur, it is ***when*** it will happen. Now, hurricanes, floods, and forest fires, let alone wars and displacements, are the norm, not the exception. Being prepared is very important, but understanding the Six Stage Recovery Process from Environmental Trauma is even more salient. Sometimes, being prepared is not enough. At times, prevention is not possible. Understanding this recovery process is crucial. Nemeth and Whittington (2012, pp. 120–126), identify these six stages as follows:

1. Shock — A natural response to disruption.
2. Survival mode — doing whatever it takes to survive.
3. Assessment of Basic Needs — food, water, shelter, and safety.
4. Awareness of Loss — of people, place, and culture.
5. Susceptibility to Spin and Fraud — at times when people's vulnerability can be exploited.
6. Resolution — marked by anniversary reaction symptoms to an emotionally charged adversity.

Unfortunately, this is not a linear process. Depending on the immediate stressor, each stage can be revisited multiple times.

Developing Resilience

Therefore, resilience is key. But how is it developed? According to Rachel Yehuda et al. (2013), it is a matter of "moving forward in an insightful and integrated positive manner" from an adverse experience (p. 3). This requires expanding insight, a process that can be taught. Thus, people in Group Four can be taught to expand their insightful awareness. People must learn to be fluid, rather than remain static during times of trauma, no matter what the source of the adversity.

Resilience and Hope

Nemeth and Olivier (2017) refer to resilience as a state of the mind (cognitive), whereas hope is perceived as a trait of the heart (psychosocial). Both are necessary for survival. On a personal note, the first author of this article had the privilege of knowing an amazing Polish artist by the name of Walter Sobol. Toward the end of World War II, Mr. Sobol, who was an active member of the Polish Underground Resistance, was captured by the Nazis and sent to Auschwitz. While there, he was given a choice — break your hands or paint pictures for the Nazis. For every picture he completed, one Jewish person would not be sent to the gas chambers. When I asked Walter, a family friend of my parents, how he handled the pressure, Walter proclaimed, "Darlyne, I learned to paint very fast," (personal communication).

This expression of resilience and hope has always stayed with me. As Snyder, Lopez, and colleagues (2011) affirm, being flexible and choosing hope is always the better alternative. Snyder created group-based school programs to "Make Hope Happen." Although both psychologists are now deceased, Dr. Richard Miller indicated that their professional contributions will surely live on (Personal communication, 2020). Along with their colleagues, Snyder and Lopez endeavored to create high hope, resilient children. These children were taught to: believe in themselves, think wholesome thoughts, focus on their positive feelings, and choose healthy behaviors. They were taught to respond, not to react. By learning these skills, these children were no longer members of Group Four. Regardless of what they did or did not learn at home, these children learned to manage their anxiety and/or anger and to give themselves the gift of self-esteem. They were taught how to prevent, diffuse, contain, and resolve their negative emotions, especially anger (Murphy & Oberlin, 2001), in order to talk calmly and engage in problem-solving skills. These skills, which must be taught, involve a five-part problem-solving process:

1. What is the problem?
2. How can I solve it?
3. Am I using an effective plan?
4. Was my plan successful?
5. Did my feelings help or hinder success? (Nemeth & Chustz, 2020, p. 121).

Murphy and Oberlin note, however, that the 5th component of successful problem-solving, must be the first one to be addressed and resolved. Therefore, Lopez (2011) concludes that: hope is a journey, which must be defined, found, encouraged, created, and reiterated. It involves laughter, faith and love — the love of self and family.

Families Matter

For those who have been fortunate enough to have been born into healthy families, they are automatically placed in Group One, for families are the most important psychosocial entities. Those families instill positive attitudes and healthy choices. Nemeth and Olivier (2017) offer the following "smorgasbord of choices" (p. 149):

1. Accept support.
2. Arrange to be heard.
3. Set realistic goals.
4. Plan the next step.
5. Continue healthy habits.
6. Learn from the past.
7. Get adequate sleep and exercise.
8. Schedule "self-time."
9. Continue family traditions.
10. Share the burden.
11. Be flexible.
12. Maintain hope and humor.

No matter what happens, people have choices regarding how to respond. This is never more apparent in Miyoko Mikamo's response to the bombing of Hiroshima (Nemeth & Olivier, 2017, p. 144). As a young boy, he found a way to survive and thrive against all odds. His daughter, psychologist Akiko Mikamo, PhD, recently released a film documentary, *8:15*, on her father's journey. Regardless of how painful the journey, Mr. Mikamo lived a life of forgiveness and empathy. As adults, Shinji and Miyoko Mikamo taught Akiko to find a way to survive and thrive. And they did! (Ibid., pp. 144–145). They also taught her to create cultural bridges and to help people learn. Lastly, they taught her to be grateful and empathize, rather than to be angry and sympathize.

In order to move from static to flexible, 5 determinant clusters and four process clusters are involved. According to Bogar and Hulse-Killacky (2006), they are as follows:

Determinant Clusters
- Interpersonally Skilled
- Competent
- High Self-regard
- Spiritual
- Helpful Life Circumstance

Process Clusters
- Coping Strategies
- Refocusing and Moving On
- Active Healing
- Achieving Closure

As is the case of Mr. Miyoko Mikamo, who survived the bombing of Hiroshima, perceptions are crucial to outcomes.

Perception Versus Absorption

Nemeth & Olivier (2017) conclude that perception requires insight, which is defined as "the faculty involved in grasping the inner character or underlying truth" (Wolman, 1989, p. 179). Insight requires faculty, or the ability to discern the truth, not just the ability to absorb facts. Perception requires the responsibility of discernment. It is a process; whereas, the absorption of facts requires no effort at all. Perception is an active process; whereas absorption is a passive process. Those capable of perception are found in Group

One; whereas, those focused on absorption may be found in Group Four. How "facts" are "marketed" has become a major issue, Perception is an active process that requires discernment; whereas absorption is a passive process that requires no thought at all. Seeking comfort, in the short run, is always easier than creating the distress of discovery. People must be resilient to choose discovery over immediate gratification. They must be prepared to deal with the outcome. Complacency is easier in the short run, but far more dangerous in the long run.

Believability is Key

The truth is not always believable, especially when people do not want to hear it. People may often find more comfort in "diminished awareness" (Nemeth & Olivier, 2017, p. 205), which can actually be enhanced by technology. As Turkle (2011) points out, technology can provide a great form of escape, especially during the current COVID-19 crisis. Zolle (2012) notes that sustainability's goal is to "put the world back in balance"; whereas, the goal of resilience is to "manage an unbalanced world" (Nemeth & Olivier, 2017, p. 206).

Balance is An Illusion

Just when balance is achieved, it is lost. As a medical neuropsychologist, the first author knows only too well the difficulty of achieving and sustaining biochemical balance via medication. Just when balance is achieved, circumstances may change, and a new imbalance is created. Flexibility and mastery are required. According to Cherry (2020), these qualities involve faith and humor, respect and gratitude, acceptance, and finding the silver linings in life. Basically, they involve the processes that Mr. Miyoko Mikamo chose for his life.

Dr. Gloria Alvernaz Mulcahy, a Canadian psychologist and Cherokee Indian, cited the four "ways of being that reflect love and foster a connection" (Nemeth, Hamilton, & Kuriansky, 2012, p. 194). They include Relationships, Respect, Responsibility and Reciprocity. Respect is considered reverent and relationships are considered sacred, not only to one another, but to Mother Earth.

This process requires effort. Relationships take effort. With polarization, even the most valuable friendships can be at risk. According to a Pew study reported in the Saturday, 10/10/20, edition of *The Advocate* newspaper in Louisiana — "40 % of registered voters said that they do not have a single close friend backing a different candidate for President of the United States" (Green, 2020). Unfortunately, Group Four thinking is on the rise in the United States (Janis, 1991). Differences must be celebrated, not denounced.

As Cherry (2020) concludes:

1. Suffering happens.
2. Suffering is not an end in and of itself.

3. The relationship between suffering and healing is not linear.

4. The suffering-healing relationship is dynamic.

But, are we suffering sweetly (Shainess, 1984), or are we addressing our pain, resolving it, and moving forward? The latter requires the flexibility of resilience, not the static contemplation of suffering. Mr. Miyoko Mikamo did it (Akiko Mikamo, 2013), so can we!

Dr. Cherry defines adult resilience as "the maintenance, recovery, or improvement in mental or physical health following challenge" (2020, p. 13). She focuses on active coping by developing active problem-focused and emotional strategies to address and move forward from the pain of suffering. Yet, Cherry acknowledges that there are those who will choose avoidant strategies and thus remain in Group Four.

The Role of Faith

The third author, Olesia Palamar, of this article had the opportunity to conduct a phone interview with a Chernobyl first responder who not only survived but thrived. On 10/23/2020, he offered the following insightful awareness:

Mr. Evgeniy Georgievich, now age 63, completed a post Chernobyl Resiliency questionnaire (Pastrana and Nemeth cited in Nemeth & Olivier, 2017, p. 68). This individual, who had a background in construction and architecture, indicated that he was worried about rebuilding, not being able to find a solution, and not having the strength to endure. Emotionally, Mr. Georgievich reported feeling nervous and having difficulty fighting back tears. When asked the same questions about 2020, 34 years later, Mr. Georgievich reported that his most lingering emotion is that of becoming easily irritated. This is consistent with the findings of Onishi, Voitsekhovich, and Zheleznyak (2007).

From what Mr. Georgievich reported, he entered the post Chernobyl scene in the Second Stage of the Recovery Process — Survival Mode. There was no time for Shock. The trauma of the experience was ever present. When Mr. Georgievich entered the area two days after the nuclear explosion, he was given the following order, "guys, get ready." When he arrived, the evacuations had already begun. The streets were completely empty. Not a single person was found in the village.

Mr. Georgievich's reaction was to "do my duty," and that is what he did! Mr. Georgievich's most vivid moment occurred on May 3, 1986, when he saw families being loaded on vehicles to be transported to Kyiv.

Later, new radiation detectors were sent in by the Japanese. Doses of 1 or less were considered allowable; but Mr. Georgievich and his crew had doses of 3. Then, the men in his crew started dying, Mr. Georgievich understood and accepted the inevitability of the situation and said, "I was not afraid of anything and was not nervous at all." Two weeks later, his temperature spiked to 42 °C (107.6 °F). He was subsequently hospitalized, put on an IV, and laid unconscious for several days. Mr. Georgievich stated, "I was discharged by my doctor to die." Mr. Georgievich shared that, even though he could not eat or drink for a month, he somehow survived.

When asked about choice, Mr. Georgievich stated, "When lying in my bed, I realized I needed to do something to move on and not to die." At that point, Mr. Georgievich entered the Third Stage of Recovery — Assessment of Basic Needs. He chose to live — against all odds, and he did! He willed himself to live. He thought of ways to survive and heal — Hatha Yoga, chamomile tea, prayer.

It took a year or more for Mr. Georgievich to start eating and walking again. Mr. Georgievich returned to see his physician, who was shocked to see him. The doctor had closed Mr. Georgievich's medical record presuming that he had died.

Mr. Georgievich then began addressing the Fourth Stage — Awareness of Loss. He stated, "All my team members are dead. They got sick a few weeks after the catastrophe occurred, and throughout the month, they all died." But he did not. With his wife and family at his side, Mr. Georgievich chose to live. Mr. Georgievich stated, "…my survival is nothing but a miracle of providence. I believed in a guardian angel. My eldest son was also helping me a lot — he was beside me all the time, calming me down. I think I was meant to stay alive because my family needed me."

Mr. Georgievich entered the Fifth Stage — Susceptibility to Spin and Fraud, when he decided to visit his old boss, the man who sent him to Chernobyl. According to Mr. Georgievich, "He looked me in the eyes and said that he never sent me anywhere." This denial is typical of bureaucrats' behavior in Stage 5.

As he moved into Stage 6, Resolution, Mr. Georgievich responded, "We were so proud of what we were doing… we were the first team to help out there! It seemed like everything depended on us." This form of "meaning-making" is critical for resolution. When asked about the here and now in 2020, Mr. Georgievich stated, "my life is now divided into 'before' and 'after' Chernobyl. I found faith in God… as soon as I was able to walk on my feet, I went to church. I did not pray for myself, but for my children. I wanted my kids to have a better life. I was so happy for them because they were healthy and doing well."

As is apparent from the above interview with Mr. Georgievich, many people are guided by faith — faith in God, faith in their fellow human beings, and faith in themselves. Faith allows people to move forward with respect and perhaps a little humor (Cherry, 2020). As Dr. Cherry points out, "Life is never the same after a disaster or other tragedy" (Ibid., p. 190). But life goes on and we must cherish what we have and who we are. Soon those distorted, displaced, discouraged, and distraught post trauma feelings can be replaced by gratitude, hope, faith, and love. We must be ready to move on.

Into the Light

(Susan Melman, 2020)

Into the light
came the bouncing red ball
Spirits lift.

Catch it!
Bounce it!

Sadness drifts away.
Bouncing the red ball
in the light

You shine.

Bouncing the red ball
you move on…

Adversity, Catastrophe, and Choice

There are three types of catastrophic events: environmental (e. g., forest fires and hurricanes), human-caused (e. g., Chernobyl and Hiroshima), and environmental plus human-caused (e. g., Fukashima and Katrina) (Nemeth et al., 2012).

All three of these events involve choice. For example, if we choose to live in a forest, we have to except fires. If we choose to live on a beach, we have to expect hurricanes. Oftentimes, people make choices without accepting the potential risks/repercussions of their choices.

At other times, events just happen without choice. The Japanese people did not expect an atomic bomb. The Californians did not expect forest fires. But those who chose to live near water on the U. S. Gulf Coast, for example, must have expected hurricanes. When where one lives is by choice, not by chance, preparedness is the key. In such cases, adversity does not have to become a catastrophe. Facing adversity with a resilient plan of action, (i. e., being prepared), is the key to a positive outcome. Without such a plan, paranoid and catastrophic thinking take over. At such times, those in Group Four can be easily manipulated to the detriment of all.

Society's responsibility is three-fold: to move people out of Group Four via education and insightful awareness; to increase the psychosocial skills of those in Group Two, so that they can more effectively communicate with others; and to reduce the ability of those in Group Three to intimidate the unaware. A world filled with many members of Group One is the goal.

In Conclusion

With excellent cognitive and psychosocial skills, resilient people can face whatever adversity awaits them and can find ways to survive and thrive. Thus, resilience is indeed the cognitive and psychosocial requirement of our time.

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Children, Society and Future: Proceedings of the III Congress on Mental Health: Meeting the Needs of the XXI Century

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Дети. Общество. Будущее: обзор сборника научных статей III конгресса «Психическое здоровье человека XXI века»

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Abstract. The paper presents a review of the Collection of Research Papers of the *III Congress on Mental Health: Meeting the Needs of the XXI Century — CHILDREN, SOCIETY AND FUTURE*. The authors are medical and non-medical specialists from more than 130 research and educational institutions located in Russia, USA, Canada, Germany, UK, Israel, Spain, Greece, Brazil, Mexica, Portugal, Thailand, Belorussia, and Kyrgyz Republic. They share the latest results of research and practical activities on a wide range of mental health problems of children and adolescents in different areas of scientific knowledge including general medicine, psychiatry, psychotherapy, psychology, social policy, education, law, economics, sports and art. Scientific and practical evidence and approaches to solving problems in the field of mental health and well-being of children and adolescents, presented in an interdisciplinary format and described in more than 200 articles, provide invaluable reference materials for researchers and practitioners. The variety of topics and approaches to solving certain mental health problems of children and adolescents, touched upon in the works of representatives of different disciplines, reflects the breadth of search for general and specific

answers to the most complex and painful questions, which in most cases requires thoughtful interdisciplinary interaction. To show this in all possible completeness and at the same time to try to stimulate the further development of these promising trends is the main goal of this Collection. The e-version of the collection is available on the Union for Mental Health website: http://www.mental-health-congress.ru/en/

***Keywords**: III Congress; mental health and well-being of children and adolescents; prevention; treatment and rehabilitation; mental disorders; difficult life situation; gifted children*

Аннотация. В статье представлен обзор сборника научных статей III конгресса «Психическое здоровье человека XXI века» — «Дети. Общество. Будущее». В издание включены статьи медицинских и немедицинских специалистов в сфере охраны психического здоровья по различным академическим дисциплинам, в том числе по общей медицине, психиатрии, психологии, социологии, педагогике, юриспруденции, экономике, спорту, искусствоведению. Ученые из более чем 130 научных, образовательных учреждений России, Канады, США, Германии, Великобритании, Израиля, Испании, Греции, Бразилии, Мексики, Португалии, Таиланда, Республики Беларусь, Кыргызской Республики делятся новейшими результатами научно-исследовательской и практической деятельности по широкому кругу проблем психического здоровья детей и подростков. Научно-практические данные и подходы к решению проблем в сфере охраны психического здоровья детей и подростков, представленные в междисциплинарном формате и описанные в более чем 200 статьях сборника, содержат бесценные справочные материалы для исследователей и практиков. Разнообразие затронутых в работах представителей разных дисциплин тем и подходов к решению тех или иных проблем психического здоровья детей и подростков отражает характерную для современного этапа развития науки и общества в целом широту поиска общих и частных ответов на наиболее сложные и наболевшие вопросы, требующие в большинстве случаев продуманного междисциплинарного взаимодействия. Показать это во всей возможной полноте и одновременно попытаться стимулировать дальнейшее развитие указанных перспективных тенденций является основной целью настоящего сборника. С электронной версией сборника можно ознакомиться на сайте Союза охраны психического здоровья: http://www.mental-health-congress.ru/ru/

***Ключевые слова:** III конгресс; психическое здоровье и благополучие детей и подростков; профилактика; лечение; реабилитация; психические расстройства; трудная жизненная ситуация; одаренные дети*

Under preparation of the III Congress on Mental Health: Meeting the Needs of the XXI Century with the major theme “CHILDREN, SOCIETY AND FUTURE” the Collected Research Papers were published on 26 June 2020. The authors of the two-volume proceeding of the Congress are medical and non-medical specialists from 130 research and educational institutions located in Russia, USA, Canada, Germany, UK, Israel, Spain, Greece, Brazil, Mexica, Portugal, Thailand, Belorussia,

and Kyrgyz Republic. The research papers cover different areas of scientific knowledge in the field of mental health and well-being in children and adolescents, including general medicine, psychiatry, psychotherapy, psychology, social policy, education, law, economics, sports and art.

The Collection is composed of two volumes and includes a total of 217 research papers. Its structure is represented by eight sections:

1. Prevention of mental disorders to promote the mental health and well-being of children and adolescents (58 papers).
2. Treatment and rehabilitation for the mental health and well-being of children and adolescents (48 papers).
3. The mental health and well-being of gifted children (19 papers).
4. The mental health and well-being of children and adolescents in difficult life situations (13 papers).
5. The impact of sports on the mental health and well-being of children and adolescents (24 papers).
6. The impact of culture and art on the mental health and well-being of children and adolescents (18 papers).
7. The role of education in the mental health and well-being of children and adolescents (16 papers).
8. Legal, economic and policy frameworks concerning the mental health and well-being of children and adolescents (21 papers).

Thus, only about a quarter of the articles in this collection are devoted to highly specialized medical aspects of mental health in childhood and adolescence, which require appropriate consideration within the framework of the classical diagnostic and treatment paradigm, which can be conditionally designated as a "negative" (psychopathological) component of the global topic of mental health, in while the rest ¾ articles in different ways reveal and analyze its numerous "positive" (resource) aspects that are directly related to the life and work of all members of modern society, without exception, and not just people with mental disorders in a specific age range.

The idea of a broad, comprehensive, interdisciplinary approach to solving any mental health issues at the present stage of human development, proclaimed by WHO and leading international and national scientific, state and non-governmental organizations, was not only a theoretical basis, but also a practical setting that has always been guided by the Union for Mental Health of Russia as the initiator and organizer of the Congresses on Mental Health held since 2016. In line with this, the Collected Research Papers "CHILDREN, SOCIETY AND FUTURE" — 2020 preserves and develops the best features of the 2016–2018 Congresses collections and the traditional approaches to discussing pressing problems of mental health protection in modern world.

It is quite logical that this collection opens with a section dedicated to the *prevention of mental disorders and the promotion of mental health of the younger generation*, which, moreover, turned out to be the most voluminous. Justification of "early intervention"

as a fundamental tool of modern neuropsychology (C. Anauate, E. Peters Kahhale) from the very beginning orients us in terms of the need for early involvement of the child, starting from the prenatal period, in the process of directed optimization of the development of his nervous system and psyche in accordance with the principles that were developed by such world renowned scientists as A. R. Luria (USSR) and R. M. Reitan (USA). The paper by Z. M. Glozman discusses the possibilities of the Lurian qualitative approach in analyzing the results of psychometric testing, identifying the mechanisms of the observed defects, determining the zone of proximal development of the child and building an adequate individualized program of neuropsychological correction. Executive functions (D. G. Nemeth, K. Mckenzie Chustz) are at the same time crucial for the development of the child and his success in school and are potentially more important than traditional IQ indicators (U. León-Domínguez, M. R. Domínguez-Morales). The relevance of early intervention is also confirmed in connection with the growing prevalence of prematurity cases, potentially carrying a higher risk of autism spectrum disorders, attention deficit hyperactivity disorder and other mental disorders at different stages of ontogenesis (E. Afrange), including childhood psychoses (N. A. Mazaeva, A. G. Golovina), and disorders of mental development at an early age (M. V. Ivanov et al.). According to I. E. Kupriyanova, the mental state of the mother can also have an adverse effect on the cognitive, social and emotional development of the child due to impaired interaction between them. In a sense, the statistical data for the Russian Federation given by B. A. Kazakovtsev shows the synchronous course of processes of changes in the indicators of primary morbidity with mental disorders and the dynamics of indicators characterizing the pathological course of pregnancy and childbirth. As a result, calls for a joint analysis of the psychophysiological health of the child and his parents in order to more effectively prevent mental disorders at an early age (I. N. Galasyuk) acquire a deeper meaning.

One of the primary mental health problems of children and adolescents in the modern world is the prevalence and socio-psychological specificity of suicidal behavior (M. M. Reshetnikov; V. A. Rozanov, A. S. Rakhimkulova). According to B. S. Polozy, despite the positive overall trend in the reduction of the frequency of completed suicides in recent years in Russia, in a number of its administrative entities the frequency of suicides has a high and even ultra-high level (O. P. Stupina et al.; I. F. Timerbulatov). In this regard, new approaches to the prevention of suicidal behavior among adolescents, are highly relevant. These include the opportunities provided by the Internet and social networks: psychoeducational work, dialogue platforms, psychotherapeutic sites with the possibility of online psychotherapy, anti-suicidal programs for mobile devices (A. Ya. Basova, Yu. V. Severina), with the obligatory consideration of the ambiguous influence Networks for suicidal behavior in various adolescent groups (E. B. Lyubov; A. G. Sofronov et al.). It is fairly noted that effective prevention of suicidal behavior is possible only with a systematic interdepartmental approach (Y. Sh. Vasyanina, E. O. Boyko), which is also stated in the special section "Suicide

Prevention" of the Program of the Government of the Kyrgyz Republic on the protection of mental health of the population for 2018–2030 (T. I. Galako).

Among the most pressing mental health problems in childhood and adolescence, the increasingly frequent extreme manifestations of aggression and auto-aggression (V. G. Kaleda et al.), protest and refusal reactions, adolescent alcoholism, eating disorders are traditionally considered (S. I. Gusev, L. G. Ustyantsev; O. Yu. Milushkina et al.; A. F. Minullina). The psychopathological symptomatology of the non-psychotic level in childhood and adolescence, which causes the greatest differential diagnostic difficulties, is specifically considered (E. Evtushenko, M. F. Timerbulatova; V. V. Ruzhenkova). Based on a psychological survey of more than 2000 respondents, D. M. Ivashinenko et al. note the presence of a close relationship between aggression among young people and the severity of early maladaptive schemes. The deviations of sexual behavior and sexual education of adolescents are still a field of problems, without the solution of which it is impossible to ensure a high quality of life and mental health of the younger generation (L. N. Rybakova).

Given the high urgency of affective pathology in childhood and adolescence, the research of I. S. Karaush and B. A. Dashieva should be noted. It is dedicated to the methodological aspects of early diagnosis and prevention of affective disorders in adolescents, in which special attention is paid to negative life events in the framework of the family functioning of adolescents. The problem of the negative impact of school exams on the emotional well-being of schoolchildren and reflections on the possibility of considering exam preparation as a health-preserving resource for personal and mental development in adolescence are presented in the article by T. B. Kiseleva and S. P. Filippov. Other authors very sharply raise the question of creating preventive programs to prevent bullying — school bullying (N. V. Chernov et al.) and cyberbullying (D. N. Pukhov et al.), which are increasingly considered as obvious predictors of emotional and behavioral disorders in childhood and adolescence.

The second section of the collection is devoted to the *treatment, rehabilitation and recovery of mental disorders and developmental disorders in children and adolescents*. The research held by K. V. Abramova et al. examines the current state of the problem of compliance to psychopharmacological treatment in parents of children with mental disorders and focuses on the inclusion of the family in the treatment process, cooperation between parents and medical specialists. According to O. F. Pankova et al., the provision of the most effective and safe psychiatric care for children and adolescents is hindered by the lack of clear and regularly updated recommendations for drug therapy, and the ethically and legally uncertain situation with the prescription of psychotropic drugs in childhood and adolescence. The authors propose to seek authorization for the wider use of "off label" principles in child psychiatric practice, in line with the 2007 FDA consensus.

Chronic somatic diseases in children of early age, as a rule, are aggravated by emotional disorders, which require differentiated psychological assistance, and sometimes an individual program of comprehensive rehabilitation, as described by M. S. Afonina

and A. M. Gerasimov. In its turn, T. W. Olivier considers neuropsychological examination and support of children with complex medical problems to be necessary. Based on a multimodal model, involving the phased use of psychopharmacotherapy and somatoendocrine correction methods by a multidisciplinary group of specialists, children and adolescents with eating disorders should be treated (E. E. Balakireva).

It is known that the number of HIV-infected is growing rapidly, including many children and adolescents. These children, like adults, often suffer from depression and anxiety disorders, have neurocognitive impairments of varying severity. In the article by Yu. B. Barylnik et al. the corresponding review of research data is given. In this regard, the development of a special approach to work with HIV-infected adolescents to maintain their adherence to treatment is shown as the most relevant (M. Yu. Gorodnova). The paper by E. V. Bachilo discusses the mental disorders that occur in pregnant women with HIV, as well as approaches to their correction.

The traditional medical and psychological problem of childhood is mental retardation. And here the need for differentiated psychological support of such children in an inclusive education comes to the fore (N. V. Babkina), as well as the problem of the psychological health of parents as the main factor for psychological and pedagogical support of the family of a child with developmental disabilities (A. V. Davtyan et al.). It should also be noted the great importance of clinical and genetic studies, in particular, of patients with mental underdevelopment with chromosomal syndromes (I. V. Kanivets et al.), as well as an interesting project of a summer program for the rehabilitation of executive functions, the development of emotional and social skills in adolescents with neurocognitive deficits (F. Pastrana et al.). The A. E. Puente's message inspires to merge the Russian and Western approaches in order to create a unified theoretically complete and practically effective neuropsychology.

Autism spectrum disorders (ASD) are currently the focus of attention in various scientific and practical disciplines. N. V. Simashkova et al. present the most significant Russian achievements in the field of clinical biology, prevention and rehabilitation of autism spectrum disorders. A. A. Koval-Zaitseva discusses the current state of the problem of impaired social perception in children with ASD. A. F. Shaposhnikov and R. V. Kondratyev describe the features of eating disorders in preschool children with ASD. Positive changes in attitudes towards patients with ASD in the general population of Greece are reported by R. I. Kouznetsov and E. Jelastopulu. O. V. Balandina et al. present a detailed analysis of the system of comprehensive care for children with ASD in the Volga Federal District. T. A. Solokhina et al. analyze the quality of institution-based and community-based psychosocial rehabilitation services in children and adolescents in the Volga Federal District due to the results of the survey initiated and supported by the Union for Mental Health.

Child and adolescent schizophrenia is of steady interest for psychiatry. The article by M. A. Kalinina discusses the prospects for early detection, treatment, prevention, as well as the prevalence of schizophrenic spectrum disorders in children from hereditarily burdened families. A. V. Kulikov presents a comparative analysis of catatonic and catatonic-regressive manifestations in psychotic forms of ASD and childhood schizophre-

nia. The possibility of psychological rehabilitation of young patients with schizophrenic spectrum disorders based on the principles of creative expression therapy is proved in the article by O. B. Levkovskaya and Yu. S. Shevchenko.

Clinical-psychological and therapeutic-diagnostic aspects of Internet addiction in children and adolescents are discussed in the works of V. L. Malygina et al., and L. O. Perezhogin.

The second volume of the Collection opens with a *section on the mental health of gifted children*. The phenomenon of "double exclusivity," implying a combination of giftedness in any area with impairments that entail difficulties in learning, communication, etc., is analyzed in the article by Yu. D. Babaeva. The author proposes to abandon the habit of reducing giftedness to a high level of development of abilities, and to understand it as a systemic quality of the psyche. Approximately the same position is held by L. N. Kotlyarova and D. B. Bogoyavlenskaya. D. B. Bogoyavlenskaya presents her own method of psychodiagnostics of giftedness in children, as well as discusses the neuropsychological aspects of its development during childhood. E. S. Zhukova, V. M. Karlyshev, and A. V. Rendikov presents the health-preserving education technologies as a necessary condition for the all-round development of a gifted person. The paper of V. I. Panov is of great practical interest in this regard where special mental states are considered, reflecting strategies for overcoming critical educational situations by gifted children. The increased interest in the problem of giftedness in recent years necessitates a content analysis of scientific publications on this topic, showing the close relationship of theoretical, empirical and practical models in ongoing research (E. P. Fedorova).

The *section devoted to the mental health of children and adolescents in difficult life situations* is extremely relevant. One of the most painful and complex problems of our time is the problem of orphanhood (E. A. Bogdanova), with which the problem of social and psychological readiness of adoptive parents is inevitably combined (A. A. Aldasheva et al.). According to N. L. Belopolskaya, distortions of the ideas of deviant adolescents about ideal parents often lead to various deformations of ideas about their life path and subsequent psychosocial maladjustment. Also, one cannot underestimate the importance of a psychologically safe environment in educational institutions for the successful adaptation of children, especially those with orphan experience (E. V. Valkova, E. N. Tikhomirova). There is no doubt that there is a high risk of maladjustment of a child in conditions of divorce of parents (N. E. Lysenko) and immigration (N. V. Spokoinaya). Concomitant neurotic disorders have a very negative impact on the behavior of difficult adolescents, including those who commit illegal acts (M. A. Klinova et al.), while physical culture and sports undoubtedly contribute to the improvement of their psycho-emotional state (S. A. Vorobiev, M. P. Gavrilova). A separate and increasingly discussed topic is sexual abuse of children and adolescents on the Internet (E. V. Nutskova). Within the framework of child abuse, it, along with others, should be resolved on the basis of interagency interaction (I. A. Margolina, N. V. Platonova).

The topic of *the impact of physical culture and sports on the mental health of children and adolescents* is fruitfully considered in a special section. Classes in adaptive physical

culture and adaptive sports have long been considered an effective way of medical and psychosocial rehabilitation (T. I. Olkhovaya), including in a children's psychiatric hospital (K. V. Abramov et al.). The involvement of disabled children, including mental ones, to participate in the All-Russian physical culture and sports campaign "Ready for Labor and Defense" opens up for them the prospect of systematic training in adaptive physical culture and adaptive sports (A. V. Aksenov, I. G. Kryukov).

The active development of sports for persons with intellectual disabilities in the Russian Federation began in 2012 after the International Paralympic Committee (IPC) recognized the sport of persons with intellectual disabilities and included it in the program of the XIV Paralympic Games 2012 in London. The article by O. S. Vozniak analyzes the dynamics of sports development for people with intellectual disabilities in the Russian Federation for the period 2012–2018 where a tendency for a steady increase in the number of people is noted. According to S. A. Vorobiev and E. S. Naboychenko, the Paralympic sports program should be expanded to three functional classes including persons with intellectual disabilities, ASD and Down syndrome (A. S. Makhov). The rehabilitation possibilities of such types of adaptive sports as swimming, sailing and a number of others are convincingly substantiated in the works of N. Yu. Zykova, V. S. Kulikov, and N. S. Skok. The summary for this section can be called two articles by S. P. Evseev, in which the current state and prospects of the development of the adaptive sports are considered, as well as the main psychological aspects of the training process.

The impact of culture and art on the mental health and well-being of children and adolescents is considered in the special section. A. B. Afonin and M. S. Abadzheva write about the huge role of theater pedagogy and social theater for educating and improving the quality of life of children with special needs. Clinical, social and pedagogical models of art therapy, dance and movement therapy intended for children and adolescents with fears, mental retardation, multiple disorders and other medical and psychological problems are discussed in the articles of authors from different countries (L. A. Belozorova; M. V. Ermakova et al.; Zh. I. Glazunova; T. V. Kadinskaya; L. G. Khaet; I. R. Khokh; A. I. Kopytin; N. R. Nazarova; S. Yu. Pastukhova; N. V. Romashkina).

The section on the role of education in the mental health and well-being of children and adolescents considers associated themes. Education for children with disabilities and those over the age of 18 is now considered an integral part of their comprehensive rehabilitation (E. V. Morozova, E. V. Zhukova). Moreover, educational technologies are extremely important at all stages of prevention of mental health disorders in childhood and adolescence (N. Siricharoen). According to V. V. Rubtsov and A. V. Konokotin, the inclusion of children with special educational needs and normatively developing children in jointly distributed educational activities is a necessary condition for the development of their higher mental functions, as well as for the organization of inclusive education. Modern neuropsychology plays an important role in the education and training of disabled people (J. Quintino-Aires). High requirements are also imposed on the teaching staff. The inclusive competence of the teacher (E. L. Indenbaum; S. G. Shabas) does not exclude

a creative approach with an emphasis on developing self-help skills, positive thinking, and conscious building of personal success (A. B. Prusak).

The solution of many of the above-mentioned issues of mental health of children and adolescents is impossible without improving their legal regulation and, first of all, without systematizing the relevant normative legal acts (K. I. Korobko). The section on *legal, economic and policy frameworks concerning the mental health and wellbeing of children and adolescents* covers the wide range of relevant issues. The widespread introduction of some promising diagnostic methods, such as genodiagnostics, is hindered by a number of unresolved legal problems (A. A. Mokhov), including the danger of various forms of discrimination (A. N. Levushkin). According to I. M. Matskevich, the modern criminal law does not take well new scientific data from the field of neuroscience. Due to existing legal restrictions, it is still very difficult to conduct clinical and pharmacological studies with children (Kh. A. Rasayeva), including providing them with necessary medicines (R. R. Niyazov et al.). Such issues as legal regulation of aggressive behavior of minors at school in the absence of parental consent (M. N. Maleina), family participation in the development strategy of the child mental health service (M. A. Bebchuk), as well as the creation of a legal institute of distributed custody (A. V. Pekshev) are also relevant. The comparative analyses of organizational and legal instruments for the protection of mental health of children and adolescents in the European Union and in the Russian Federation presented by E. O. Pazyna is of particular interest as it reviews legal, economic and policy frameworks concerning the mental health and wellbeing of children and adolescents in different socio-economic contexts.

Thus, the above review of the collected research papers of the III Congress on Mental Health: Meeting the Needs of the XXI Century — "CHILDREN, SOCIETY AND FUTURE" demonstrates a very wide field of problems, as well as proposals for their solution in the above-mentioned area and, in our opinion, well reflects the current state of the mental health care of the younger generation both in the world and in Russia.

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IN MEMORY OF A. R. LURIA

ПАМЯТИ А. Р. ЛУРИЯ

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Luria in Kisegach. Part 3

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Abstract. This is the third part of the article about the work and life of A. R. Luria in Kisegach which presents a unique document *The Work Diary*. A notebook with this name served him for daily records of studies of patients. It is kept in the family archive of Luria. This part publishes entries in the Diary from January 8 to June 22, 1943. The afterword to the notes tells about the generalization of clinical materials collected in Kisegach in the scientific works of A. R. Luria, about the perception of the scientist by his patients. It also supplements the history of the relationships between A. R. Luria and A. V. Zaporozhets according to the memoirs of the wife of Zaporozhets T. O. Ginevskaya (2005) and the daughter of L. S. Vygotsky G. L. Vygodskaya (2005). For this purpose, the materials of Luria's book *The Lost and Returned World* or *The Man with a Shattered World* (1971/1972) and the book of memoirs about A. V. Zaporozhets (Paramonova, 2005) have been employed. In general, the article shows an intense and fruitful work of scientists in the Kisegach hospital.

Keywords: *A. R. Luria; neuropsychology; aphasia; war trauma; the rehabilitation of brain functions; L. S. Vygotsky; A. N. Leontiev; A. V. Zaporozhets; L. A. Zasetsky*

Аннотация. Это третья и последняя часть статьи о работе и жизни А. Р. Лурия в Кисегаче, которая представляет уникальный документ «Дневник работы». Общая тетрадь с таким названием служила ученому для ежедневных записей о проведенных исследованиях больных. Она хранится в семейном архиве Лурия. В данной части впер-

вые публикуются записи в «Дневнике» с 8 января до 22 июня 1943 г. В послесловии к записям говорится об обобщении собранных в Кисегаче клинических материалов в научных работах А. Р. Лурия, о восприятии ученого его пациентами, более полно раскрывается история отношений А. Р. Лурия и А. В. Запорожца. В своей работе авторы опирались на воспоминания жены Запорожца Т. О. Гиневской (2005) и дочери Л. С. Выготского — Г. Л. Выгодской (2005), использовали материалы книги А. Р. Лурия «Потерянный и возвращенный мир» (1971/1972) и воспоминания Л. А. Парамоновой о А. В. Запорожце (2005). В целом в статье показана интенсивная плодотворная работа ученых в госпитале Кисегача.

***Ключевые слова**: А. Р. Лурия; нейропсихология; афазия; военная травма; восстановление мозговых функций; Л. С. Выготский; А. Н. Леонтьев; А. В. Запорожец; Л. А. Засецкий*

The third part of the publication of A. R. Luria's *The Work Diary* includes his records in the year of 1943 from January 8 to June 15, and another last entry of July 22. There is one break in the records: no records in May, when the scientist "prepares for his dissertation" and prepares and holds a conference. During the conference, he makes a report on the rehabilitation of mental functions in aphasia. Unlike the previous parts, we will first present the pages of the Diary, and then we will comment on this part and the entire document as a whole.

In the text below, comments from the right pages appear immediately after the records to which they relate. There are many abbreviations in the text; all of the abbreviations are expanded in this publication. In obvious cases they are not specifically marked, but in the most difficult places the disclosure is given in [square] brackets. Illegible words are marked with <angle> brackets. All of the author's underlines are preserved.

1943

8.1.43

1) Chernyshev.[1] Stuttering after aphasia due to the left hemisphere injury in the left-hander.
2) Yugov. Iterations[2] in aphasia — the phenomenon of the irritation of subcortical nodes.

On the right side: NB: Nurkhiragov and others.

11.1.43

1) Popov (28376) — the essence of the distribution of functions and the fate of the hemispheres during retraining.

[1] A. R. Luria describes patient Chernyshev in detail mentioned repeatedly in the records in January and February in *Traumatic Aphasia* (see 1947, pp. 344–348 / 1970, pp. 453–457; Luria, 1963, pp. 188–244 / 1966).

[2] Iteration is a pathological arousal characterized by the tendency to repeat the same movement or a complex motor act, a word, a part of a phrase, etc. without any noticeable emotional colouring of the actions performed (Pokrovsky, 2001).

2) Abdukhamedov. Functional deepening of primary aphasic symptoms.

On the right side:

To 1). **NB.** The problem of the hemispheric dominance has become **a method** for studying the order and limits of retraining of brain functions after their impairment.

To 2). Organic and functional in aphasia.

12.1.43

1) Abramov: General syndrome of frontal aphasia: 1) violation of the internal scheme, hence violation of the integrated W[3] of the storyline, the impairment of a spontaneous narrative speech, etc. 2) the general impairment of denervation (counting 100–7, repeating pairs of words, in writing). 3) A salient frontal lobe syndrome <4 illegible letters, the first is "s"> of memory (disturbances in spontaneous speech rather than in persevered speech).
2) Zyankin: a left-hander, concussion syndrome → a short impairment of speech.
3) Balakin: a stable preservation of the left temporal lobe in the re-trained right-hander.

13.1.43

1) V. I. Chernyshev — early injury to the premotor region: THE PREMOTOR SPEECH IMPAIRMENT SYNDROME (Stockung)[4] and THINKING PROCESSES (the disruption of thinking) with the corresponding Sl <the abbreviation is illegible>.

On the right side (*see Figure 1*):

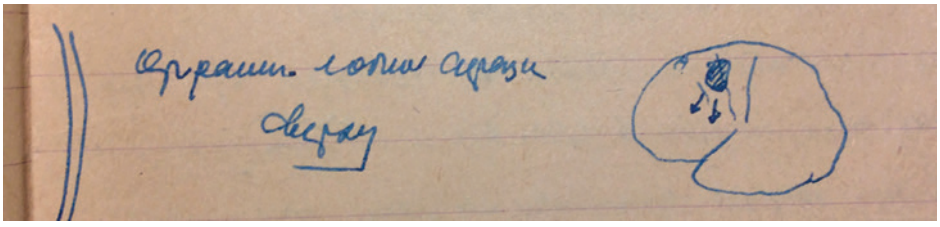

Figure 1. The delimitation of frontal aphasia from the superior brain zones

2) Pertsov — A residual temporal aphasia with a disturbed internal image <a word is crossed out, atop phasis> of the phasis of words (without any impairment of speech comprehension!).

14.1.43

1. Chernyshev 1) The kinetic melody in rhythms is absent.
   2) The rhythms are dependent upon the external scheme.
2. Mirsalyamov — Aphasia with no residue,[5] left-handers in the family.

[3] W — *Wahrnehmung* [?] (Ger.) — perception.
[4] *Stockung* (нем.) — stagnation.
[5] *Residue* (Lat., Eng.) — the remnant, heredity. Herein: no impact.

15.1.43

N i h i l[6]

(the unsuccessful observations of the left-handers: Sereda, Mirsalyamov, Bychkov, Ramadin)

16.1.43

1) Chernyshev: The influence of the exercise to develop motor melodies in the premotor zone **injury**.

2) Bursyanin: The temporal lobe → compensation by the accent but not by time (pause); spontaneous, from the spot establishment of a kinetic melody, but
   a) unconscious,
   b) without any ability for pauses, intervals.

On the right side (*see Figure 2*):

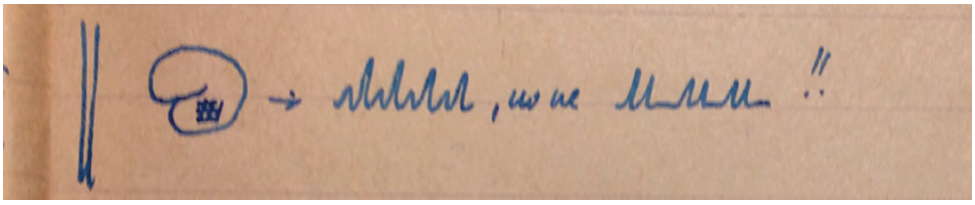

Figure 2. The picture to the right of the entry dated 16.1.43. There are words *but not* between the curves, i. e. the first is possible, but not the second

3) Lomov (the frontal-premotor injury with access complex)[7] the acquisition of the kinetic melody but the inability to refrain from increasing the tone.

On the right side (see *Figure 3*):

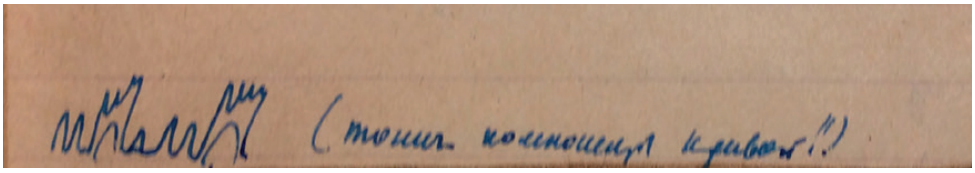

Figure 3. The picture to the right of the entry dated 16.1.43 and words *tonic components of the curve*!![8]

NB: To introduce a motor method as an indicator of local brain lesions!!

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4) Larin: The semantic aphasia!!

[6] *Nihil* (Lat.) — nothing.

[7] The access complex implies special surgical manipulations to reach the future operating area of the patient.

[8] Curve — perhaps Luria means the curve of the hardware recording of tone.

18.1.43

1) Motor experiments with temporal lobe patients. Easy mastering of the kinetic melody (easy to use!).
2) Id.[9] — Kulichkov: the delimitation of the frontal aphasia syndrome without premotor disorders.
3) Yaneev (?) Aphasia on the background of the frontal syndrome.
4) Batsuro: A peculiar form of amnesia when a bullet passes from the frontal to the occipital region (*see Figure 4*).

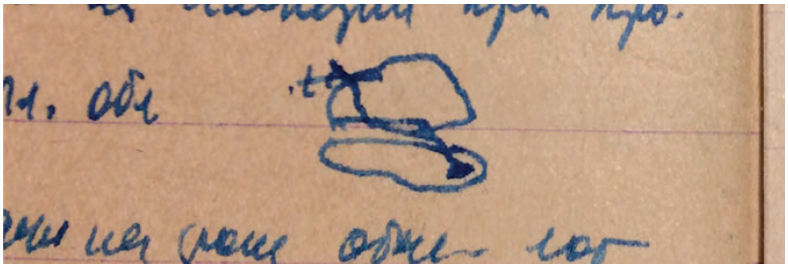

Figure 4. The picture near the entry dated 18.1.43, depicting the path of a bullet

5) Volkov p/o [post-operative] impairments of denervation on the background of the general frontal lobe syndrome.

19.1.43

Motor trials (1) symptoms of a latent paresis; 2) of <the most intimate> cortical-subcortical regulation.

On the right side: **NB.**

20.1.43

1) The experiment with Khristov — once more to the motor symptoms of the temporal lobes (the impossibility of training rhythms — pauses).
2) The experiment with Chernyshev — the inability to internalize rhythms.

21.1.43

1) Lomov — misunderstanding of the meaning (sense).
2) Experiment with proserin — destructed and inhibited zones.

(Disease)

1.II.43

Chernyshev — checking the inability to internalize rhythms.

[9] *Id.* (Lat.) — the same.

2.II.43

1. Chernyshev — premotor symptoms in the intellectual processes (the inability for a dynamic transfer!).
2. The right frontal lobe syndrome in the motor skills.
   1) Kozhevnikov — a full inability to recognize his mistakes in rhythms, etc.
   2) Nadezhdin
   3) Shavshin — the inability to notice the mistakes.

On the right side:

The right frontal lobe syndrome — the disturbance of SELF-perception of the defect: compare
1) the disturbance of W [perception] of rhythms,
2) slight slipping with a disturbance of error recognition (100–7, etc.),
3) too fast <judgment> — there is no corresponding evaluation.

3. NB. The disturbance of W [perception] of rhythms in the right frontal defects.
   Shavshin! Agambaev (?). Kozhevnikov
4. The right occipital region syndrome: the presence of metamorphosis <"ps" and 2–3 illegible letters> in the subjective W [perception], in the absence of constructive apraxic phenomena in the actual sphere. Antonov.

3.II.

Abramov: A dynamic impairment of praxis.

4.II.

1) Chernyshev. The interiorization of rhythm.
   The disturbance of the dynamics of cognitive processes.
2) Abramov: The perseveration of stamps.

8.II.

1) Chernyshev. Experiments with retelling
   (a) The disturbance of the internal scheme of retelling, hence → the disturbance of its fluency.
   (b) The difficulty of cumulating the meaning (sense) in a single scheme.
2) Abramov — an impaired serial organisation in the <optics> and speech.

(Kaufman)[10] Sytovets — pure culture of "training" (no systemic development of speech)

9.II.

Experiments with Tsyganok, Baykalov and Petrov:
1) The right frontal lobe syndrome: 1* The disturbance of W [perception] of rhythms,
   2* The intactness of the rhythm performance,
   3* Impulsivity with insufficient criticality.

[10] O. P. Kaufman — the hospital's psychologist.

2) Differentiation of the frontal pole in motor skills.

10.II.

1) Experiments with Koretsky, Tyukov, Vovchenko — the right frontal lobe syndrome (the disturbance of W [perception] of rhythms, slipping in 100–7 and "not immediately" in the grasp of the story).

On the right side:

NB The right frontal lobe syndrome

2) Rasskazovtin — the left frontal lobe.
The phenomenon of denervation difficulties in constructing a story.

3) Gusev: the left temporal lobe disorder without any speech impairments, left-handers in the family.

11.II.43

1) An experiment with Samorodov — complete impairment of serial organisation (on the border of aphasia and frontal disorders!).

On the right side:

NB!! The inability to transfer the meaning of a story and a long phrase <and so on> — in general, the frontotemporal syndrome (even if it occurs without any speech symptoms) is a kind of the impairment of serial organisation close to frontal aphasias!

2) Kozhevnikov. The right frontal lobe syndrome (uncriticality against the background of Kurzschluss[11] and behavior in terms of direct impressions and a conduct in the form of an immediate impression, effortless behavior, without operant behaviour).[12]

3) Rhythms: the right frontal lobe syndrome: the disturbance of W [perception] of rhythms, with the intact performance of them.
the left frontal lobe syndrome: the intact W [perception] of rhythms,
the inability to perform them based on
akinesia, extra movements, etc.

12.II.43

1) Samorodov — rhythms:
(a) Extra impulses — not always with a clear awareness,
(b) the counting helps, an external scheme helps,
(c) no internalization.

[11] *Kurzschluss* — the short circuit. This expression was used by Luria (and Zeigarnik) to refer to impulsive reactions.

[12] Operant behavior means active actions, actions that are directed to achieving the desired goal (according to B. Skinner).

On the right side:

Rhythms: 1) deautomatization, the lack of the kinetic melody —
Groups: the premotor syndrome — Chernyshev,
2) extra impulses with their awareness: prefrontal, subcortical
3) lack of awareness with extra impulses: the right frontal lobe.

2) Ba[tintsev] — severe extra pressing (a subcortical impulsivity).
Experiment with proserin.

3) Chernyshev: an experiment with an external scheme in retelling a story.
A bridge to agrammatism!!

13.II.43

1) Chernyshev: The inability to immediately perceive the inner sense (of a fable).
A bridge to the disturbance of W [perception] of SENSE.

On the right side (opposite to the both records about Chernyshev):

NB! A single frontal syndrome is created:
from the frontal aphasia — with agrammatism
from the premotor syndrome — with a disturbed internal scheme
— to the FRONTAL syndrome (*see Figure 5*)

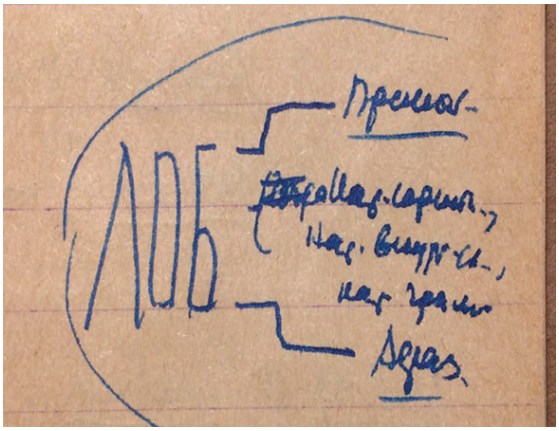

Figure 5. The scheme of frontal lobe syndrome

	Premotor
	impairment of serial organization,
FRONTAL LOBE	impairment of internal links,
	impairment of grammar
	Aphasia

2) Abramov: Rhythms: the frontotemporal syndrome: the disturbance of W [perception] of complex texts

3) Smorechanev — Id. (the same)

4) Shilov — Id. (the same)

On the right side (opposite records 2)-4)):
The **F**ronto**T**emporal syndrome

5) Bursyatin: Unstable W [perception] of rhythms: their lability
(when included in a series, the rhythms disintegrate!!)

On the right side: NB!!

15.II.43

1) Chernyshev. Experiments with sensory skills.
2) …The frontotemporal syndrome in motor skills (the inability to reproduce rhythms).
3) To the right hemisphere syndrome: an <isolated> disturbance of W [perception] of rhythms. Patient Serevdin.

16.II.43

1) The experiment with Chernyshev — the training the sensory skill | difficulties <mast.> (*see Figure 6*)

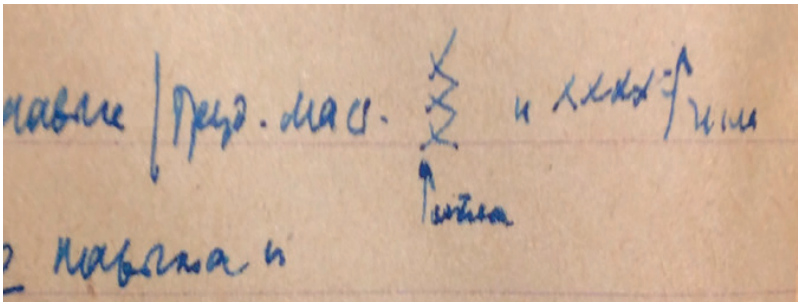

Figure 6. Scheme of the experiment for training sensory skills: under xxx there is an up arrow ↑ and a word *dog*, next to xxxx an up arrow ↑ and a word *needle*

2) The experiment with Derevyankin: reproducing an external skill, and the inability to develop an internal one in 3 months.
3) Gordeev: near-premotor impairments of movements.

17.II.43

1) Chernyshev. Experiment with proserin.
2) Derevyankin — Id (the same).

18.II.43

1) Chernyshev: (a) checking the experiment with proserin.
(b) Grammar: the difficulty to ask abstract grammatical questions.
A path to agrammatism.
2) Sheremetov, Trotsky — negative cases of premotor syndrome. | |

3) Kadyrov — 1) «posterior» paresis — without any impairment of dynamics in the movement,
2) the disturbance of W [perception] and repetition of complex rhythms!

19.II.43

1) Chernyshev: He has completely lost the multiplication table, division operations, etc. — The dynamic disturbance of numerical schemes.

On the right side:

NB!! Dynamic acalculia — the lack of the internal field in the counting!!

2) Tarasov, Stratienko. 1) Syndrome **T1**[13]
2) the disturbance of W [perception] of the rhythms of the temporal type.

On the right side:

T1 ---- Syndrome **T1**: the phonemic hearing impairment, literal paraphasias, writing disorders, etc.
while maintaining the ability for bi-bo-ba,[14] no amnestic syndrome and etc.

Temporal disturbances of W [perception] of rhythms: in the transition from single to serial taps, there is a severe disturbance of W [perception] of rhythm!!!

3) Derevyankin. Premotor syndrome: A kind of disturbance of skills (inability to work according to an internal scheme).
4) Svyatenko — The intactness of rhythms in the motor aphasia.
5) Simonov — the temporal impairment of rhythms || || || → |||||| (with no inter<vals>)

On the right side:

To 4) Limited motor skills — the aphasic syndrome (the intactness of rhythms).

To 5) The temporal syndrome of motor rhythms: disturbed intervals while maintaining intensity (compare with Bursyatin!).

20.II.

The right hemisphere — difficulty W [perceiving] rhythms.
Loading syndrome (loss of rhythm when included in the series!!)
(Statistical Information!)

[13] **T1** is the superior temporal gyrus.
[14] *Bi-bo-ba* is a test for repeating series of syllables.

22.II.

1) Chernyshev. The fact of disturbance of internal representations, the internal vision, etc. — and the internal plan.
2) Ogirenko (injury to the posterior zones of the left temporal zone --- left-handers in the family; no symptoms!).

23.II.

1) Chernyshev. The use of "Glossary of Text Connectors"[15] — and its **effect!**
2) Samorodov — the training stamps.
3) The current work on rhythms.

On the right side:
To 2). Compare Abramov.

24.II.

1) Lomov — injury to the frontal lobe → a splinter in the left temple — stamps, especially in stories based on a picture, in **writing**.
2) Rasskazov — a perforating wound of the left temple → the frontal lobe → an abortive form of the frontal dysgraphia.

On the right side:
On 1). Perseverations in <a word of 7 letters> series. Compare Abramov!

3) Portsev: the frontotemporal syndrome.
   An impaired serial organisation (in a weak form); **a severe impairment of the internal speech** (the inability to produce counting with no fingers and external speech!!)

On the right side: NB!!

25.II.

Experiments with rhythms in the Frontotemporal syndrome.

Samorodov	1) No internal structuring of rhythms.
Abramov	2) Echoed (immediately repeated) rhythms (corresponding movements) do not help the assessment.

[15] "Glossary of Text Connectors" is a method proposed by A. R. Luria to help patients construct a text using words connecting parts of it. The patient is presented with a list of "opening and transitional" constructions. For instance: "Once…", "When…", "While…", "At this time…", "After that…" (Luria, 1947, p. 345 / 1970, p. 454).

On the right side:

The Frontotemporal syndrome:

Samorodov	1) A low threshold for grasping rhythms, the inability to evaluate complex rhythms.
Portsev	2) An echoed (immediately repeated) reproduction of rhythms does not help the assessment.
Abramov	3) Difficulty mastering simple rhythms, especially pauses.
Simonov	4) Sometimes — impossible to grasp also complex rhythms
<C+ 6 letters>	(no internal scheme).

26.II.

1) Experiments with Khuday-Berdiev (the Uzbek — order bearer).
   (a) A key to the plateau in the memory research (Anspruchsniveau[16] stamps)
   (b) Perseverative mechanisms in counting.

The conflict of the personal preservation ---- with aspontaneity.

2) Chernyshev: failure to grasp a passage as a whole, and absent — agrammatism, punctuation disturbances, etc.

3) Vaskovsky — the tendency to echopraxia in the frontal lesion.

At night — projects of experiments: experience with distraction (for the right frontal patients!).

2.III.

Chernyshev — experience with the representation: clock (inverted): the inability for a serial transposition.

3.III.

Chernyshev — pseudo-semantic aphasia: difficulties in distinguishing between "the brother of the father" — "the father of the brother", etc., as a result of the difficulty in generating the representation. The differentiating feature is the presence of transfer and the potential.

4.III.

1) Chernyshev — checking for artillery tasks: 1) the unevenness of the suffering of representation and spontaneity, 2) old knowledge is destroyed less than the ability to acquire new knowledge. 3) the whole process of solving professionally related tasks is dis-automated and requires jolts.

2) Shilov (with a frontotemporal injury) — 1) the theory of frontotemporal rhythms disturbances (difficulties in the acoustic schematization, the receptor basis for disturbances in the performance of active rhythms, the visual scheme does not help but the fixing count helps). 2) the right temple: speech disorders: stumbling + subjective disorders!!

---

[16] *Anspruchsniveau* (Ger.) — the level of aspiration.

On the right side:
|**B!!** The Frontotemporal syndrome (The right hemisphere).

5.III.
Chernyshev — further exercises in arithmetic.

6.III.
A large series Posterior temporal impairments (T_3)
1) Cerebellar motor symptoms and paresis symptoms!
2) Cerebellar disorders do not eliminate the rhythm (||*** and *|*).
3) The theory of posterior-temporal zones (they are closer to P than to F).[17]

On the right side:
|**B!**

8.III.
1) Chernyshev. In the lessons on his own in artillery — a disturbed order of actions.
2) Samorodov: With frontotemporal lesions — serial processes, both optical and acoustic — are equally inaccessible.
(NB: in temporal (posterior temporal) lesions — only acoustic processes are unavailable).

A report in the laboratory — about erased symptoms and gravitational zones.

9.III.
1) Chernyshev — the inner speech in the counting (the exclusion of the inner speech — a full inability for any counting).
2) The experiment with rhythms — Goldobin — an erased frontotemporal syndrome.

10.III.
The observation over Chernyshev. Artillery lesson. The analysis of errors (missing links, <the separation> of representation from the formal reasoning).

11.III.
A series of temporal patients — experiments with rhythms.
The fact of the preservation of inner speech in severe temporal aphasia — patient Osipov!).

On the right side: **NB!!**

12.III.
A series of hemiplegics — experiments with rhythms.

[17] P and F are parietal and frontal lobes.

The fact: in hemiplegics, the other hemisphere gives symptoms of disinhibition!

Further data in favour of a latent left-handedness. The patient has symptoms of the latent left-handedness and mild residual (residual effects) of aphasia.

13.III.

1) Portsev — the frontotemporal syndrome. The inner speech impairment during the trial for rhythms.

2) Experiment with proserin — Nikitin!

14.III.

1) The cases of aphasia with injuries to the right hemisphere in the presence of left-handers in the family (Ponomarev, Semenov).
2) A case of rapid reverse development of aphasia with stigmata of left-handedness in the subject: Ryzhov.
3) A case of a rapid reverse development of aphasia with left-handedness in the genotype: Sergeev.

On the right side: NB

14.III.

4) Unconscious extra pressings in the right temporal lobe syndrome!

15.III.

Further experiments with motor skills and the inner speech in the frontotemporal syndrome (Samorodov, Portsev).

16.III.

1) Portsev — experiments excluding the internal scheme.

2) Istratov — first experiments with motor skills.

Preparing the demonstration of Ponomarev and Semenov (a latent left-handedness).

17.III.

Chernyshev. The <roots> of spelling and syntactic difficulties.

Message about left-handedness!

18.III.

Chernyshev. Further experiments with the narration.

(a) transition from a series of pictures to a single picture,

(b) spelling and syntax.

19.III.

IMPORTANT RECORDS: EXPERIENCE WITH THE DISINTEGRATION OF WORD SERIES

1) Samorodov — the decay of a simple series — everything is in the speech!

2) Portsev — id (the same) but everything — in the immediate motor skills.

3) Abramov — mixed.

On the right side:

BB The plan of an article about Lashley:[18] On the pathology of serial processes.

1. The initial: the memory paradox: The state of memory curves — and a disturbed serial organisation.

2. The principle — the disturbance of serial organisation.

3. Types of the disturbance of serial organisation.

Three portraits

22.III.

Samorodov. Experience with delayed series (the disturbance of W [perception] of serial organisation).

23.III.

Making current rounds on patients

The frontal syndrome: Firsov.

The latent left-handedness — and negative cases (Cherednin, Dotsur…).

24.III.

1) Chernyshev — a disturbed scheme of the actual thought,

— method of mediation: bringing not a scheme, but the process of schematization outward!!

2) Portsev — an experiment with the retention of series.

25.III — 5.IV.

Writing an article for the Achievements of the Soviet Medicine.[19]

6.IV.

Chernyshev — an impaired counting due to the inner speech impairment.

7.IV.

Chernyshev — experiments with a semi-written counting (interiorization).

[18] Karl Spencer Lashley (1890–1958), the American neuropsychologist. In 1951, he published his famous article *The problem of serial order in behavior*.

[19] There is no such article in the bibliography of A. R. Luria.

8–9.IV.

1) Chernyshev — left-handedness! anamnesis! understanding and the role of inner speech in it.
2) Portsev — further experiments with the serial organisation.

13.IV.

1) Avdeev | 1) the right frontal lobe syndrome in the motor skills (does not notice extra
2) Shityakov | impulses, mastering is possible through realising mistakes).
2) The role of the blurred symptoms of left-handedness in S[20] in the dominant hemisphere (Zundelevsky, Avdeev).

17.IV.

1) Portsev — the frontotemporal syndrome (a temporal mild aphasia cannot be compensated due to the frontal lobe!).
2) Osipov — the mechanism of the alienation of words and the phonemic disintegration.

19.IV.

1) Osipov — a further context helps compensate for the initial unsteadiness of words.
2) Lektichev — T_3 — the impairment of an acoustic serial organisation.

20.IV.

Stratienko — syndrome T[21] (T2?) which differs from the usual T1 (the alienation of words without any phonemic disintegration).

21.VI.

1) Portsev — strong stereotypes.
2) Osipov, Stratienko (writing).

29.IV.

1) Baskakov — afferent motor syndrome P3.
2) Kornilov — Sizov — Ponomarchuk
The disturbance of succession in T3 lesion.

On the right side:

| Syndrome **P**sup:[22] The impairment of afferentations leads to the disintegration of motor skills!
|! After all, the thesis about the general disturbance of succession in the lesion of the temporal systems is correct! See Brodsky.

[20] S is for a left-hander.

[21] T — the temporal lobe, T1 — the superior temporal lobe, T2 — the middle temporal lobe, T3 — the posterior temporal lobe.

[22] Psup — the superior temporal lobe.

30.IV.

The experiment with Baskakov: the role of the kinaesthetic afferentation and different levels of afferentation in overcoming kinaesthetic apraxia.

May

Preparation for the dissertation.

Preparation for the conference. I made the report: The rehabilitation of functions and aphasia.

8.VI. — 9.VI.

Shelenok, Shturman, Shchipkin

1) Dysarthria.

2) Central aphasic-like effects (the asthenia of the sound composition of the word — dysgraphia).

On the right side:

NB: The entire series of articulatory-aphasic disorders (PHASIC aphasias): from a total afferent motor aphasia — till the asthenia of the sound composition of the word (with effects of dysgraphia)

11.VI.

The Right hemisphere injury (with motor symptoms) and
functional changes of speech: 1) |*, 2) Shanin.

14.VI.

1) Kolesnikov. A frontal lobe reading. The dynamic syndrome on the frontal lobe background.

2) I. I. Ivanov — the temporal-parietal aphasia.

15.VI.

1) Prusskikh — PHAS-ASTHENIA

(an impaired clarity of the sound-motor structure of speech — "not immediately" in the motor skills of speech!!)

2) Petrov: Frontal aphasic mixt (the residue of articulatory aphasia on the background of the frontal aspontaneity).

On the right side: NB

22.VII.

1) Artvolov — left-handers in the family → the dissociation of paresis and aphasia in the cardiovascular impairment.

2) Skvortsov — experiments with changing of the visual field in hemianopsia.

The end of the records

Dear reader,

You have already finished reading an extraordinary document — the work diary of A. R. Luria in 1942–1943. You have also seen how intensively the scientist worked in the neurosurgical rehabilitation hospital in the village of Kisegach. He made daily neuropsychological examinations of patients, performed extensive organizational and administrative work, fulfilled educational work in his hospital and in the region and continued the scientific work on the mechanisms of aphasia and methods to overcome them.

This epilogue does not pretend to generalize the scientific observations recorded in the Diary: it may become a subject of a special serious study in the future. But already from the presented material and its comparison with the 1947 book *Traumatic Aphasia* it becomes obvious that working with patients in Kisegach and comprehending this experience became for Luria the foundation for building scientific aphasiology and neuropsychology in general. Even now in the 21st century, Luria is considered to be the most experienced investigator with regard to aphasia (Lenneberg E. H. & Lenneberg E., 2014). The editors of the 692-page anthology *The Handbook of School Neuropsychology* write about him in the preface to the book: "The most notable among all the neuropsychologists, A. R. Luria is considered by some to be the most referenced psychologist in the world" (D'Amato, Fletcher-Janzen, & Reynolds, 2005, p. ix).

Nevertheless, today there are such young psychologists who dare to write that Luria's methods of diagnosis and rehabilitation cannot be considered "evidence-based." Let's figure it out! Of course, in Luria's work we do not find sophisticated modern statistics. But he followed the rules of rigorous scientific analysis. In his *Traumatic Aphasia*, each of the sections about the topical syndromes of aphasia presents data on the number of patients with that syndrome, describes general and individual features of mental processes (not only speech!) of patients. For every group, the other described groups are groups for comparison. In general, Luria's book presents the analysis of aphasia syndromes in 394 injuries of the left hemisphere (Luria, 1947, p. 8/1970, p. 28). Unfortunately, now the education of neuropsychologists not so rarely begins and ends with the study of the work of the last 10–15 years, such specialists are most susceptible to the influence of fashion.

A. R. Luria made a primary generalization of the clinical experience collected in Kisegach in *Essays on the Theory of Traumatic Aphasia* (1943). A typewritten bound version of the *Essays…* has been preserved in the family archive of A. R. Luria (see *Figure 7*). There are 138 pages in the book.

The title page reads:

The Rehabilitation Branch of the Neurological Clinic
of The All-Union Institute of Experimental Medicine
The Neurosurgical Rehabilitation Hospital of VTsSPS[23]

A.R. Luria
Essays on the Theory of Traumatic Aphasias
Kisegach
1943

On the last page of the book: Kisegach, 11/VIII-43.

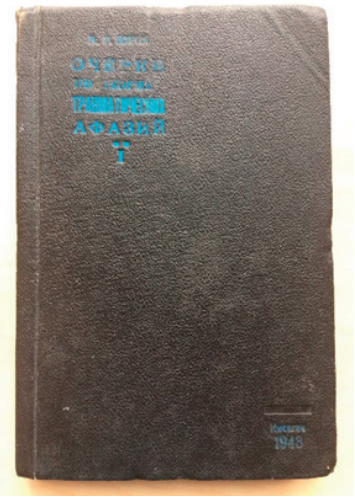

Figure 7. The book *Essays on the Theory of Traumatic Aphasia*

The titles of all the three parts of the book (essays) coincide with the titles of the sections in *Traumatic aphasia*: (1) The dynamics of aphasic syndromes at the successive stages of the traumatic illness… (2) Factors of the spontaneous rehabilitation of speech… (3) Topical syndromes of traumatic aphasia…

Luria repeats the contents of the first two essays rather close to the text in the 1947/1970 book, and he significantly expands the third essay. In addition to the *Essays…*, Luria prepares other materials with detailed descriptions of patients. For instance, in the *Diary* of 1943, one may often find the patient's surname Chernyshev (see the records from January till April), he is described in detail on three pages in *Traumatic Aphasia* (1947, pp. 344–348/1970, pp. 453–457). Luria writes about him in a more detailed way in his special article *The Psychological Analysis of Premotor Syndrome* published in his book *Human Brain and Psychological Processes* (1963, pp. 184–244/1966). In the introduction to the article, Luria writes that he prefers "a thorough study of the whole complex of symptoms in one patient to the description of individual symptoms in a large number of patients" (Luria, 1963, p. 185/1966; see *Figure 8*).

[23] VTsSPS — The All-Union Central Council of Trade Unions.

A detailed description of the syndrome found in the patient (case study) brings this article closer to the "romantic essay" about the patient Zasetsky, the hero and co-author of the widely known book *The Lost and Returned World* (1971), the English translation *The Man with a Shattered World* (1972). Oliver Sacks in his introduction to the English-language edition of 1987 quotes A. R. Luria from his letter to Sacks of July 19, 1973:

Figure 8. The book *Human Brain and Psychological Processes* in different languages

Honestly speaking, I like the style of a "biographical" research very much, like the works about Shereshevsky (mnemonist)[24] or about Zasetsky… First, because this is a kind of "a romantic science" that I want to be engaged in, and secondly, because I am absolutely *against* the formal statistical approach but for a qualitative study of personality but I am for any attempt to find the factors underlying the structure of personality… (Sacks, 1987, p. VII–XVIII; see also Sacks, 1990).

The book, co-authored with Zasetsky, gives us a unique opportunity to find out the opinion of a patient at the hospital in Kisegach about his studies there and personally about Luria.

Lev Zasetsky was admitted to the hospital in May, 1943. Based on the *Diary*, in May, Luria was doing his doctoral thesis. Olga Petrovna Kaufman conducted diagnostics and rehabilitation work (see about her in part II of the article). Zasetsky met Luria at the end of May. Let us give the floor to L. A. Zasetsky:

> In the beginning, with writing, things went exactly the same way as with reading, i. e. I could not remember the letters for a long time, when I already seemed to know them, doing the same

[24] Shereshevsky is a hero of another "romantic essay" by Luria, *A Little Book about a Vast Memory (the Mind of a Mnemonist)* (Moscow, 1968), in English *The Mind of the Mnemonist: A Little Book about a Vast Memory* (New York, 1968).

> procedure, in order alphabetical.[25] But suddenly during the lesson, the Professor, who is already familiar to me for his simplicity of addressing me and other patients, comes up to me and asks to write not by letters but immediately, without taking my hand with a pencil off from a shit of paper. And (I re-asked, of course, twice) I repeat the word "blood" several times, and finally, I take a pencil and quickly write the word "blood," although I did not remember what I had written because I could not read the written thing. (Luria, 1971, p. 58/1972)

This technique enabled Zasetsky to master writing, and he was so excited about this event that he decided to write a diary.

Figure 9. Lev Zasetsky and Alexander Luria

L. A. Zasetsky did not break ties with A. R. Luria (see *Figure 9*) until the scientist's death. He regularly went to the Clinic of Nervous Diseases in which he received supportive therapy and classes with a psychologist. T. V. Akhutina was one of those psychologists. Under the guidance of A. R. Luria, she gave rehabilitation lessons to L.A. and conducted research which is reflected in the article *Riddles of Semantic Aphasia* (Akhutina, 1992, pp. 46–65; 2014, pp. 221–233). Lev Alexandrovich (Zasetsky) was a modest, benevolent, intelligent person who willingly took part in the classes and diligently performed all the tasks. So, he wanted to help himself and science. He was always happy to meet A. R. Luria and told us how grateful he was to the "Professor." He always congratulated Luria and us, psychologists, on all the holidays.

Before finishing this afterword, we would like to share some new information about the interaction and relationship between A. R. Luria and A. V. Zaporozhets, his

[25] We keep the word order of Zasetsky.

employee in Kisegach. The second part of the article shows the external outline of their relationships. When writing the third part, the book of memoirs about A. V. Zaporozhets *A. V. Zaporozhets — a Man and a Thinker* (Ginevskaya, 2005; Paramonova, 2005) became available to us. The memories of T. O. Ginevskaya show her husband's life from the inside. The memories of G. L. Vygodskaya (a daughter of L. S. Vygotsky), V. P. Zinchenko and many others add the finishing touches to his portrait.

Tamara Osipovna says that the call to work in Kisegach saved the life of A. V. Zaporozhets.

Here is how it was. When the war began, A.V. went to volunteer corps. T. O. was waiting for him at home in Kharkiv. Kharkiv was bombed daily and nightly. Both institutes where A.V. and T. O. worked, had been evacuated. The shops were closed, and T. O. did not have any money. There was a rumor that the volunteer corps was surrounded. "A few days later, my husband came from the defense work with a shovel in his hands… He was thin, pale and yellow-faced… He was developing jaundice of traumatic origin." With the help of the Idashkin couple, the Zaporozhets got on the last evacuation train. It was September 22, 1941. On that day, half an hour after they left home, a bomb hit their house — the text of a doctoral dissertation and numerous scientific materials, everything was lost. While waiting for the train in the station square, where there were no people, all the people hid, and bombs fell, sick A.V. sat, not moving or flinching even from the explosions of the bombs.

The train ran for a long time, nearly two months, it was bombed. "The winter was coming. Sasha was very ill already."[26] Idashkin and another person got off the train in Sol'-Iletsk to find a place to live in and work. A job was found in Magnitogorsk. In two weeks, they returned to take the Idashkins and the Zaporozhets. Idashkin worked alone. Frost reached –45 Celsius.

> Sasha was pale, silent and very ill. All the gold that I managed to take from Kharkiv, I gave to the store… to buy only sugar. We treated Sasha with this sugar. We had lack of money, and the Idashkins fed us for some time… And suddenly, A. R. Luria found us… We said goodbye to our dear saviours and found ourselves soon in one of the most beautiful places in the southern Urals — Kisegach. Sasha cheered up and told me: "I will still be engaged in science…" (*Figure 10*)

A.V. began *studying the possibilities of restoring movements of the upper extremities*. The development of the methods of work therapy began. Professor S. G. Gellerstein, who arrived later, was appointed a head of the workshops. He served as a scientific supervisor on the work therapy for all the hospitals of the VTsSPS system (1942–1943). T. O. wrote:

> The work was in full swing. But Sasha grew gloomy more and more. Gellerstein did not understand and did not take seriously the new things that Sasha introduced into science, and began to interfere with him. And one more thing: Sasha missed A. N. Leontiev, with whom he

[26] Sasha is a diminutive of the name Alexander.

was already connected by great friendship and complete mutual understanding. He needed a like-minded person. (Ginevskaya, 2005, p. 27)

Figure 10. T. O. Ginevskaya and A. V. Zaporozhets on the background of a vase in the park of the Kisegach sanatorium. 1942

In the autumn of 1942, A. N. Leontiev together with Ya. Z. Neverovich (B. M. Teplov's student) found a rest house for the clinic in Kaurovka, seven kilometers from Sverdlovsk, "among marshes and forests," as Ginevskaya wrote (Ginevskaya, 2005, p. 28). In addition to the rest house and a few small houses for the staff, there were several other huts of peasants expelled to these areas. P. Ya. Gal'perin was one of the acquaintances in Kaurovka.

> What a hard life it was — difficult housekeeping, poverty, hunger — against the background of mighty mountains and the furious Chusovaya river… We lived very amicably… Yes, it was not Kisegach, — a swamp, logs were laid over it. On this road, Sasha went twice a week to Sverdlovsk, where he gave a course in psychology for 3–4 students and went to the Leontievs who lived in Sverdlovsk… And what an amazing inner life we had! What an intensive work we carried out then, and what a pleasure Alexander Vladimirovich (Zaporozhets) had, when working. So many ideas, hypotheses and experiments there were. So many scientific discussions of experiences and much satisfaction with this great work (after the war, the book

"The Rehabilitation of Movements" written by Sasha together with Leontiev was published; and many articles on these issues were published). (Ginevskaya, 2005, pp. 28–29)

On October 3, 1943, the Zaporozhets returned to Moscow.

The relationship of A. R. Luria to A. V. Zaporozhets is reflected in the memoirs of Gita Vygodskaya, L. S. Vygotsky's daughter, who did very much to keep the memory of her father:

I became a student of Alexander Vladimirovich Zaporozhets at the suggestion of A. R. Luria. The fact is that even during the war, when a schoolgirl, I worked for Alexander Romanovich (Luria) in the rehabilitation department. My duties included helping research fellows fulfill examinations of patients with traumatic brain injuries. Alexander Romanovich was happy with my work. Communication with him developed naturally, easily, and then it seemed to me that this direction was interesting to me.

Then I entered the University [*Figure 11*]. The student life captured me so much that I did not even think about the specialization for some time. Once Alexander Romanovich came to our house (he needed a mother). For some reason, he started talking about his work. He spoke so fascinatingly that I, holding my breath, listened without stopping. Fascinated by his story, I, myself amazed at my courage, asked him when I could start my specialization with him. The answer sounded like a bolt from the blue, and it was so unexpected that I did not even understand his rejection. He said: "I will not take you to work with me." However, when he saw my confusion and disappointment, he was adding: "This is not for you. For instance, in the evening, I make the plan for working with a patient, and in the morning, when I come to the clinic, I find out that he died at night. No, it's not for you." He said this in that way that it was useless to argue with him trying to prove anything. I tried to hide my disappointment as much as possible and only asked him what he would advise me to do. He said: "I see two very important and necessary fields in psychology. One thing is what I do. And the second is what Sasha Zaporozhets does. This is very serious, necessary and interesting." (Vygodskaya, 2005, pp. 93–94)

Figure 11. Gita Vygodskaya as a student

Alexander Vladimirovich Zaporozhets had great scientific achievements and great plans which he could not realize because of the administrative work. Already in the 70s of the 20th century, Luria once invited A.V. and "asked (rather demanded) him to tell in detail what he had been doing during the day. Having listened to the 'report,' he angrily said that only in our country, they hammered nails with gold watches" (Zinchenko, 2005, p. 53).

The story of G. L. Vygodskaya about the care of A. R. Luria allows us to better understand the motives of her father, when Vygotsky, after hesitation, refused to move to Kharkiv. The reason (or one of the reasons) was a cruel famine of 1932–1933 in the Ukraine, the Volga region and Kazakhstan. Here is what T. O. Ginevskaya writes about the famine in Kharkiv.

> At that time, the Ukraine experienced almost the most difficult time after the revolution. There was hunger. There was a bakery in our street. The village "went" to the city for bread. We lived on the 5th floor without any lift. Going to work early in the morning, we could barely make our way down the stairs to the exit: this all was full of people, including the dead. They were people from the queue at the bakery. (Ginevskaya, 2005, p. 21)

The assumption that the famine in Ukraine was one of the reasons for Vygotsky's refusal to move to Kharkiv is also confirmed by the memoirs of Gita Vygodskaya, cited by Elena Luria in her book:

> I remember the discussions at home about moving to Kharkiv. The fact is that there was a dreadful famine in the Ukraine at that time. Newspapers wrote that people were dying straight on the streets, corpses were lying. My parents discussed it, and I was frightened and rushed to my papa and said: don't, don't go there! And my father always told my mother: "There are comrades there, and we need move there." (Luria E. A., 1994, p. 73)

Our story about Alexander Romanovich Luria in Kisegach often turned into the story about his confederates and friends, about the past and the next. It's naturally. Everything that was done in Kisegach was not Luria's work alone but that of his team. However, Luria showed incredible persistence and energy in the work, in diagnosing patients, in processing data, in preparing publications; and his heroic efforts inspired others. The fruit of that work was the book *Traumatic Aphasia* published in 1947 in Russian, and later in many languages of the world (see *Figure 12*).

The book has not lost its scientific significance even by now, three quarters of a century after its publication. In spite of the prohibition of printing and distributing L. S. Vygotsky's works, Luria repeatedly mentioned the name of his teacher and friend in that book. He mentioned him carefully, "undercover", simultaneously referring to other scientists (see Akhutina, 2019), but he did not let the world forget the name of Vygotsky, and showed that many of the statements of his book were based on his teacher's ideas (*Figure 13*). *Traumatic aphasia* is a monument to the work in Kisegach but at the same time it is a monument to the joint efforts of L. S. Vygotsky and A. R. Luria to establish neuropsychology (see Akhutina, 2003).

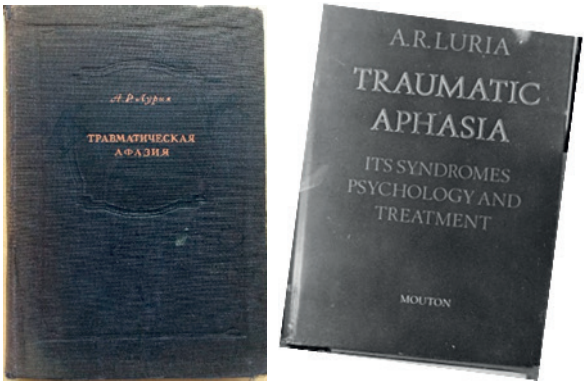

Figure 12. Traumatic Aphasia. Russian and English editions

Figure 13. Lev Vygotsky and Alexander Luria

The international recognition of *Traumatic aphasia* and other works by Luria is widespread. Roman Jakobson, the Russian and American linguist, used the classification of aphasia given in *Traumatic aphasia* as the basis for his structuralist typology of aphasias (Jakobson, 1964; see also about it Akhutina, 1999; 2014, pp. 148–171). The interest in the understanding of aphasias proposed by Luria is still strong today (Akhutina, 2016;

Ardila, Akhutina, & Mikadze, 2020; Bormann, Wallesch, & Blanken, 2008; Christensen, Goldberg, & Bougakov, 2009; Dragoy, Akinina, & Dronkers, 2017; Goldberg et al., 2016).

Dear Reader! We hope that you have learned something new about Alexander Romanovich, about his hard work in Kisegach, his friends and colleagues. We hope that the *The Work Diary.* has given you material for thinking about neuropsychology. Look at the portrait of A. Luria in the 1970s (*Figure 14*) and imagine that you are visiting a scientist (*Figure 15*). Luria invites you to his study and offers you to choose a chair or a sofa near the desk, and he himself takes a seat in the pulled armchair…

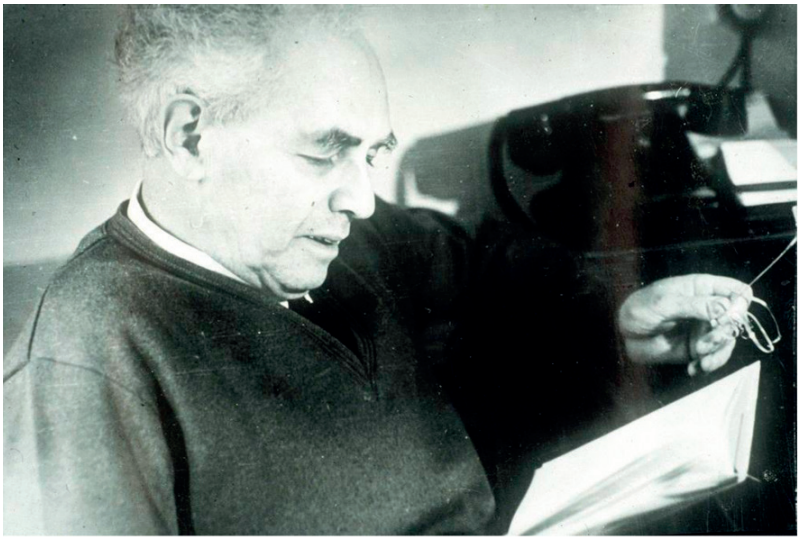

Figure 14. A. R. Luria. 1970s

Figure 15. Luria's home office. Photo by Yu. V. Mikadze

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Appendix
Приложение

Это приложение мы решили дать, поскольку текст «Дневника работы» представляет собой личные записи. Перевод такого текста на иностранный язык не исключает возможность субъективной интерпретации написанного. Чтобы избежать этого риска и позволить читателям самим ознакомиться с первоисточником, в приложении мы публикуем записи на языке оригинала. В тексте «Дневника» содержатся сокращения. Их объяснение дано в квадратных скобках. Неразборчивые слова заключены в угловые скобки. Все подчеркивания автора сохранены.

1943

8.1.43

1) Чернышев[1]. Заикание после афазии при ранении в левое полушарие у левши.

2) Югов. Итерации[2] при афазии — феномен раздражения подкорковых узлов.

На правой стороне: NB: Нурхирагов и др.

11.1.43

1) Попов (28376) — сущность распределения функций и судьба полушарий при переучивании.

2) Абдухамедов. Функциональное углубление первичных афазических симптомов.

На правой стороне:

К 1). **NB.** Проблема доминантности полушарий стала **методом** исследования порядка и границ переучивания мозговых функций при их поражении.

К 2). NB: Органическое и функциональное в афазии.

12.1.43

1) Абрамов: Генеральный синдром лобной афазии: 1) нарушение внутренней схемы, отсюда интегрированного W[3] сюжета, нарушение спонтанной повествовательной речи и т. д. 2) генеральное нарушение денервации (в счете 100–7, в повторении пар слов, в письме). 3) Яркий синдром лобного нарушения <4 буквы неразборчиво, первая "с"> памяти (нарушения в спонтанной речи, а не в инертной речи).

2) Зянкин: левша, коммоционный синдром → краткое нарушение речи.

3) Балакин: стойкая сохранность левой височной доли у переученного правши.

13.1.43

1) Чернышев В. И. — раннее ранение премоторной области: СИНДРОМ ПРЕМОТОРНОГО НАРУШЕНИЯ РЕЧИ (Stockung[4]) и ПРОЦЕССЫ МЫСЛИ (перерыв мысленного процесса) с соответствующей Sl <сокращение раскрыть не удалось>.

---

[1] Пациент Чернышев, многократно упоминаемый в записях с января по апрель, подробно описан Лурия в «Травматической афазии» (Luria, 1947, pp. 344–348 / 1970, pp. 453–457; Luria, 1963, pp. 188–244 / 1966).

[2] Итерация — патологическое возбуждение, характеризующееся тенденцией к повторению одного и того же движения или сложного двигательного акта, слова, части фразы и т. д. без заметной эмоциональной окраски совершаемых действий (Pokrovsky, 2001).

[3] W — *Wahrnehmung* (нем.) — восприятие.

[4] *Stockung* (нем.) — застой.

На правой стороне (*см. рис. 1*):

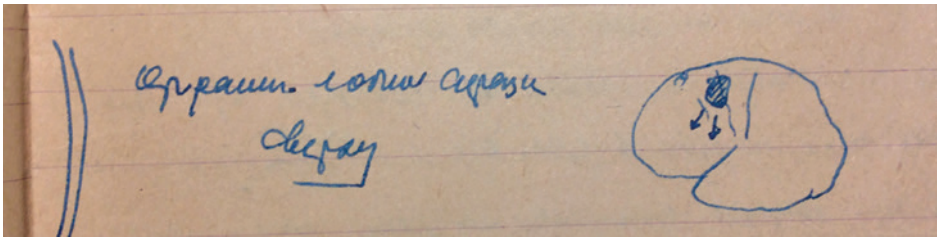

Рис. 1. Отграничение лобной афазии сверху

2) Перцов — Остаточная височная афазия с нарушением внутреннего образа <слово зачеркнуто, сверху фазиса> фазиса слов (без нарушения понимания речи!).

14.1.43

1. Чернышев 1) Регистрируется отсутствие кинетической мелодии в ритмах.
   2) Зависимость ритмов от внешней схемы.
2. Мирсалямов — Афазия без residue[5], в роду — левши.

15.1.43

N i h i l[6]

(неудачные наблюдения над леворукими: Середа, Мирсалямов, Бычков, Рамадин)

16.1.43

1) Чернышев: Влияние упражнения на установление двигательных мелодий при **ушибе** премоторной зоны.
2) Бурсянин: Височная доля → к о м п е н с а ц и я акцентом, а не временем (паузой); спонтанное, с места установление кинетической мелодии, но
   a) неосознаваемое,
   b) без возможности пауз, интервалов.

На правой стороне (*см. рис. 2*):

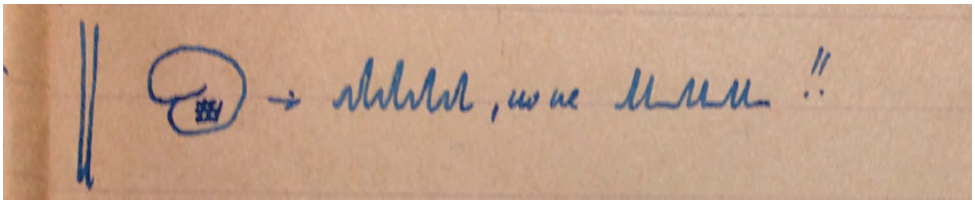

Рис. 2. Рисунок справа от записи от 16.1.43. Между кривыми есть слова *но не*, т. е. первое возможно, но второе нет

[5] *Residue* (лат., англ.) — остаток, наследство. Здесь: без последствий.
[6] *Nihil* (лат.) — ничего.

3) Ломов (лобно-премоторное ранение с подходным комплексом[7]) усвоение кинетической мелодии, но невозможность удержаться от втягивания тонуса.

На правой стороне (*см. рис. 3*):

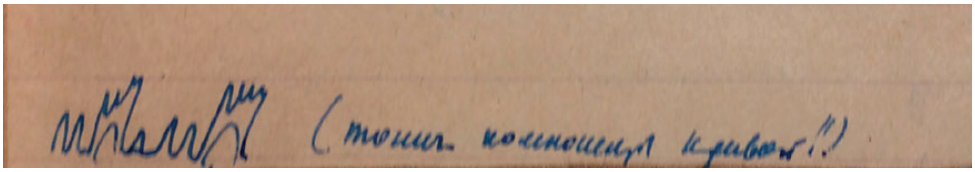

Рис. 3. Рисунок справа от записи, датированной 16.1.43, и слова *тонические компоненты кривой!!*[8]

NB: Ввести моторную методику как индикатор локальных поражений мозга!!

4) Ларин: Семантическая афазия!!

18.1.43

1) Моторные опыты с височными больными. Легкое овладение кинетической мелодией (легкое врабатывание!).
2) Id.[9] — с Куличковым: отграничение синдрома лобной афазии без премоторных расстройств.
3) Янеев (?) Афазия на фоне лобного синдрома.
4) Бацуро: Своеобразная форма амнезии при прохождении пули из лобной в затылочную область (*см. рис. 4*).

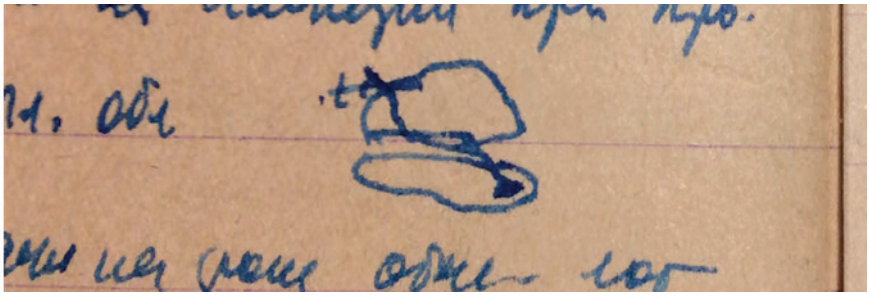

Рис. 4. Рисунок рядом с записью, датированной 18.1.43, изображает путь пули

5) Волков п/о [постоперационные] нарушения денервации на фоне общего лобного синдрома.

[7] Подходный комплекс — возможно, комплекс доступа, что подразумевает специальные хирургические манипуляции для достижения будущей операционной зоны пациента.

[8] Кривая — возможно, Лурия имеет в виду кривую аппаратной записи тонуса.

[9] *Id.* (англ.) — то же.

19.1.43

Моторные пробы (1) симптомы латентного пареза; 2) <интимнейшей> корково-подкорковой регуляции.

На правой стороне: **NB.**

20.1.43

1) Опыт с Христовым — еще к моторным симптомам височных долей (невозможность воспитания ритмов — пауз).
2) Опыт с Чернышевым — невозможность вращивать ритмы.

21.1.43.

1) Ломов — непонимание смысла.
2) Опыт с прозерином — разрушенные и заторможенные зоны.

(болезнь)

1.II.43

Чернышев — проверка невозможности вращивать ритмы.

2.II.43

1. Чернышев — премоторные симптомы в интеллектуальных процессах (невозможность динамического переноса!).
2. Синдром правой лобной доли в моторике.
   1) Кожевников — полное неосознание своих ошибок в ритмах и др.
   2) Надеждин
   3) Шавшин — невозможность заметить ошибки.

На правой стороне:

Синдром правой лобной доли — нарушение САМОвосприятия дефекта:

Ср. 1) нарушение W [восприятия] ритмов,
2) легкое соскальзывание с нарушением опознания ошибок (100–7 и др.),
3) слишком быстрое <суждение> — отсутствует соответствующая оценка.

3. NB. Нарушение W [восприятия] ритмов при правых лобных дефектах.

Шавшин! Агамбаев (?). Кожевников

4. Синдром правой затылочной области: наличие метаморфозы <“пс” и 2–3 буквы неразборчиво> в субъективном W [восприятии], при отсутствии конструктивной апраксических явлений в актуальной сфере. Антонов.

3.II.

Абрамов: Динамические нарушения праксиса.

4.II.

1) Чернышев. Вращивание ритма. Нарушение динамики познавательных процессов.

2) Абрамов: Застревание штампов.

8.II.

1) Чернышев. Опыты с пересказом.

(a) Нарушение внутренней схемы пересказа, отсюда → плавности его.

(b) Трудность кумуляции смысла в единой схеме.

2) Абрамов — нарушение серийности в <оптике> и в речи.

(Кауфман[10]) Сытовец — чистая культура «тренировки» (нет системного развития речи)

9.II.

Опыты с Цыганком, Байкаловым и Петровым:

1) Синдром правой лобной доли: 1* Нарушение W [восприятия] ритмов,
2* Сохранность выполнения ритмов,
3* Импульсивность с недостаточной критичностью.

2) Отдифференцировка лобного полюса в моторике.

10.II.

1) Опыты с Корецким, Тюковым, Вовченко — синдром правой лобной доли (нарушение W [восприятия] ритмов, соскальзывание в 100–7 и «не сразу» в схватывании рассказа).

На правой стороне: **NB** Синдром правой лобной доли

2) Рассказовтин — левая лобная доля.
Феномен денервационных трудностей в построении рассказа.

3) Гусев: левое височное нарушение без речевых расстройств, с левшами в роду.

11.II.43

1) Опыт с Самородовым — полное нарушение серийности (на границе афазии и лобных нарушений!).

На правой стороне:

NB!! Нарушение передачи смыслов рассказа, длинной фразы <и пр.> — в общем лобно-височный синдром, даже протекающий без речевых симптомов — есть разновидность нарушения серийности, близкая к лобным афазиям!

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[10] О. П. Кауфман — психолог госпиталя.

2) Кожевников. Синдром правой лобной доли (некритичность на фоне Kurzschluss'ов[11] и поведения в плане непосредственного впечатления, поведения без усилия, оперантного поведения[12]).
3) Ритмы: синдром правой лобной доли: нарушение W [восприятия] ритмов,
при сохранении выполнения их.
синдром левой лобной доли: сохранение W [восприятия] ритмов,
нарушение выполнения их типа
акинезии, лишних движений и пр.

12.II.43

1) Самородов — ритмы:
(a) Лишние импульсы — не всегда с ясным осознанием,
(b) счет помогает, внешняя схема помогает,
(c) вращивания нет.

На правой стороне:
Ритмы: 1) дезавтоматизация, осутствие кинетической мелодии —
Группы: премоторный симптом — Чернышев,
2) лишние импульсы с осознанием их: префронтальные,
подкорковые
3) отсутствие осознания с лишними импульсами: правый лоб.

2) Ба[тинцев] — грубые лишние нажимы (подкорковая импульсивность).
Опыт с прозерином.
3) Чернышев: опыт с внешней схемой в передаче рассказа.
Мостик к аграмматизму!!

13.II.43

1) Чернышев: Невозможность сразу воспринять внутренний смысл (басни).
Мостик к нарушению W [восприятия] СМЫСЛА.

На правой стороне (напротив обеих записей о Чернышеве):
NB! Создается единый лобный синдром:
от лобной афазии — с аграмматизмом
от премоторного синдрома — с нарушением внутренней схемы
— к ЛОБНОМУ синдрому (*см. рис. 5*)

[11] *Kurzschluss* (нем.) — короткое замыкание. Так Лурия (и Зейгарник) называли импульсивные реакции.

[12] Оперантное поведение — это активные действия, акции, которые направлены на достижение желаемой цели (по Б. Скиннеру).

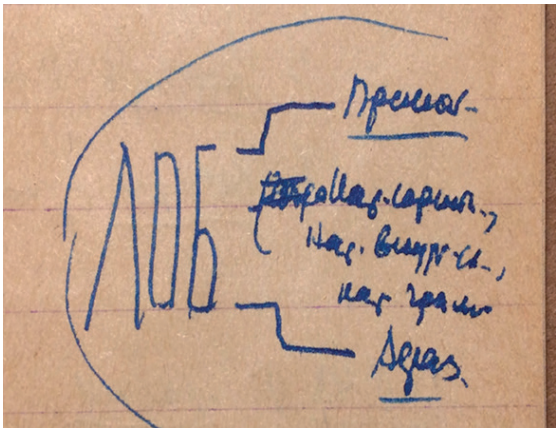

Рис. 5. Схема синдрома лобной доли

ЛОБ — Премоторный
нарушение серийности,
нарушение внутр. св.,
нарушение грамматики
Афазия

2) Абрамов: Ритмы: лобно-височный синдром: нарушение W [восприятия] сложных текстов
3) Сморечанев — Id. (то же)
4) Шилов — Id. (то же)

На правой стороне (напротив записей 2) — 4)):
Лобно-**В**исочный синдром

5) Бурсятин: Неустойчивое W [восприятие] ритмов: их лабильность
(при включении в серию ритмы распадаются!!)

На правой стороне: NB!!

15.II.43

1) Чернышев. Опыты с сенсорными навыками.
2) …Синдром лобно-височный в моторике (невоспроизведение ритмов).
3) К синдрому правого полушария: <изолированное> нарушение W [восприятия] ритмов. Больной Серевдин.

16.II.43

1) Опыт с Чернышевым — воспитание сенсорного навыка |трудности <маст.> (*см. рис. 6*)

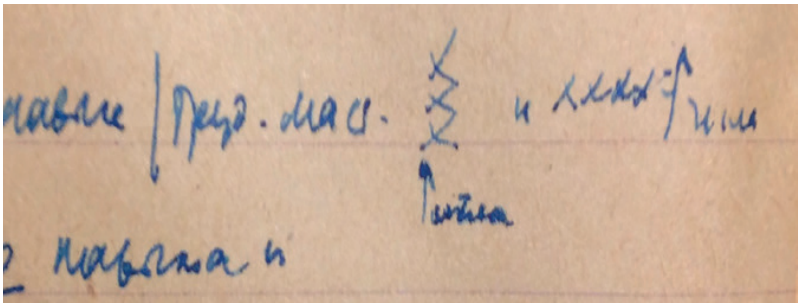

Рис. 6. Схема эксперимента по обучению сенсорным навыкам: под ххх стрелка вверх и слово *собака*, рядом с хххх стрелка вверх и слово *игла*

2) Опыт с Деревянкиным: воспроизведение внешнего навыка и невозможность выработки внутреннего через 3 месяца.

3) Гордеев: около-премоторные нарушения движения.

17.II.43

1) Чернышев. Опыт с прозерином.

2) Деревянкин — Id (то же).

18.II.43

1) Чернышев: (a) проверка опыта с прозерином.

(b) Грамматика: трудность задавать отвлеченные грамматические вопросы.

Путь к аграмматизму!

2) Шереметов, Троцкий — отрицательные случаи премоторного синдрома. | |

3) Кадыров — 1) «задний» парез — без всякого нарушения динамики в движении,
2) нарушение W [восприятия] и повторения сложных ритмов!

19.II.43

1) Чернышев: У него полностью выпала таблица умножения, операции деления и пр. — Динамическое нарушение числовых схем.

На правой стороне:

NB!! Динамическая акалькулия — отсутствие внутреннего поля в счислении!!

2) Тарасов, Стратиенко. 1) Синдром **T1**[13]
2) нарушение W [восприятия] ритмов височного типа.

[13] **T1 —** верхняя височная извилина.

На правой стороне:

Т1 ---- Синдром **Т1**: нарушение фонематического слуха, литеральные парафазии, нарушение письма и пр.
при сохранении: би-бо-ба[14], отсутствии амнестического синдрома и пр.

Височные нарушения W [восприятия] **ритма**: при переходе от единичных ударов к серийным — грубое нарушение W [восприятия] ритма!!!

3) Деревянкин. Премоторный синдром: Своеобразное нарушение навыков (невозможность работы по внутренней схеме).

4) Святенко — Сохранение ритмов при моторной афазии.

5) Симонов — Височное нарушение ритмов || || || → |||||| (без интер<валов>)

На правой стороне:

К 4) Ограниченность моторики — афазический синдром (сохранение ритмов).

К 5) Височный синдром моторных ритмов: нарушение интервалов при сохранении интенсивности (ср. Бурсятин!).

20.II.

Правое полушарие — затрудненное W [восприятие] ритмов.
Синдром нагрузки (утеря ритма при включении в серию!!)
(Статистический материал!)

22.II.

1) Чернышев. Факт нарушения внутренних представлений, внутреннего видения и пр. — и внутреннего плана.

2) Огиренко (ранение задних районов левой височной области --- в роду левши; без симптоматики!).

23.II.

1) Чернышев. Пользование «словарем связок»[15] — и его **эффект**!

2) Самородов — Воспитание штампов.

3) Текущая работа по ритмам.

На правой стороне:

К 2). Сравни Абрамов!!

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[14] «Би-бо-ба» — проба на повторение серий слогов.

[15] «Словарь связок» — предложенный А. Р. Лурия прием помощи больным в построении текста: больному предъявляется список формул «начала и перехода», который включал такие слова, как «Однажды…», «Когда…», «В это время…», «После этого…» (Luria, 1947, p. 345 / 1970, p. 434).

24.II.

1) Ломов — ранение лобной доли → осколок в левом виске — штампы, особенно в рассказе по картинке, в **письме**.
2) Рассказов — сквозное ранение левого виска → лобной доли → абортивная форма лобной дисграфии.

На правой стороне:
К 1). Персеверации в <слово из 7 букв> серии. Сравни Абрамов!

3) Порцев: Лобно-височный синдром.
Нарушена — серийность (в слабой форме); **грубое нарушение внутренней речи** (невозможность давать счет без пальцев и внешней речи!!)

На правой стороне: NB!!

25.II.
Опыты с ритмами при Лобно-Височном синдроме.

Самородов Абрамов	1) Нет внутреннего структурирования ритмов. 2) Отраженные ритмы (соответствующие движения) не помогают оценке.

На правой стороне:
Лобно-Височный синдром:

Самородов	1) Низкий порог схватывания ритмов, невозможность оценить сложные ритмы.
Порцев	2) Отраженное воспроизведение не помогает оценке.
Абрамов	3) Трудное овладение простыми ритмами, особенно паузами.
Симонов	4) Иногда — невозможно схватить и сложные ритмы (нет внутренней схемы).
<С+ 6 букв>	

26.II.
1) Опыты с Худай-Бердиевым (орденоносец — узбек).
(a) Ключ к плато при исследовании памяти (Anspruchsniveau[16] штампы)
(b) Персевераторные механизмы в счете.
Конфликт сохранности личности ---- с аспонтанностью.
2) Чернышев: Нарушение схватывания отрывка целиком, отсутствуют — аграмматизм, нарушения пунктуации и т. д.
3) Васьковский — тенденция к эхопраксии при лобном поражении.

Ночью — проекты опытов: опыт с отвлечением внимания (для правых лобных!).

[16] *Anspruchsniveau* (нем.) — уровень притязаний.

2.III.

Чернышев — опыт с представлением: часы (перевернутые): невозможность серийной транспозиции.

3.III.

Чернышев — псевдо-семантическая афазия: затруднения при различении «брат отца» — «отец брата» и т. п. в результате трудности вызывания представления. Дифференцирующий признак — наличие переноса и потенциальная возможность.

4.III.

1) Чернышев — проверка на артиллерийские задачи: 1) неравномерность страдания представления и спонтанности, 2) старые знания разрушены меньше, чем способность приобретать новые знания, 3) весь процесс решения профессионально близких задач дезавтоматизирован и требует толчков.
2) Шилов (при лобно-височном ранении) — 1) теория лобно-височного нарушения ритмов (затруднения в акустической схематизации, рецепторная основа нарушения выполнения активных ритмов, зрительная схема не помогает, но фиксирующий счет помогает), 2) правый висок: нарушения речи: спотыкание + субъективные нарушения!!

На правой стороне:
|**B!!** Лобно-Височный синдром (Правое полушарие).

5.III.

Чернышев — дальнейшие занятия по арифметике.

6.III.

Большая серия Задне-височные нарушения (Т3)

1) Мозжечковые симптомы в моторике и симптомы пареза!
2) Мозжечковые нарушения не устраняют ритма (||*** и *|*).
3) Теория задне-височных зон (они ближе к P, чем к F[17]).

На правой стороне:
|**B!**

8.III.

1) Чернышев. В самостоятельных занятиях по артиллерии — перемещение звеньев.

2) Самородов: При лобно-височных поражениях — серийные процессы, как оптические, так и акустические — одинаково недоступны.

[17] P, F — теменная и лобная доли.

(NB: при височных (задне-височных) поражениях — только акустические процессы недоступны).

Сообщение в лаборатории — о стертых симптомах и зонах тяготения.

9.III.

1) Чернышев — внутренняя речь в счете (исключение внутренней речи — нарушение всякой возможности счета).

2) Опыт с ритмами — Голдобин — стертый лобно-височный синдром.

10.III.

Наблюдения над Чернышевым. Занятие по артиллерии. Анализ ошибок (выпадение звеньев, <отделение> представления от формального рассуждения).

11.III.

Серия височных больных — опыты с ритмами.

Факт сохранности внутренней речи при глубокой височной афазии — больной Осипов!

На правой стороне: **NB**!!

12.III.

Серия гемиплегиков — опыты с ритмами.

Факт: у гемиплегиков другое полушарие дает симптомы расторможенности!

Дальнейшие данные к скрытому левшеству. Больной с признаками латентного левшества и легкими residual (остаточными явлениями) афазии.

13.III.

1) Порцев — лобно-височный синдром. Нарушение внутренней речи при пробе на ритмы.

2) Опыт с прозерином — Никитин!

14.III.

1) Случаи афазии при ранении правого полушария при наличии левшей в роду (Пономарев, Семенов).
2) Случай быстрого обратного развития афазии при стигматах левшества у субъекта: Рыжов.
3) Случай быстрого обратного развития афазии при левшестве в генотипе: Сергеев.

На правой стороне: NB

14.III.

4) Неосознаваемые лишние нажимы при правом височном синдроме!

15.III.

Дальнейшие опыты с моторикой и внутренней речью при лобно-височном синдроме (Самородов, Порцев).

16.III.

1) Порцев — опыты с исключением внутренней схемы.
2) Истратов — первые опыты с моторикой.
Подготовка демонстрации Пономарева и Семенова (скрытое левшество).

17.III.

Чернышев. <Корни> орфографических и синтаксических трудностей.
Сообщение о леворукости!

18.III.

Чернышев. Дальнейшие опыты с изложением текста.
(a) переход от серии картинок к одной картине,
(b) орфография и синтаксис.

19.III.

ВАЖНЫЕ МАТЕРИАЛЫ: ОПЫТЫ С РАСПАДОМ СЕРИЙНЫХ РЯДОВ
1) Самородов — распад простого серийного ряда — все в речи!
2) Порцев — id (то же), но все — в непосредственной моторике.
3) Абрамов — смешанное.

На правой стороне:
ВВ План статьи, посвященной Лешли[18]: К патологии серийных процессов
1. Исходное: парадокс памяти: Состояние кривых памяти — и нарушения серийности.
2. Принцип — нарушение серийности.
3. Виды нарушений серийно [организованных процессов]

Три портрета

22.III.

Самородов. Опыт с отсроченными сериями (нарушение W [восприятия] серийности).

23.III.

Текущий обход больных
Лобный синдром: Фирсов.
Скрытое левшество — и отрицательные случаи (Чередниин, Доцур…).

[18] Лешли — Karl Spencer Lashley (1890–1958), американский нейропсихолог. В 1951 г. опубликовал известную статью *The problem of serial order in behavior*.

24.III.

1) Чернышев — нарушение схемы текущей мысли,
— прием опосредствования: вынесение не схемы, а процесса схематизации наружу!!
2) Порцев — опыт с удержанием серий.

25.III — 5.IV

Писание статьи для Достижений Советской Медицины[19].

6.IV.

Чернышев — нарушение счета вследствие нарушений внутренней речи.

7.IV.

Чернышев — опыты с полуписьменным счетом (вращивание)

8–9.IV.

1) Чернышев — леворукость! анамнез! понимание и роль в нем внутренней речи.
2) Порцев — дальнейшие опыты с серийностью.

13.IV.

1) Авдеев | 1) синдром правой лобной доли в моторике (не замечает лишние
2) Шитяков | импульсы, овладение возможно через овладение осознанием ошибок).
2) Роль стертых признаков левшества у S[20] в доминантном полушарии (Зунделевский, Авдеев).

17.IV.

1) Порцев — лобно-височный синдром (височная легкая афазия не компенсируется из-за лба!).
2) Осипов — механизм отчуждения слов и фонематический распад.

19.IV.

1) Осипов — дальнейший контекст помогает компенсировать первичную зыбкость слов.
2) Лектичев — Т3 — нарушение акустической серийности.

20.IV.

Стратиенко — синдром T[21] (T2?), отличающийся от обычного T1 (отчуждение слов без фонематического распада).

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[19] В библиографии А. Р. Лурия такой статьи нет.

[20] S — левша.

[21] T — височная доля, T1 — верхневисочный отдел, T2 — средневисочный отдел, T3 — задневисочный отдел.

21.IV.

1) Порцев — сильные стереотипы.

2) Осипов, Стратиенко (письмо).

29.IV.

1) Баскаков — афферентный моторный синдром Р3.

2) Корнилов — Сизов — Пономарчук

Нарушение сукцессивности при поражении Т3.

На правой стороне:

| Синдром **Psup**[22]: Нарушение афферентаций ведет к распаду моторики!

| ! Все-таки положение об общем нарушении сукцессивности при поражении височных систем верно! См. Бродский.

30.IV.

Опыт с Баскаковым: роль кинестетической афферентации и разных уровней афферентации в преодолении кинестетической апраксии.

Май.

Подготовка к диссертации.

Подготовка к конференции. Делал доклад: Восстановление функций и афазия.

8.VI. — 9.VI.

Шеленок, Штурман, Щипкин

1) Дизартрия.

2) Центральные около-афазические явления (астения звукового состава слова — дисграфия).

На правой стороне:

NB: Вся серия артикуляторно-афазических расстройств (ФАЗИЧЕСКИЕ афазии[23]): от полной афферентной моторной афазии — до астении звукового состава слова (с явлениями дисграфиии)

11.VI.

| Правополушарное ранение (с моторной симптоматикой)
| и функциональными изменениями речи: 1) |*, 2) Шанин.

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[22] Psup — верхние отделы теменной области.

[23] Противопоставление фазической и семической сторон речи было заимствовано А. Р. Лурия у Л. С. Выготского как противопоставление слышимой и произносимой речи и ее значимой стороны.

14.VI.

1) Колесников. Лобное чтение. Динамический синдром на лобном фоне.

2) И. И. Иванов — височно-теменная афазия.

15.VI.

1) Прусских — ФАЗ-АСТЕНИЯ
(нарушение четкости звуко-моторной структуры речи — «не сразу» в моторике речи!!)

2) Петров: Лобно-афазический микст (остаток артикуляторной афазии на фоне лобной аспонтанности).

На правой стороне: NB

22.VII.

1) Артволов — левши в роду → диссоциация пареза и афазии при сосудистом страдании.

2) Скворцов — опыты с психическим обусловливанием поля зрения при гемианопсии.

Конец записей

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