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СОДЕРЖАНИЕ

Приятного чтения!

CONTENTS

Enjoy your reading!

ОТ РЕДКОЛЛЕГИИ

Уважаемые авторы и читатели!

Текущий номер Lurian Journal посвящен различным аспектам цифровизации общества в контексте нейропсихологии.

Процесс цифровизации, который по своей сути есть процесс внедрения, освоения цифровых технологий, в различной степени проявляется во всех сферах жизни современного человека. Однако на сегодняшний день недостаточно исследований, определяющих характер влияния растущей цифровизации на траекторию личностного развития человека, его психологическое и психическое благополучие. Кроме того, отсутствует система мер профилактики деструктивных эффектов цифровизации. Данные тенденции приводят к формированию цифровой зависимости человека не только на поведенческом, но и на химическом уровне.

На основании имеющихся научных исследований влияния цифровизации на человека можно говорить о вероятных последствиях, проявляющихся в ослаблении межличностных связей с окружающими, синдроме дефицита внимания и гиперактивности (СДВГ), тревоге, депрессии, агрессии, стрессе, расстройстве привязанности, снижении академической успеваемости, снижении чувствительности к пониманию эмоций других людей, угнетении функций памяти, внимания и мышления. Если сузить масштаб исследования до детского возраста, то можно говорить о недостаточной нагрузке на мозг ребенка при использовании цифровых устройств, в результате — торможение развития мелкой моторики, скудный опыт пространственных и социальных взаимоотношений объектов друг с другом.

Предлагаемые в данном номере статьи посвящены цифровой адаптации личности, влиянию дистанционного обучения на восприятие учителями трудностей образовательного процесса, организации нейропсихологического обследования и коррекции детей с трудностями обучения при использовании цифровых технологий, обеспечению психологического благополучия человека. Они дают возможность сформировать и углубить нейропсихологическое знание в новом направлении — цифровой нейропсихологии.

ORIGINAL ARTICLES

НАУЧНЫЕ ИССЛЕДОВАНИЯ

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Digitalization of Personality Adaptations During COVID-19

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«Цифровая» адаптация личности в период распространения COVID-19

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Abstract. Since the Millennium, there has been a growing interest in categorizing personality adaptations. Research by Nemeth and colleagues utilized a Year 2000 Questionnaire to analyze these adaptations. With the assistance of R. Landes, at the Boston University Center for Millennial Studies and SurveyMonkey, people throughout the world were able to respond. In general, thousands of people took advantage of this opportunity. Six factors emerged; they were as follows: (1) Psychotic leaders. (2) Dependent followers. (3) Religious fundamentalists. (4) Militants. (5) Aggressive actors (Paranoid thinkers). (6) Corporate sociopaths. Mainstream Adaptation is also possible. It was hypothesized that, at times of great upheaval, personality structures became exacerbated. The current research, which was based on a revised Year 2000 Questionnaire, was titled: the COVID-19 Questionnaire. An IRB exemption, from Advarra, was granted and SurveyMonkey was utilized. Data collection has been underway since June 17, 2021.

Keywords: *digitalization; personality adaptations; COVID-19; Y2K; COVID-19 Questionnaire*

Аннотация. Начиная с нового тысячелетия наблюдается растущий интерес к классификации личностных адаптаций. В исследовании, проведенном Д. Г. Немет и коллегами, для анализа этих адаптаций использовался опросник «Year 2000 Questionnaire». Благодаря Р. Ландесу из Центра тысячелетних исследований Бостонского университета и платформе SurveyMonkey респондентами стали тысячи людей со всего мира. Были выделены шесть вариантов личностной адаптации: (1) корпоративные социопаты; (2) зависимые последователи; (3) религиозные фундаменталисты; (4) агрессивные деятели (параноидальные мыслители); (5) боевики; (6) психотические лидеры. Также возможна «обычная» адаптация. Было высказано предположение, что во времена великих потрясений личностные структуры меняются. Нами на основе пересмотренного опросника «Year 2000 Questionnaire» был разработан «Опросник COVID-19» и использовалась платформа SurveyMonkey. Сбор данных ведется с 17 июня 2021 года.

Ключевые слова: *цифровизация; адаптация личности; COVID-19; Y2K; опросник COVID-19*

Introduction

Y2K, it now seems so far away. Yet, this event was only 22 years ago. At the time of the millennium, there was considerable angst. People, governments, and corporations had become reliant on computers. University researchers had shifted from hand run data analysis to digitalization.

The world was changing. In the late 1960s, this shift began with COBOL programming (which was a common business-oriented programming language). Most of these programs were designed to last from 25 to 30 years. Instead of replacing these finite programs with new ones, they were merely "upgraded." They were never designed to last indefinitely. Yet, that is how they were being utilized — repaired rather than replaced! It was cheaper.

Peter de Jager, a Canadian computer engineer, began sounding the alarm. He wrote books, gave lectures, used humor, and made appearances on this subject; yet, initially, he was just a voice calling in the desert — The John the Baptist — calling the alarm. At first, no one believed him. At the 1997 Southern States Retailers Association Conference, Peter kept saying — "we only have a few years to fix this" (De Jager, 1999).

Again, these COBOL programs were not designed to roll over to the next century. They only went to 1999 — built in obsolescence! Instead of rolling over to the year 2000, they would simply register 1900, effecting many aspects of everyday life. For example, in the United States, senior citizens' social security checks would have been disrupted. Slowly, people, business industry and even governments began to recognize the problem.

When Peter de Jager came to Baton Rouge for that business and industry seminar in 1997, George Hearn, PhD, an Industrial / Organizational Psychologist, and I were recruited by Bonnie Bray of Bray Communications, Inc. to develop a research project to sample peoples' understanding of and attitude towards this Y2K roll over.

Salient Y2K Issues

Using SurveyMonkey, over 5,300 responses were received. When the data was factor analyzed, four salient issues emerged:

(1) *Content knowledge of Y2K* — many people had no idea of what this even was.
(2) *Depression / discouragement* — for those who did, they were somewhat depressed or discouraged as to whether or not this problem would be fixed in time.
(3) *Anxiety / aggression* — many respondents expressed considerable anxiety regarding this problem and / or aggression (anger) regarding the over-reliance on computers.
(4) Lastly, there were those who responded with either *Denial* or *Resistance* to even addressing the problem.

Although Mr. de Jager addressed this issue for many years previous to his 1997 visit to Baton Rouge, it was literally only in those last years before the millennium that his voice began to resonate with people who were in leadership positions to address the problem (De Jager, 1999, p. 66–71). By then, however, most COBOL programmers were either retired or deceased. The new programmers were not familiar with these COBOL systems. Hurriedly, there was an attempt to identify or recruit such individuals. One such training program was set up at the University of West Virginia in the United States. In Louisiana, Wesley Smith, the assistant director of COBOL application support, was still at the helm. At the cost of millions of dollars, most programs were fixed in time, and the rollover went smoothly across the world's various time zones (*Fig. 1, 2*).

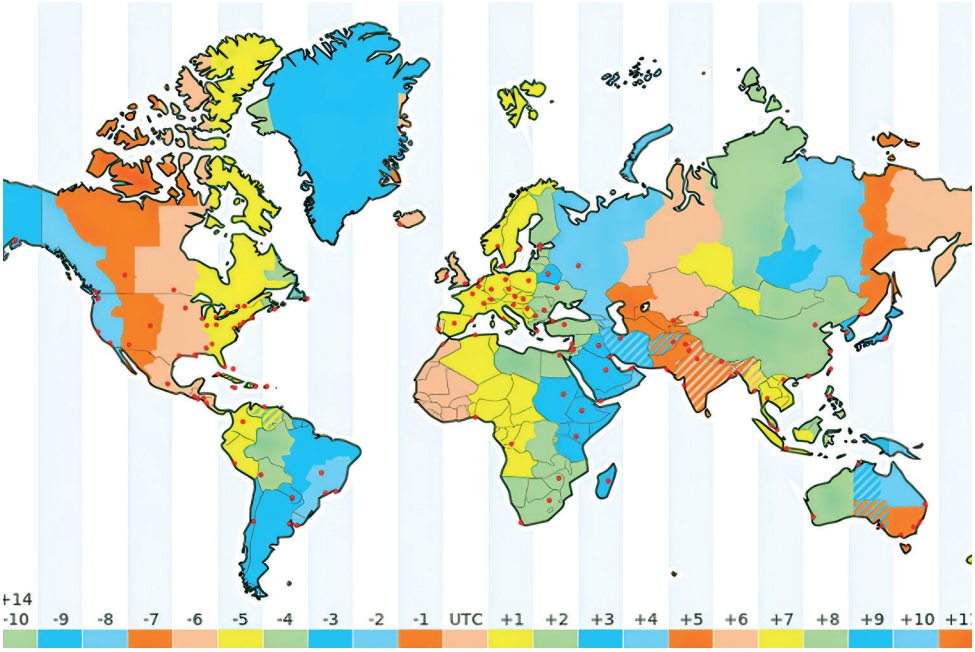

Figure 1. Word Time Zone Map

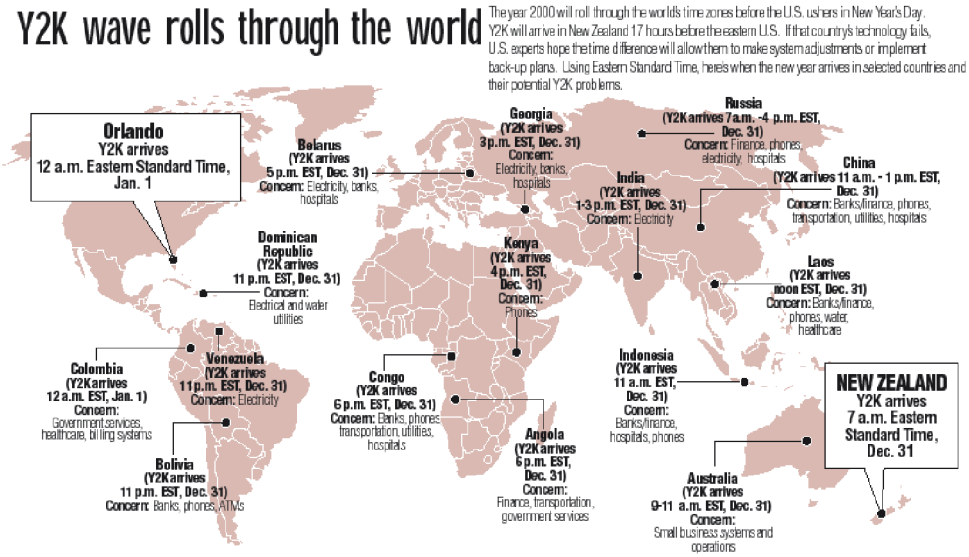

Figure 2. Y2K wave rolls through the world

In any worldwide event or even "non-event," as Y2K was perceived to be, people, eventually, become sensitized to the impending crisis.

Year 2000 Personality Adaptations

Because of the 1997 conference and our Y2K research, I was invited by noted historian, Richard Landes, PhD, to join a "think tank" at the Boston University Center for Millennial Studies, and a new investigation was born. Using SurveyMonkey once again, the Year 2000 Questionnaire was launched. Over 3,500 responses were received. Via factor analysis, my colleague, Ralph M. Dreger, PhD, and I found that six personality adaptations emerged (Nemeth & Whittington, 2012, pp. 119–120). They were as follows:

(1) *Psychoid Leaders* — these individuals rise to power by taking advantage of others' vulnerabilities. They offer simple solutions to complex problems during times of vulnerability. They are often perceived to be "crazy like a fox." Via spin, they convince others of even the most illogical ideas. They influence pre-existing prejudices and invite extreme responses. They rely on half-truths, fear tactics, and aggression to rule. One such leader was Adolf Hitler (Langer, 1972, p. 214).

(2) And then there are the disturbed or *Dependent Followers*, who are susceptible to psychoid leadership. Dependent followers are prone to "group-think" (Janis, 1991). They fear the future and are either unwilling or unable to engage in independent, logical thinking. Rather, they think emotionally and are reactive (e. g., the men who cut off their penises in the Heaven's Gate suicide cult).

(3) Some like *Religious Fundamentalists*, prepare for the end of the world and as they know it. They cluster together to fortify their beliefs and to prepare for the end. One such group became the Branch Davidian Compound in Waco, Texas, lead by their psychoid leader, David Koresh (Koresh in Nemeth & Whittington, 2012).
(4) If not in denial, the next group features the *Militants*. They are prepared for anything; just like those who stormed the United Stated Capital on January 6, 2021 (Fisher, Flynn, Contrera, & Leonnig, 2021). They stockpile weapons and are skilled in various war techniques so that, when the time comes, they are ready to create chaos.
(5) Such individuals are often incentivized by *Paranoid Thinkers* who typically perceive the world to be a dangerous place and are convinced of their own righteousness. As they drift into psychosis, they often take aggressive action against the outside world. One such example was Ted Kaczynski, the Unabomber (Kaczynski in Nemeth & Whittington, 2012).
(6) Most unsettling of all, however, are the *Corporate Sociopaths*, who, regardless of their wealth, are willing to lie, cheat, deceive, and distort reality in order to line their own pockets, and, somehow, these "quasi-oligarchs" (i. e., heads of a small group of people with considerable financial power and control) get away with it. Certainly, the opioid crisis in the United States is just one example of corporate greed. Most likely, the Sackler family will declare bankruptcy and be right back in business (Mann, 2021). From the BP oil spill to the Fukashima Nuclear Disaster, the denial of responsibility seems to be the corporate way (Onishi, 2012, p. 25).

Lastly, there are those who remain in the *Mainstream*. People who can tell right from wrong and act accordingly, regardless of the circumstances. They retained their ability to think logically (i. e., good executive functions) and maintain responsibility for their actions.

A Non-Event or a Trend?

But how did people's cognitions become so distorted during this Y2K "non-event"? Was it a one-time adaptation or was it a trend at times of such worldwide phenomena? In order to explore this possibility, the Year 2000 Questionnaire was updated to focus on the concerns that people might be having during this COVID-19 pandemic. Thus, the purpose of this study was two-fold:

(1) To see if the same factors would emerge at another time of global distress (as was the case in the Year 2000).
(2) If yes, to compare the results to the factors that were previously identified and hypothesized that, at times of great upheaval, personality structures became exacerbated.

With an IRB (Institutional Review Board) exemption, this survey (Understanding Personality / Psychological Adaptations to the COVID-19 Pandemic) was available on

the internet to all on SurveyMonkey in three languages, English, Spanish, and Russian. Approximately 260 people have responded.

The factor analysis is being conducted by Kevin McCarter, PhD, professor of experimental statistics at Louisiana State University (LSU).

Why is This Important to Neuropsychology?

As neuropsychologists, we must understand an individual's brain functions in context. That is whyn Dr. Ralph M. Reitan (*Fig. 3*) referred to it as "brain-behavior functions." Dr. A. R. Luria (*Fig. 3*) was of like-mind. Both focused on the "whole person," not just the brain. In order to understand the "whole person," an individual's natural personality structure and any exacerbation thereof must be understood.

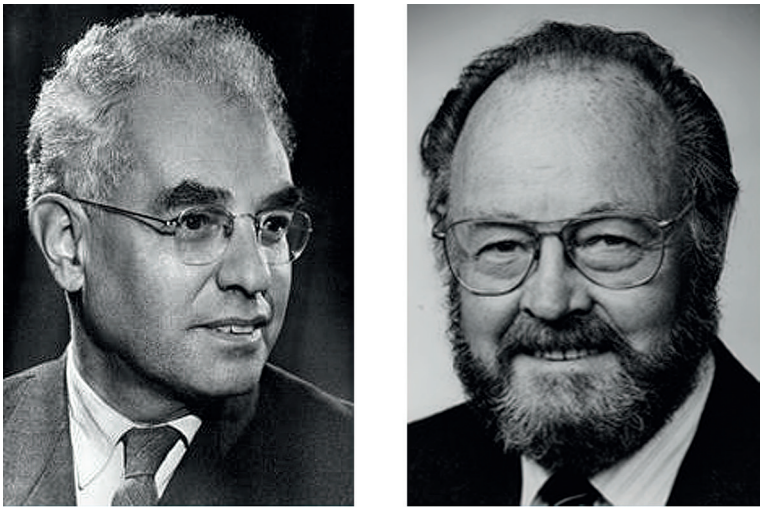

Figure 3. Photos by A. R. Luria and R. M. Reitan

Psychologist Theodore Millon, PhD, DSc, classified 14 personality structures (Millon, 1997a, 1997b, p. 27). It is likely that, just like color of eyes, a person is born with a personality style. Thus, seven of Millon's (1997a, 1997b) 14 personality patterns have been selected for review. They are as follows:

(1) *Antisocial* — expressively impulsive, interpersonally irresponsible, cognitively deviant, autonomous self-image, acting-out, unruly organization, callous mood.
(2) *Dependent* — expressively incompetent, interpersonally submissive, cognitively naive, inept self-image, introjection, chaotic organization, pacific mood.
(3) *Masochistic (self-defeating)* — expressively absent, interpersonally differential, cognitively self-conscious, undeserving self-image, exaggeration, inverted organization, dysphoric mood.

(4) *Narcissistic* — expressively haughty, interpersonally exploitive, cognitively expansive, admirable self-image, rationalized, spurious organization, apathetic mood.
(5) *Paranoid* — expressively defensive, interpersonally provocative, cognitively suspicious, unalterable self-image, projection, inelastic organization, irascible mood.
(6) *Sadistic* — expressively precipitate, interpersonally abrasive, cognitively dogmatic, combative self-image, isolation, irruptive organization, hostile mood.
(7) *Schizotypal* — expressively eccentric, interpersonally secretive, cognitively autistic, estranged self-image, undoing, fragmented organization, and distraught or insentient mood.

One can either benefit from or suffer from these personality styles when they are exacerbated, either by circumstances or by choice (*Tab. 1*).

Table 1
Millon's personality adaptations

Type	Characteristics	Cognitive style	Affect/Mood
Antisocial	Impulsive, irresponsible, autonomous self, acts out	Deviant	Callous
Dependent	Incompetent, submissive, inept self, introjection	Naïve	Pacific
Masochistic (Self-defeating)	Absent, differential, undeserving self, exaggeration	Doubtful	Dysphoric
Narcissistic	Haughty, exploitive, admirable self, rationalized	Expansive	Carefree
Paranoid	Defensive, provocative, unshakeable self, projection	Suspicious	Irascible
Sadistic (Aggressive)	Precipitate, abrasive, combative self, isolation	Dogmatic	Hostile
Schizotypal	Eccentric, secretive, estranged self, chaotic, undoing	Autistic	Distraught or insentient

It appears that the following personality styles were likely exacerbated during the Year 2000. They are now compared to 7 of Millon's personality types (*Tab. 2*).

Table 2
Comparisons of personality patterns

by Millon	by Nemeth
Antisocial / Narcissistic	Corporate sociopaths
Dependent	Dependent followers
Masochistic	Religious fundamentalists
Paranoid	Aggressive actors (Paranoid thinkers)
Sadistic	Militants
Schizotypal	Psychoid leaders

Loneliness → Personality Adaptations → Brain Functions

Are these exacerbations present during COVID-19? One major factor is loneliness. In general, people are gregarious. Social interactions are essential; yet, since March 2020, many have been without these opportunities. Restaurants, theaters, schools, sports, etc., have all suffered. Many people have been isolated from family, friends, travel, etc. Conferences have been virtual. Little to no face-to-face contact has been possible. No touch, no smiles, no warmth; this has had a devastating effect on people's psyche — their personality adaptations. What was once in-balance is now out-of-balance. The result → loneliness.

According to John T. Cacioppo, PhD, and William Patrick (2008), this loneliness, whether forced or self-imposed, has resulted in significant changes in brain functions. People have become more paranoid, more depressed, and, as a result, have experienced altered executive functions, including reduced cognitive and emotional controls (Loneliness = ↑Paranoia; ↑Depression; ↓Executive functions).

In terms of intervention, since most Louisiana hospitals are filled to capacity with COVID-19 patients, where do people go for evaluation and treatment of neuropsychological problems? Will they receive a thorough evaluation? Will their personality adaptations and/or exacerbations be considered? Will the "whole person" be examined? What if that person has become extremely paranoid? These are significant issues confronting neuropsychologists today.

↓Social Connection = ↓Oxytocin

According to Cacioppo and Patrick (2008), loneliness can cause depression, paranoia, and cognitive and affective changes in brain functions. The "master chemical" of social connection, oxytocin, is no longer functioning optimally (p. 139). Typically, oxytocin influences "the regulation of blood pressure, pulse, alertness, movement, and feeling" via the hypothalamus, pituitary, and brain stem regions (p. 139). It can calm or excite (*Fig. 4*).

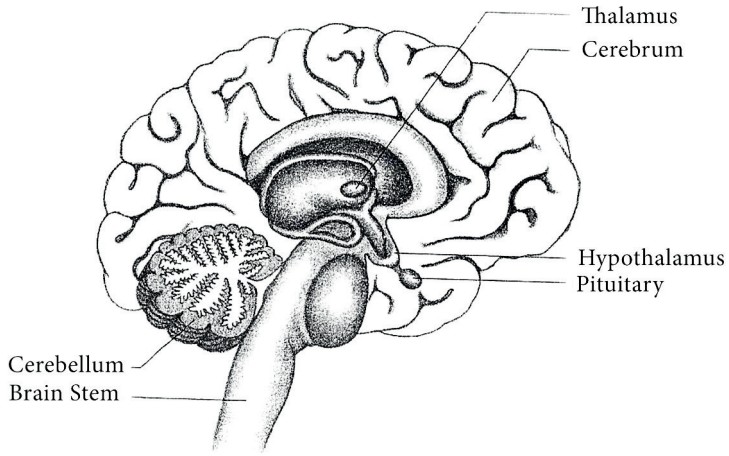

Figure 4. The location of the hypothalamus and the pituitary gland.
Source. Cacioppo & Patrick, 2008, p. 140

Without the warmth of physical touch and active oxytocin stimulation due to chronic loneliness, a decline in executive control is likely (p. 141). This loss of executive control may lead to a lack of persistence and chronic frustration (p. 83). Thus, stress and pain, emotional or physical, tend to increase (p. 141). Social isolation, imposed by this pandemic, deprives people of what E. O. Wilson (*Fig. 5*) refers to as "their sense of belonging and purpose" and increases maladaptive functioning (Wilson in Cacioppo and Patrick, 2008, p. 144).

Loneliness interferes with people's states of well-being. As early as 1948, The World Health Organization (WHO) defined well-being as involving three functions: physical, mental, and social.

Brown and Garner note that "people see themselves in three dimensions: the intimate self, the relational self, and the collective self" (as cited in Cacioppo and Patrick, p. 78–79) (*Fig. 6*).

Even if people function within a family and have a partner and / or children, they may be unable to benefit from a sense of community due to the current COVID-19 restrictions. All three aspects of the self need to be present in order to prevent loneliness. As Baumeister and Twenge point out, all 3 dimensions of the self must be intact and interconnected for individuals to function optimally (in Cacioppo and Patrick, 2008, p. 38).

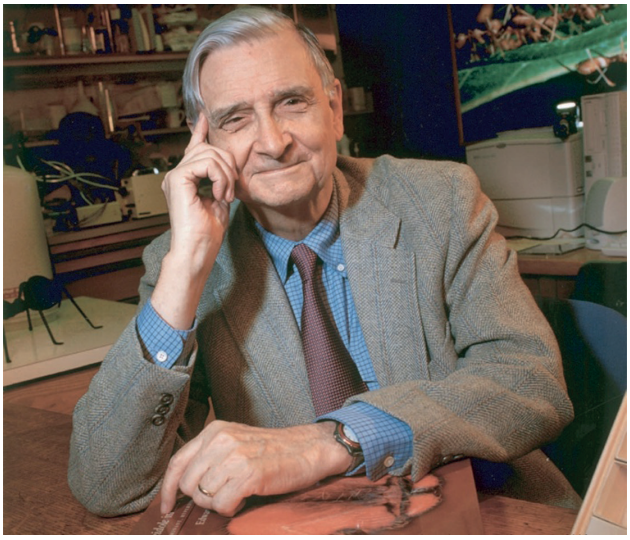

Figure 5. E. O. Wilson

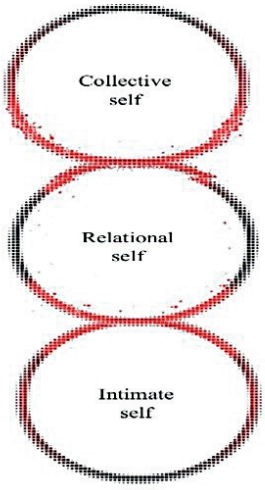

Figure 6. Three dimensions of human according to Brown and Garner

Most significant is the "collective self". Whether due to COVID-19 or trauma (e. g., TBI, stroke, hurricanes, forest fires, etc.), when the "collective self" — the sense of community — begins to disintegrate, a ripple effect follows. Baumeister and Twenge state that, "feeling socially excluded can get in the way of our exercising some of the human characteristics we value most" (in Cacioppo and Patrick, 2008, p. 38). Hawkley and Cacioppo (2010) note that: "Loneliness has been associated with personality disorders and psychosis, suicide, impaired cognitive performance and cognitive decline over time, increased risk of Alzheimer's Disease, diminished executive control, and increases in depressive symptoms." They conclude that "Loneliness predicts increases in depressive

symptoms […] perceived stress, fear of negative evaluation, anxiety, and anger, and diminishes optimism and self-esteem." Their data also suggests that a "perceived sense of social connectedness serves as a scaffold for the self — damage the scaffold and the rest of the self begins to crumble" (*Fig. 7*).

Figure 7. Crumble of the self

Rebuilding the Scaffold

As Chief Neuropsychologist at an outpatient neurorehabilitation facility In Baton Rouge, Louisiana, I saw this first-hand. Individuals, who were there for recovery, had lost their sense of the "collective self." Because of their injury, usually through no fault of their own, they had lost their place in their community. They were no longer choir or civic members of a cherished group. This loss of identity eventually trickled down to effect their "relational self." They became impoverished with little to say to their family. Eventually, family members dropped them off with little investment in their rehabilitation. This decremental effect on their "intimate self" began to show.

In order to combat this, a new "collective self" had to be organized. All, regardless of their conditions, became members of a group and the "collective self" was restored (Nemeth, Songy, & Olivier, 2015). Group members listened, shared, and empathized. They were "in it together," so to speak. They, once again, had a sense of belonging and purpose.

This changed their "relational self." In the large physical therapy gym, group members would check on one another and offer encouragement. When they went home at night, they had things to say and stories to share. The renewed sense of pride was evident.

Now that people are cloistered due to COVID-19, they are losing their sense of the "collective self," their sense of belonging and purpose. For many, religious and civic activities are "off limits." Work, school, and professional activities are often virtual. That sense of the "collective self" is disintegrating. Belonging and purpose are fading. This disintegration has affected the "relational self." In the United States, domestic violence has increased considerably over this past year. According to Erika Sussman, "the rates of abuse have increased dramatically to about 50 % and higher for those marginalized by race, ethnicity, sexual orientation, gender identity, citizenship status, and cognitive physical ability" (as cited in Kluger, 2021). Ms. Sussman is the executive director of the Center for Survivor Advocacy and Justice (CSAJ), a support and research organization. Hope is diminishing. Hospitalizations among the unvaccinated are increasing.

Yet, hope is one of the most important feelings involved in recovery (Nemeth & Whittington, 2012, p. 133). Maintaining a sense of hope allows people to problem solve. Dissolving into hopelessness, on the other hand, leads people to succumb to depression and anxiety.

In order to avoid this dissolution of the "intimate self," people must maintain a belief in themselves, each other, and their community. Resilience, the ability to be grounded in the present and learn from the past, so that people can see themselves in the future, is key (Nemeth & Olivier, 2017, p. 155).

Flexible thinking and robust leadership will allow people to face their feelings and fears for the collective good. Even though inconvenient, people can embrace the behaviors required of them today in order to build a better tomorrow.

The Solution

Group processes, whether post personal or environmental trauma, can be an effective way of restoring one's "collective self." When safe to do so, people will return to in-person community activities in order to restore their sense of belonging and purpose. Just like in the aftermath of an environmental trauma, like Hurricane Katrina, or a neurological insult, like a stroke, restoring one's "collective self" is crucial to people's psychological, let alone physical, well-being.

Conclusion

For those in the "general population" category, as seen in the Year 2000 results, this is easier than for others. It is likely that those who are somewhat dependent, masochistic, or schizotypal, this might be more difficult. Then there are those who may likely be antisocial, narcissistic, sadistic, or paranoid, who are creating chaos, rather than solving problems.

Have these personality adaptations once again emerged or was it just a Y2K / Millenial fluke? The collected data is currently being factor analyzed by Dr. Kevin McCarter and will be available in a subsequent article to help us to understand this phenomenon.

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The Impact of Emergency Remote Teaching on Teachers' Perceptions of Learning Difficulties in the Context of Neuropsychopedagogics

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Влияние экстренного дистанционного обучения на восприятие учителями трудностей образовательного процесса в контексте нейропсихопедагогики

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Abstract. This study aimed to analyze the possible impacts of the emergency remote teaching model on the perceptions of teachers working in basic education on indicators of students' learning difficulties. 190 teachers from public and private schools participated, between March and August 2021, in different locations across the country Brazil.

In the analysis of results, emphasis was given to the tensions of this new teaching modality imposed by the health and social crisis. Relevant values were found, which, evaluated on a Likert scale, measured the respondents' opinions on the topic. The results showed that, given the context of teaching in the pandemic, about the impossibility of perceiving the difficulties of their students in the remote teaching model, 44.27 % of the teachers partially agreed and 29.68 % indicated total agreement. In the items that questioned how well they felt prepared in remote teaching, to work with students in situations of learning difficulties, 16.1 % considered themselves totally unprepared, followed by 18.75 % who indicated that they were partially unprepared. Therefore, assuming the obstacles of Brazilian education, the relevance of the teacher in the teaching and learning process, the possibility of contributions from neuropsychopedagogy as a science of learning and the emergency educational scenario, the study integrates, in its intention and results, significance for an analysis current and apodictic data for other studies and conjectures.

Keywords: *COVID-19; emergency remote teaching; teachers; learning difficulties; neuropsychopedagogy*

Аннотация. Исследование было направлено на анализ воздействия экстренного дистанционного обучения на восприятие учителями, работающими в системе общего (базового) образования, трудностей процесса обучения. В период с марта по август 2021 г. в опросе приняли участие 190 учителей государственных и частных школ разных регионов Бразилии.

При анализе результатов особое внимание уделялось той напряженности, которая была вызвана введением этой новой формы обучения, а также социальным кризисом и кризисом в области здравоохранения. Для вывления мнения респондентов были определены релевантные значения, которые оценивались по шкале Лайкерта. Результаты показали, что 44.27 % респондентов считают себя готовыми к возможным трудностям учеников при обучении по новой модели, 29.68 % отметили, что дистанционное обучение не обеспечивает понимание таких трудностей. Ответы на вопросы, ориентированные на выявление степени готовности к работе в дистанционном формате с учениками, испытывающими трудности в обучении, позволили определить, что 16.1 % учителей считают себя совершенно не готовыми, а 18.75 % отмечают частичную неготовность. Таким образом, принимая во внимание особенности бразильского образования, значимую роль учителя в процессе обучения, возможности нейропсихопедагогики, результаты опроса могут быть использованы для получения аподиктических данных в других исследованиях.

Ключевые слова: *COVID-19; экстренное дистанционное обучение; учителя; трудности в обучении; нейропсихопедагогика*

Introduction

The COVID-19 pandemic has changed the most diverse contexts of human social life and the daily lives of different societies. Abruptly, these dynamics were conditioned to the search for alternatives that would respond to the demands and the need for social isolation, as a way of containing the spread of the virus.

The school — an environment that used to be presential and relational — is configured as a space for socialization and construction of systematized knowledge, providing the construction of identity, belonging, desires and principles that permeate the life of a student (Borsa, 2007).

Thus, we can understand, along the lines of Vygotsky (1984), that the school is configured as an environment of interaction and social mediation, concepts imbricated in the author's theory. Therefore, the teacher-student relationship is of paramount importance, considering that there is a dynamic of mediation of knowledge and meanings, which interfere in the students' development.

However, in the context of remote emergency teaching, the school had many of its characteristics put to the test.

Imbued with the various Brazilian inequalities, as well as the tensions that arise in the field of education, the school faced the intensification of problems such as the devaluation of teachers, the absence of continuing education, the socioeconomic impacts, the geographic and social issues, the inaccess to the remote teaching, exacerbating learning difficulties (Stevanim, 2020).

The last decades have set up a scenario in which we can see an increase in the frequency of children and adolescents in the offices of professionals focused on research and intervention on learning difficulties. Such a search is sometimes given by the beckoning of schools that, in their practices, through their teachers, perceive indicators of these phenomena (Carvalho, Crenitte, & Ciasca, 2007).

Neurodevelopmental disorders that affect learning are most easily noticed early in schooling (Amarican Psychiatric Association, 2014). However, this phenomenon points to other tensions, among which the medicalization of students stands out as a factor of normalization or silencing of differences, stigmatization of children and adolescents who come to be understood under the nomenclature of pathologies and/or neurodevelopmental disorders (Benedetti, Bezerra, Telles, & de Lima, 2018), sometimes resulting in what the study by Souza and Novaes (2021) understands as the construction of the social representation of the "problem student." The authors emphasize that the production of school failure is associated with social representations anchored in medical-pedagogical experiments and in an educational formation that does not consider the singularities of the students.

Therefore, given the imposed scenario, we can say that the classroom is an opportune environment for social interactions, mediation of knowledge and neuroplasticity. This mediation, in Vygotsky's theory, has a substrate in the relationships that are established between subjects and constitutes a formative process that goes beyond the transmission

of contents for the construction and development of these social beings. Which, from the perspective of Luria (1979) when understanding the nervous system, under an open, plastic, integral model, which interacts with the physical and social environment. This environment, the classroom, was abruptly conditioned to electronic models, distancing these authors who shared their daily lives and interactions (Vygotsky, 1984).

Thus, the perceptions of teachers about their students (which were once elaborated in the physical space of the classroom), with the health crisis, migrated to a virtual space dependent on the internet and mediated by technological devices. In this context, the motivating question of the research was elaborated as follows: what are the perceptions of teachers working in basic education on indicators of the learning difficulties of students during the first wave of the coronavirus pandemic?

This study aims to contribute to research in education, considering the various uncertainties arising from the pandemic context, the losses in the learning of basic education students and the possibilities of theoretical-methodological, inclusive and relevant constructions deriving from neuropsychopedagogy (Resolution of SBNPp, 2021).

Methodology

In order to weave an understanding of the exposed question, the study took the form of a quantitative research. Seeking the identification and dimensioning of the teachers' perceptions, the collection was carried out between the months of May and August 2021, and the questionnaire was published on social media. The questions were elaborated using the Likert scale, which consists of a psychometric technique to obtain information about the opinions and engagement of respondents, giving researchers quantitative indices to measure the phenomenon (McClelland, 1976).

Directed by 27 questions, the study allocated the questions into sections with main themes. Featuring: section 1 — identification and presentation of the research; section 2 — general data of the interviewees, considering the right to privacy, the items of questions 1 and 2 name and e-mail were placed as non-mandatory; section 3 — general and mandatory data, in this section questions 3 to 14 dealt with topics such as gender, demographic, educational and professional profile; section 4 — data collection outside the context of the pandemic, built with questions from 15 to 18, which evaluated the degree of agreement on knowledge of the problem of learning difficulties, considering training, experience in teaching and notions about neurodevelopmental disorders; and section 5 — data collection in the context of the pandemic with items numbered 19 to 24, which measured the impacts of remote teaching on the relationship and perception of teachers about the difficulties of their students, preparation of teachers in the face of the scenario, existence of any indicator noticed by the teachers, aggravating factors and risk factors that may have increased the learning problems; question 25 measured the opinion of the subjects about the need or not of a specialized professional working at the school; question

number 26 about the identity of this subject; finally, question 27 in an open format gave the interviewees the opportunity to register their contributions to the research.

To analyze the results, a program for creating and editing spreadsheets and graphs was used, statistically establishing absolute and relative factors in the comparisons for the composition of this work (Fontelles, M. J., Simões, Farias, & Fontelles, R. G. S., 2009). As an inclusion criterion, acting as a teacher in basic education networks before and during social isolation was considered.

Theoretical Reference

There has been a long discussion about the phenomenon of learning difficulties and about the possible contributions between the dialogues of neurosciences, psychology and pedagogy, with regard to the construction of an education based on a new paradigm, which favors integral development of the students (Cardoso & Queiroz, 2019).

The present study assumed the theoretical-methodological assumptions of neuropsychopedagogy established by SBNPp (Brazilian Society of Neuropsychopedagogy), which configures it as a transdisciplinary science, based on neuroscience applied to education, pedagogy and cognitive psychology, which assumes as its object of study the relationship between the nervous system and learning in its most diverse contexts, with a view to the reintegration of subjects in their entirety.

It can be understood that neuropsychopedagogy has been characterized as the science of learning and its context of institutional approach, using pedagogical practices based on neuroscientific evidence in dialogue with cognitive psychology, and intends to favor educational environments with regard to the processes of teaching and learning, with regard to the inclusion of the most diverse subjects and the provision of an education that reaches the majority of students, equipping educators in approaches subsidized by scientific and dialogic research to the practice of teaching (Fülle, Cardoso, Russo, & Heck, 2018).

However, it is worth mentioning that, in dialogue with what theorists like Consenza and Guerra (2011) propose, and assuming the transdisciplinary scenario of neuropsychopedagogy, a new pedagogy or teaching is not proposed here, but to guide the practices already carried out in interventions that understand the developmental milestones and the students' neurodevelopment process.

Results and Discussion

The study had the initial participation of 192 subjects, after applying the inclusion criteria, 190 questionnaires were considered valid for the analyses. The average age of the interviewees was 44 years old, of which 157 identified themselves as female, 32 as male and one indicated a preference for not responding.

Most respondents declared working in the private network, followed by those who cited working in municipal, state and federal public networks, and, in terms of teaching time, the general average was represented by 16 years of experience.

In percentage numbers, respondents declared domicile in the regions: 2 % North, 2 % Midwest, 3 % Northeast, 10 % South and 83 % Southeast.

As for training, 48 % responded that they had a degree in Pedagogy and, with regard to continuing training, 53 % responded that they had a specialization. Regarding the title of master, 21 said they had it, as well as two declared themselves to be doctors and the same number applies to those who carried out a post-doctoral internship.

In summary, the results of data collection outside the context of a pandemic, which included questions 15 to 18, showed that regarding training as a subsidy for identifying and coping with learning difficulties, most considered themselves partially prepared (48.43 %). When asked if, in the pedagogical experience, they can notice "something more" besides the students' difficulty in learning, 42.7 % of the participants fully agreed. Regarding knowledge about neurodevelopmental disorders, 24.47 % considered themselves partially knowledgeable on the subject.

The *Table 1* presents, in an orderly manner, the motivating statements of section 5, which dealt with the context of the teachers' perception during the emergency remote teaching.

Table 1

Affirmations, section 5, data collection considering the COVID-19 pandemic

Order	Affirmative
19	The remote teaching period made my perception of the learning difficulties presented by the students unfeasible.
20	I consider myself prepared to work with students with learning difficulties, even in the remote teaching model.
21	During the period of teaching in remote mode, I was able to notice when my student presented "something more" than learning difficulties.
22	I believe that the pandemic has generated stressors for students, which made them alternate more abruptly between engagement and apathy (highs and lows) in relation to the subject(s) I teach.
23	I believe that remote teaching adopted on an emergency basis aggravated the difficulties of perception and intervention in favor of students who have learning difficulties.
24	Factors such as: social isolation, pandemic, remote teaching, increase in socioeconomic precariousness, gap between public and private education systems, added to problems prior to COVID, constitute a group of obstacles and aggravating factors in the teaching and learning process for education students basic, but more accentuated to those with learning difficulties or neurodevelopmental disorders.

The following *Table 2* presents the systematization of the context responses during remote teaching, evaluated by the statements in the table 1.

Table 2

Demonstration of Absolute and Relative Factors about the items that measured the teaching period in the pandemic

Affirmatives	Strongly disagree		Partially disagree		Indifferent		Partially agree		Totally agree	
	AF (*n*)	RF (%)	AF (*n*)	RF (%)	AF (*n*)	RF (%)	AF (*n*)	RF (%)	AF (*n*)	RF (%)
19	14	7.29	29	15.10	7	3.64	85	44.27	57	29.68
20	31	16.14	58	30.20	6	3.12	81	42.18	16	8.33
21	17	8.85	45	23.45	8	4.16	91	47.39	31	16.14
22	1	.52	10	5.20	9	4.68	61	31.77	111	57.85
23	2	1.04	12	6.25	4	2.08	73	38.02	101	52.60
24	0	0	4	2.083	1	.52	63	32.81	124	64.58

Note. AF = Absolut Factor, RF = Relative Factor.

Given the context of teaching in the pandemic, about the impossibility of perceiving the difficulties of their students in the remote teaching model, 44.27 % of the teachers partially agreed and 29.68 % indicated total agreement. On topics about the possibility that the pandemic may have generated stressors that caused students to alternate more abruptly between engagement and apathy, and on remote teaching that impeded perception and intervention on behalf of students, in both items more than 50 % showed agreement and, regarding the need for specialized professionals to work in schools, most responses ranged between partial and full agreement.

Conclusions

The teachers who answered the questionnaire, in approximate proportional numbers, in the same way that they assumed to perceive the signs of difficulties for learning in the classrooms, also pointed to the obstacles generated by the social and health crisis, considering, in this study, social isolation, and the emergency remote teaching model. This alerts us to several tensions that unfold in the Brazilian educational context, as well as to possible aggravating factors in the resumption of face-to-face education, given that, in conventional models of coexistence and relationships at school, exclusion, stigmas and situations in which these students considered as a "problem" are submitted, generate a framework of children and adolescents placed on the sidelines of a quality education or that at least corresponds to their needs and neurodevelopment.

Thus, the alert about this phenomenon is accentuated, after this hiatus imposed by the pandemic that caused the emergency remote teaching model. Descriptive studies such as this one will contribute to a broader discussion and reflection about this phenomenon that

affects the student population and the consequences in the school environment, as well as to emphasize the need to adopt methods based on evidence in the various educational practices and in teacher training, considering the areas involved in the study of human learning phenomena in favor of an inclusive school environment that considers each subject as a human being capable of learning.

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SCIENTIFIC LIFE

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Благополучие человека в современных условиях: популяционные исследования психологических аспектов благополучия в Уральском регионе

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Well-being of Human in Modern Conditions: Population Researches of the Psychological Aspects of Well-being in the Ural Region

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Аннотация. В 2021 г. Уральский гуманитарный институт Уральского федерального университета имени первого Президента России Б. Н. Ельцина начал популяционное исследование благополучия жителей Уральского региона. Исследование представляет собой масштабный многоэтапный проект, рассчитанный до 2030 г. В данной статье

приводится описание серии научно-исследовательских проектов по изучению психологических аспектов благополучия.

Ключевые слова: *благополучие; психологическое благополучие; эмоциональное благополучие; предикторы благополучия; популяционное исследование*

Abstract. In 2021, the Ural Humanitarian Institute of the Ural Federal University named after the first President of Russia B. N. Yeltsin began population research of the well-being of the inhabitants of the Ural region. The research is a large-scale multi-stage project, calculated until 2030. This article is a description of a series of research projects on the psychological aspects of well-being.

Keywords: *well-being; psychological well-being; emotional well-being; predictors of well-being; population research*

Введение

В 2021 г. Уральский гуманитарный институт Уральского федерального университета имени первого Президента России Б. Н. Ельцина (УГИ УрФУ) начал популяционное исследование социально-психологического и эмоционального благополучия. Исследование проводится в рамках Программы развития УрФУ на 2021–2030 гг. «Приоритет 2030» и является составной частью стратегического проекта «Благополучие человека в условиях цифровой трансформации».

Важная особенность стратегического проекта «Благополучие человека в условиях цифровой трансформации» — его междисциплинарный характер, благодаря которому появилась возможность проведения исследования благополучия «полного цикла»: от изучения социально-экономических факторов до анализа психологического и эмоционального благополучия различных групп населения. В проекте консолидируются усилия профессиональных демографов, социологов, историков, экономистов, урбанистов, генетиков, психологов и педагогов.

Стратегический проект «Благополучие человека в условиях цифровой трансформации» включает в себя комплекс научных, образовательных и инфраструктурных проектов, ключевыми из которых являются научные проекты, предполагающие проведение популяционных исследований.

Актуальность проблематики исследования психологических аспектов благополучия человека обусловлена общемировой тенденцией сдвига от оценки экономических показателей как цели роста к оценке благополучия человека, которое становится основным индикатором развития общества. Благополучие человека — многофакторный конструкт, представляющий собой сложную взаимосвязь культурных, социальных, психологических, физических, экономических и духовных факторов. Безусловно, при его изучении необходимо оценивать объективные показатели, такие как материальный достаток, состояние здоровья, социальный капитал личности и многое другое. Однако, как показывают результаты исследова-

ний в разных странах мира, вклад внешних событий и объективных условий жизни в общее благополучие является сравнительно небольшим, гораздо более весомым считается вклад внутренних, психологических предикторов, которые опосредуют эффекты врожденных факторов и влияние среды. Благополучие человека по самой своей природе — это, прежде всего, психологический феномен, изучение которого требует применения психологического инструментария.

Методология популяционного исследования психологических аспектов благополучия

Ключевой особенностью исследования является использование популяционного среза, что позволит получить данные, характеризующие не только участников, включенных в выборку исследования, но и всех представителей определенной популяции.

В настоящее время эмпирические исследования в психологии проводятся в основном на небольших выборках, доступных исследователям (в большинстве своем это дети, посещающие образовательные учреждения, студенты, отдельные группы взрослого населения). Эти эмпирические исследования разрознены, их результаты характеризуют лишь отдельные группы (возрастные, профессиональные и пр.). В результате исследователи фиксируют какой-то один фрагмент большой картины, но не получают общего видения всей популяции и всего разнообразия психологических проявлений, присущих современному человеку.

Популяционные исследования благополучия позволят получить уникальные данные, характеризующие генеральную совокупность, которая в настоящем популяционном исследовании представлена жителями Уральского региона, включая население всех субъектов, входящих в состав Уральского федерального округа РФ.

Популяционное исследование будет проводиться как кросс-секционное, предполагающее однократное измерение множества переменных, что позволит узнать, каково распределение признака в популяции, определить нормы и оценить процент отклонений. Такой исследовательский дизайн не предполагает повторных замеров, что значительно снижает расходы на проведение исследования, но вместе с тем налагает определенные ограничения: переменная, представляющая интерес для исследователя, измеряется одновременно с другими характеристиками, поэтому невозможно однозначно установить направление связи между ними. Репрезентативность обеспечивается многоступенчатой кластерной выборкой с вероятностью отбора, пропорциональной размеру кластера. Сбор информации будет осуществляться преимущественно с помощью цифровых психодиагностических инструментов, что позволит проводить сбор больших объемов данных в относительно короткие сроки.

Программа исследования предполагает изучение самого феномена благополучия (в первую очередь психологического и эмоционального) и специфических предикто-

ров благополучия различных популяционных групп, таких как социально-экономическое положение, социальные связи, включенность в цифровую среду, социальный оптимизм, социальное и ролевое функционирование, физическое и психическое здоровье (наличие депрессии, тревоги, общий уровень положительных эмоций), личностные ресурсы благополучия, жизнеспособность и др.

Проекты популяционных исследований психологических аспектов благополучия населения Уральского региона

В УГИ УрФУ создан Центр популяционных исследований, который будет проводить исследования по международным стандартам, с привлечением ведущих исследователей. Реализацию проектов популяционного исследования университет планирует осуществлять совместно с Психологическим институтом Российской академии образования, психологическим факультетом МГУ им. М. В. Ломоносова, институтами Уральского отделения Российской академии наук (УрО РАН). Исследовательские проекты реализуются при поддержке региональных органов власти.

В 2021 г. была проведена серия пилотных исследований психологических аспектов благополучия, а в 2022 г. стартовали полноценные популяционные исследования в рамках трех исследовательских проектов. Проекты объединены общей методологией, предполагают измерение и анализ единого комплекса показателей психологического и эмоционального благополучия, но вместе с тем учитывают особенности благополучия различных популяционных групп и специфичность условий, в которых формируется благополучие/неблагополучие этих групп.

Первый научно-исследовательский проект — популяционное исследование социально-психологического и эмоционального благополучия школьников (руководитель — С. Б. Малых, доктор психологических наук, профессор, академик Российской академии образования, заведующий Центром популяционных исследований УГИ УрФУ). Акцент в исследовании сделан на изучении эмоционального благополучия. Ребенок, как и взрослый, находится в условиях постоянных изменений и повышенного эмоционального напряжения. И если взрослый человек обладает рядом сформированных инструментов по профилактике эмоциональных нарушений, то ребенку порой бывает очень сложно с этим справиться. Исследование будет сосредоточено на анализе академической успешности школьников и ее влияния на формирование индивидуальных различий в эмоциональном благополучии школьников.

В рамках второго проекта проводится исследование генетических и психофизиологических основ когнитивных способностей как фактора благополучия студентов (руководитель — З. Р. Тахирова, кандидат биологических наук, старший научный сотрудник учебно-научной лаборатории нейротехнологий УГИ УрФУ). Эффективность использования когнитивных ресурсов является важным пре-

диктором успешности учебно-профессиональной, а затем и профессиональной деятельности, влияет на благополучие личности на протяжении всей жизни, в том числе в период обучения и построения профессиональной карьеры.

В проекте используется высокотехнологичное оборудование, современные методы ведения эксперимента (в том числе проведение ПЦР в режиме реального времени). Производится сбор молекулярно-генетических, психофизиологических данных, характеризующих функциональное состояние головного мозга, поведенческих данных, характеризующих когнитивные способности человека. Сопоставление всей совокупности данных позволяет определить вклад генетических, психофизиологических и средовых факторов в благополучие человека, что является малоизученной областью исследования благополучия.

Полученные в рамках проекта результаты будут положены в основу разработки системы нейрокомпьютерного интерфейса, позволяющего решать два класса задач:

- прогнозирование работоспособности, определение оптимального уровня когнитивной нагрузки с целью предотвращения совершения ошибок;
- определение ранних маркеров долгосрочного ухудшения когнитивных функций взрослых людей с целью создания персонализированной программы вмешательства, позволяющего избежать необратимых когнитивных снижений, которые могут привести к ухудшению качества жизни и потере трудоспособности.

К 2026 г. планируется создание прогностической генетико-психофизиологической модели индивидуальной продуктивности человека при решении задач различной типологии и уровня сложности, к 2027 г. — создание прототипа нейрокомпьютерного интерфейса, позволяющего с учетом индивидуальных психогенетических особенностей определять в режиме реального времени актуальный уровень нагрузки, работоспособности и вовлеченности человека в выполняемую деятельность.

В рамках третьего проекта внимание исследователей сосредоточено на психологических аспектах благополучия взрослых (руководитель проекта — О. И. Дорогина, кандидат психологических наук, доцент кафедры клинической психологии и психофизиологии УГИ УрФУ). В фокусе исследования находятся две группы населения Уральского федерального округа: взрослое работающее население и люди позднего возраста. Уральский федеральный округ, включающий области и автономные округа с различной структурой занятости, с разным уровнем социально-экономического и технологического развития, различными укладами жизни, предоставляет исследователям большие возможности изучения предикторов, детерминирующих благополучие занятого трудоспособного населения. Значительную часть населения Уральского региона составляют люди позднего возраста. Психологическое благополучие способствует длительному сохранению физического, психического и психологического здоровья пожилого человека, что позволяет использовать потенциал пожилых людей для экономического роста, уменьшает социальное бремя, снижает нагрузку на общественное здравоохранение, освобождает людей

трудоспособного возраста от постоянных забот о пожилых родственниках и т. д. Поэтому выявление предикторов благополучия людей позднего возраста рассматривается как актуальная исследовательская задача.

Итоговый результат проекта — модель персонализации траектории взаимодействия «человек — государство» с учетом уровня психологического и социально-экономического благополучия людей старшего возраста. Для создания модели взрослое население областей и автономных округов УрФО будет поделено на группы, выделенные на основании места проживания (сельская местность, малые и крупные города), возраста (взрослые, пожилые, люди старческого возраста), рода занятий (работающие в разных отраслях экономики, пенсионеры). На основании результатов популяционного исследования будут выделены предикторы благополучия (социально-экономические, психологические, организационные факторы, цифровая трансформация и др.), специфичные для каждой из популяционных групп. Для каждой из групп будет построена модель персонализации траектории взаимодействия «человек — государство», в которой будут отражены основные предикторы благополучия и оптимальные стратегии повышения уровня благополучия определенной популяционной группы людей старшего возраста. Разработанные персонализированные модели позволят органам государственного управления принимать научно обоснованные управленческие решения, в том числе по определению приоритетного направления расходования бюджетных средств (на улучшение городской среды, здравоохранение, образование, стимулирование занятости или организацию досуговой деятельности), поскольку можно будет оценить, как скажется то или иное управленческое решение на благополучии различных групп населения.

Заключение

В целом результаты популяционных исследований благополучия позволят выявлять риски повышения социальной напряженности и неблагополучия человека, разрабатывать рекомендации для отдельных территорий по работе с различными группами населения, формировать пакет информационных продуктов и социальных технологий повышения уровня благополучия населения.

УрФУ приглашает всех желающих (исследователей, предпринимателей и государственные структуры) к сотрудничеству в проведении популяционных исследований, обсуждении их результатов и определении сферы их практического применения.

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IN MEMORY OF A. R. LURIA

ПАМЯТИ А. Р. ЛУРИЯ

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Digital Communication in Neuropsychology

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Дигитальная коммуникация в нейропсихологии

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Abstract. Situation of pandemic is a challenge for specialists. The paper shares the experience of the Research Center of Developmental Neuropsychology named after A. R. Luria in meeting this challenge and organizing specific forms of digital neuropsychological assessment and remediation of learning disable children. Positive and negative aspects of this form of neuropsychological work are analyzed.

Keywords: *COVID-19; Luria Research Center of Developmental Neuropsychology; digital neuropsychological assessment; digital remediation*

Аннотация. Ситуация пандемии — серьезный вызов для специалистов. В статье представлен опыт организации дигитального (с использованием цифровых технологий) нейропсихологического обследования и дигитальной коррекции детей с трудностями обучения в Научно-исследовательском центре детской нейропсихологии им. А. Р. Лурия. Анализируются позитивные и негативные аспекты этой формы нейропсихологической работы.

Ключевые слова: *COVID-19; Научно-исследовательский центр детской нейропсихологии им. А. Р. Лурия; дигитальное нейропсихологическое обследование; дигитальная коррекция*

Introduction

I will speak about digitalization, which is not natural, because all of us, we live now in a very unusual and awful situation of COVID, of pandemic in all countries all over the world. On March 28th, 2020, all our 4 offices of Moscow Research Center of Developmental Neuropsychology (*Fig. 1*) were locked for 3 months as well as all other educational institutions in Russia. And it was a very stressful situation for the administration of our Center. How to pay salaries to 57 stuff members? How to pay rent fees? How to pay bills?

Figure 1. The stuff of Research Center of Developmental Neuropsychology named after A. R. Luria

But we remember that we work in the Center named after A. R. Luria, officially named, and this honor was given for our Center after 15 years of work by the great-granddaughter-in-law of Luria officially. And at this moment we remembered that the slogan of our Center after Luria were his words: "Problems must be surmounted, and we do it" (*Fig. 2*).

Figure 2. Yu. P. Zinchenko, the dean of Psychology department of Moscow University, and Alyona Radkovskaya, the great-granddaughter of Luria, open the plate with words by Luria, which is now the slogan of our Center

And how to do it? Luria taught us how to do it. He taught that neuropsychological assessment can be done in any situation: at a patient's bed or in central Asia where he did the expedition at the years of 30s to study the influence of culture, and in particular, of education, on the development of higher cognitive functions. I have repeated this expedition in 2016 in Kamchatka which is Russian Far East (Glozman, 2018). It is the territory which is almost inaccessible (only with helicopters or armored carrier) regional centers or nomadic herdsmen in tundra (*Fig. 3*).

Figure 3. Lurian neuropsychological assessment in 2016 of nomadic herdsmen in Kamchatka tundra

So, as I said, on 28th of March the Center was locked till June, 30th, 2020. But on March, 31st, 2020 the first remediation session online with a learning disabled child took place. On 1st of April, 2020, remediation sessions online became frequent and normative in our Center. On 8th of April, 2020, the first neuropsychological assessments started online. On 17th of April, 2020, was the beginning of the online courses of postgraduate education in neuropsychology.

You see that the work in our Center includes 3 types of work: assessment, remediation, education, that are all based on the same Lurian theoretical foundations. Luria kept repeating that nothing could be more practical than a good theory.

Digital Assessment

From April 8th, 2020, to June 30th, 2020, 253 neuropsychological assessments were performed online. From July 2020 to August 2020, we conducted 60 % of assessments offline, 40 % of assessments online. From August 2020 till now 15 % of assessments are conducted online.

So, why this decrease? Because an assessment online has its advantages and difficulties.

The advantages:

- no geographic limitation for assessment;
- possibilities of assessment in a country house during holidays;
- saving time for child's transportation; protecting child, examiner and parents from heavy traffic fatigue;
- save space in the offices;
- many children (especially preschoolers) feel more quit at home;
- some objects or pets at home can help to organize communication with autistic or speechless child.

Most of specialists prefer to do the assessment offline due to *difficulties*:

- technical problems of not qualified internet users;
- not efficient internet communication in some distant regions;
- some tests (like tactile gnosis, stereognosis) are impossible online; some other tests need special online apps;
- it is difficult to assess online small children before 4 years old;
- it is not always possible to provide privacy and to exclude distractive influences.

Assessment online requires *special organization*:

- using Zoom or Skype, with communication with parents through WhatsApp and e-mail;
- parents must be present together with children;
- digital version of diagnostic material is needed;
- parents fill up and send the questionary of early development and Conner's scale before assessment;
- parents print some materials for assessment, sent by the examiner, like Proof test, Schulte's table, Benton's test and others;
- it is also necessary to organize the place of assessment: computer or notebook with comments application for drawing on the screen, mobile camera to see better the child movements;
- light and noise protected room;
- child's table cover should not be fragile (children should not be allowed to exercise at the glass table, they can break it); examiner's table cover should be dark;
- no external distractors in the room;
- parents should not be too close to the child and not interfere with the assessment;
- parents send the child's drawings or the filled test forms to the specialist.

The process of digital assessment online should be dynamic, include precise and short instructions, breaks for rest and qualification of symptoms, and, of course, communication with parents.

The main theoretical foundations of Lurian neuropsychological assessment are that "neuropsychological assessment must not be limited to a simple statement that one or another form of mental activity as affected. The investigation must be a qualitative (structural) analysis of the symptoms under study, specifying the observed defect and the factors causing it" (Luria, 1969, p. 306).

Also, we should not forget about Lurian cultural-historical approach to the neuropsychological assessment. The mono-causal approach is replaced now by a poly-causal analysis in the way to determine how different biological and social causes of dysontogenesis interact and determine the type of abnormal development in each child (Glozman, 2020).

A disease provokes first a trouble in the biological line of development, but it also interferes with the psychological and social child development: achievement of knowledge and skills, formation of personality. From the other side, a wrong or tardy psychological or educational action provokes a retardation or deviation of child functional systems.

It should be underlined that both online and offline neuropsychological assessments have preventive orientation, because we need to reveal children at risk of future disorders and to start the remediation program as soon as possible. It is never too early, never too late.

We can start by assessing young children or preschool children, using toys analogues of Lurian tests (*Fig. 4*). The older is the child, the more original Lurian tests we can conduct. But both (original Lurian tests and their toys analogues) preserve the great merit of Lurian tests — their polymodality. For example, with the help of this pyramid, we can study the child's movements, hand movements, color perception and size concept.

a

b

c

Figure 4. Toys analogues of Lurian tests: *a* — hand movements, color perception and size concept; *b* — visual memory; *c* — hand movements, naming, speech understanding (the child must name or show, who is going now to own house)

These tests for preschoolers were published by Airis-Press in *Neuropsychological Assessment of Preschool Children* (Glozman, Soboleva, & Titova, 2019) and translated into Portuguese language. Non-verbal behavior can also be investigated during an online assessment. The data obtained as a result of an online or offline assessment does not differ much, and are perfectly competitive with corporate research, it all depends on how much tests we have done.

The neuropsychologist's musts during digital assessment:

- time control;
- to structure the parents complains (needs for psychotherapist, neurologist, speech therapist, neuropsychologist help);
- to explain the parents their child's problems, its nature and causes;
- to determine child's week and strong mental abilities;
- to make a plan of complex remediation;
- to give the prognostics of remediation efficiency;
- to give recommendations for parent's interaction with the child at home.

All this can be done by a qualified specialist with equal success both online and offline.

Quality of a neuropsychological assessment includes mastery in neuropsychological tests, qualified analysis and description of results, good communication with parents. It is very important, because the child's assessment is not possible without communication with parents. First, you give emotional support to parents; also, you help the parents to realize own child's problems and to review own complains; third, to motivate the parents to make efforts in helping own child; to form a certitude in good perspectives of neuropsychological remediation.

Remediation

So, the next type of neuropsychological work done in our Center is remediation. Each remediation is preceded with a complex neuropsychological assessment. From April 2020 to August 2020 4750 sessions of neuropsychological remediation were conducted online. From August 2020 — August 2021 — 7560 sessions of neuropsychological remediation online. About 20 % of the whole number of remediation sessions were conducted at this period.

The same advantages and difficulties for the assessment which I have mentioned exist for the remediation.

The advantages:

- no geographic limitation for remediation;
- possibilities of remediation in a country house during holidays;
- saving time for child's transportation; protecting child, examiner and parents from heavy traffic fatigue;
- save space in the offices;

- many children (especially preschoolers) feel more quit at home;
- some objects or pets at home can help to organize communication with autistic or speechless child.

The *difficulties*:

- technical problems of not qualified internet users;
- not efficient internet communication in some distant regions;
- it is not always possible to provide privacy and to exclude distractive influences;
- limitation for sensory integration;
- lack of body contacts with a child during remediation, which is very important;
- lack of didactic means; mother's competence and readiness to help the teacher.

It should be underlined that both digital and offline remediation follow the same *principles of neuropsychological remediation*:

(1) Neuropsychological qualification of child's problems.
(2) Complex remediation (motor, cognitive, respiratory, and emotional) at each remediation session.
(3) Systemic remediation (remediation of all mental functions in spite of an isolated one: memory, speech, motility or knowledge acquisition).
(4) Emotional involvement and motivation of the child in the remediation process.
(5) Individualized remediation of each one child.
(6) At the beginning of remediation, the teacher performs himself the functions of the weak components, and then gradually transfers them to the child following the rules of interiorization: from common activity to an independent one, from an action mediated with external means to an internal one, from step-by-step analytic action to a global automatized one (Akhutina & Pylayeva, 2008).
(7) Mediated methods instead of direct training of underdeveloped functions.
(8) Interaction with the child's parents.
(9) Team approach in remediation.
(10) Play remediation.

Let me give some examples of digital complex (including respiratory) remediation. Teacher's icon when he gives instructions is on the picture (*Fig. 5*).

Of course, there is *lack of didactic means in digital remediation*. We try to surmount it. Parents can do didactic means themselves. For example, with plasticine or paper. You can also use a child's body to train letters images. The teacher gives instructions, the child follows (*Fig. 6*).

Possibilities of *remediation in a country house* during holidays — in order not to interrupt the remediation process open new options of sensory stimulation (*Fig. 7*).

Remediation together with mum: help and competition (*Fig. 8*).

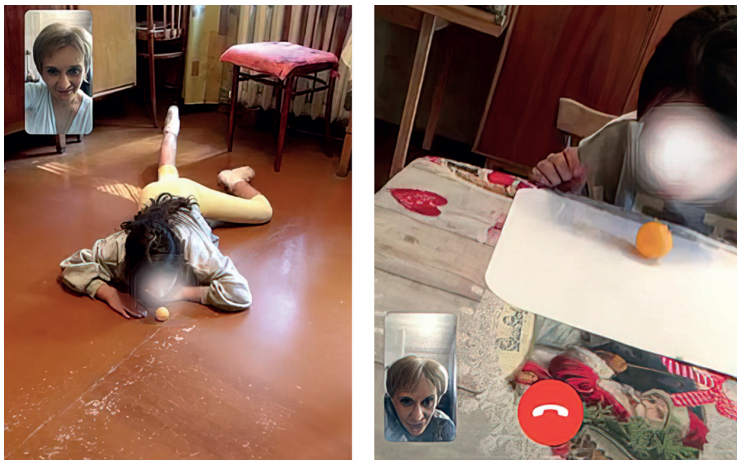


Figure 5. Digital respiratory remediation

Figure 6. Digital remediation of objects and letters images

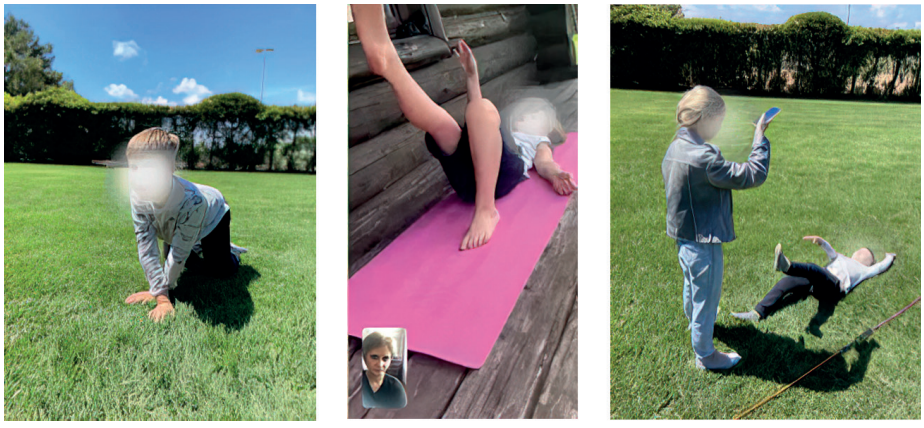


Figure 7. Remediation in a country house

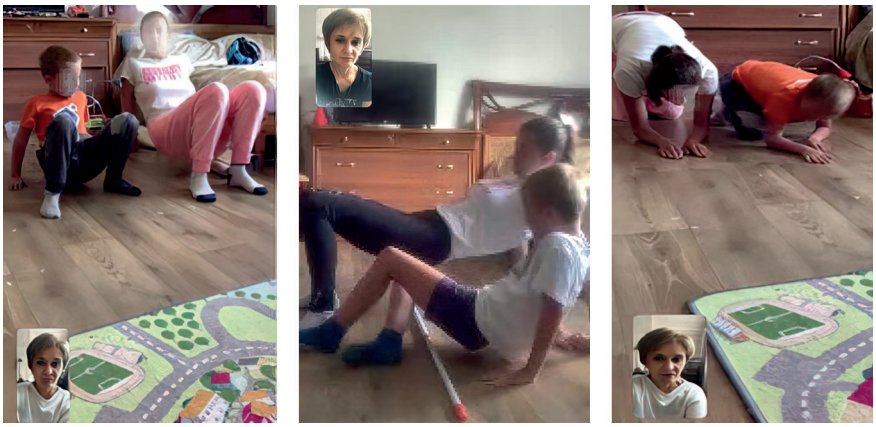


Figure 8. Remediation together with mum

Interaction with the child's parents in remediation online:

- we provide emotional support to parents;
- we help the parents to realize the positive changes in their child after remediation and to accept "the new child";
- we stimulate the parents to participate in remediation process;
- we create and maintain an active and optimistic life attitude of parents and the family unity.

Each remediation moment is a communication with an adult in order to make the child to understand the task and to motivate him to perform it. A. R. Luria said:

> If these motives are nonexistent, then the individual will not produce any thought, and there will not be any consecutive stages in shaping the thought into an unfolded utterance. In these cases, speech is limited to either affective exclamations (interjections) or to the echolalic repetition of utterances received, and the understanding of the perceived speech would not go far beyond the limits of the passive internalization of individual words or phrases being completely void and without the active searches which are but a necessary condition for the decoding of the message. (Luria, 1975, p. 53)

Parents should be prepared to remediation tasks. "I am your eyes; you are my hands." Before remediation parents must answer*:*

(1) Who from family can be always present at remediation sessions?
(2) Mother's competence in helping the neuropsychologist?
(3) Mother's responsibility in helping the neuropsychologist?
(4) Mother's ability to sustain the child's attention?
(5) Mother's contacts with the child?
(6) Mother's motility?
(7) Possibility to find necessary objects (carpet, toys and more).

The specialist must give the parent the necessary information about the exercises and plays and the rules of their performance. The parent must follow step by step the specialist's instructions, to follow all his comments, to control child's behavior during the session. If it is a play, it includes *the rewards*: offline it may be objects, but how can we reward the child online? This is possible:

- digital pictures or short movies, sent to parents;
- child's preferences are discussed with parents;
- if the exercise trained is performed with mistakes, the child receives 1/2 of the picture.

Also, there should be not only rewards for a child, but also rewards for his parent. Remediation session is often stressful for his parent. He can be unsure of himself. Our task is to support him.

We need to say to the parents that each child needs to be accepted, respected and protected. A child with a chronic unsuccess at school must experience a feeling of success to increase own self-estimation and self-credit.

Pets at home are a new and efficient option of online remediation. Pets can help to motivate communication of the child, for example, cats and dogs that live with a child or with a teacher. How to meet each other? The *Figure 9* shows the moment of meeting, for example, the teacher's dog and the child's cat. You can ask the name of the pet and child answers. This is especially important for children with autism.

Figure 9. Meeting a pet

All motor tasks can be *evaluated by both teacher and pet*. If we do the exercise with a dog, it is much more effective. Dogs are your helpers in this case, the same goes for cats. You can also involve toys in the exercise (*Fig. 10*).

Dogs are very efficient for motor tasks. For example, when the dog is down, we look at it and think what should I do to make my stomach looking down as in my dog? See *Figure 11*.

Figure 10. Formation of space representations up-down

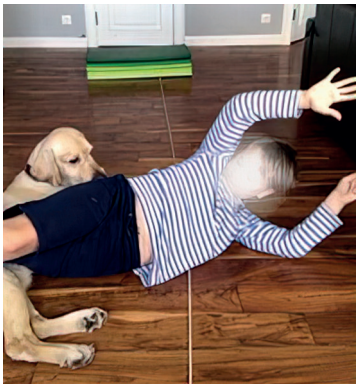


Figure 11. Counting: how many legs we have together?

Online remediation always follows *the principle of play remediation:* play remediation assures the emotional inclusion of the child in the interaction and increases his motivation; in a play the child's attention is oriented to a game rule instead of trained cognitive and motor skills. It permits not to fix difficulties and to avoid tension and fear not to be successful; a game increases child's general activity, positive emotions protect the child from mental surcharges (play makes never tiered) and gives the impression that learning is easy, that is forms finally the unity of affections and intelligence, upon L. S. Vygotsky.

Here are some examples of games in digital remediation. We can use the digital format of games, but we can also create games ourselves (*Fig. 12*).

For emotional perception, we can attach wings to a cow, this is a moment of surprise.

Another example is "Who is hiding there?" (*Fig. 13*). The child must propose different letters to guess.

As for the *complex remediation of babies* (*Fig. 14*), also at home we conduct respiratory remediation, successive activity training, development of graphic skills, training of tactile perception.

Figure 12. Who is there? Visual perception training (we take off one tablet after other until the child recognizes the toy)

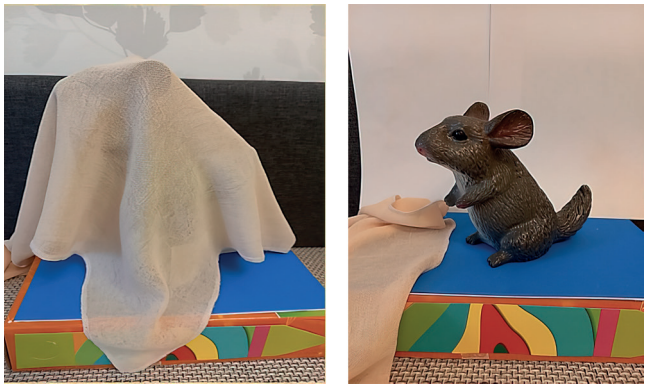
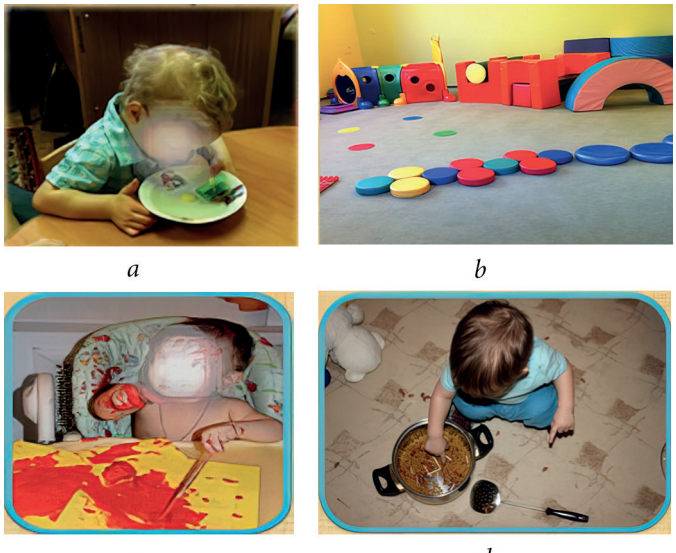


Figure 13. Remediation of dysgraphia



a *b*

c *d*

Figure 14. Complex remediation of babies: *a* — respiratory remediation; *b* — successive activity training; *c* — development of graphic skills; *d* — training of tactile perception

Neuropsychological remediation online is our new reality — a challenge for all specialists of our Center. It was a challenge to acquire new professional competences, new techniques. Online form made remediation accessible for a greater quantity of children if their parents had no time to come to the Center or lived far from Moscow.

We could surmount summer break when children could lose the received knowledge and skills. Many parents considered digital remediation less efficient. They were afraid by own poor neuropsychological competence, by necessity to retain the child at the screen. But the practice with creative approach proved the high efficiency of digital remediation, confirmed by parents.

The lockdown period was a creative period for our specialists. We needed to change the forms of work, to use new means of motivation and rewards, to use objects present at home or to make the necessary objects ourselves. The best animators of neuropsychological remediation online proved to be the pets (cats and dogs) living at home of teacher and that of children.

There are two opinions: external causes act through the prism of internal conditions (Rubinstein, 1973) and the internal (the subject) acts through the external and in doing so changes himself (Leontiev, 1977). The digital communication proves this second theoretical statement.

Education

Research Center of Development Neuropsychology named after A. R. Luria does a lot for postgraduate education of neuropsychologists and we finally went from offline to online:

- up to 2017 — only offline;
- 2017–2019 — theoretical webinars (many students complained that they could not come to Moscow);
- 2019 — March 2020 — theoretical webinars + practical "intensives" — only 42 students could attend offline, because they had to come to Moscow and study all day long, from morning to evening;
- April 2020 till now — education only online (40 hours course). We had 229 students from 11 countries and 82 cities in Russia.

Now we prefer the online form. Nevertheless, it has also difficulties.

Advantages for students: no geographic limitations for participation; education online does not interfere with the main job; saving time for transportation; saving money; supplementary means for learning (videos).

Advantages for teachers: saving time and efforts for transportation; save space in the offices; increased number of students.

Difficulties: technical problems in not qualified internet users; not efficient internet communication in some distant regions; time zones; reorganization of teaching process (mobile camera, a new system of exams, to switch off all microphones, communication with students via chat). Now the exams are conducted online, it is easy, but in practice we

sometimes cannot qualify a student clearly enough. For this we use a video assessment session, I interrupt and comment on it, and my examinee must describe the child and give quantitative and qualitative assessment and recommendations to the parents. This video session also includes a discussion with parents. In digital lectures, we turn off the microphones so that there is less noise, and we communicate in chat; it is not always possible to exclude distractive influences and noises; high challenge for teacher's creativity and experience.

What online courses do our Center have? Firstly, neuropsychological assessment of children (Janna Glozman) — 7 groups during the pandemic period; secondly, neuropsychological remediation of children (Svetlana Karepanova) — 7 groups during the pandemic period; third, neuropsychological assessment of preschoolers (Julia Titova) — 3 groups during the pandemic period.

And now I pass to the **Conclusion**. The last International School of Neuropsychology is called *Digitalization of Personality*, but it is actually not about the digitalization of personality but about a personality's challenge in digitalization.

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