

Neuroscientific Principles in Labour Adaptation of People with Musculoskeletal Disorders

Iryna SARANCHA¹,
Borys MAKSYMCHUK²,
Galyna GORDIICHUK³,
Tetiana BERBETS⁴,
Vitalii BERBETS⁵,
Liudmyla CHEPURNA⁶,
Volodymyr GOLUB⁷,
Liudmyla CHERNICHENKO⁸,
Liudmyla BEHAS⁹,
Svitlana ROIENKO¹⁰,
Natalia BEZLIUDNA¹¹,
Olha RASSKAZOVA¹²,
Iryna MAKSYMCHUK¹²

¹ Vinnytsia Mykhailo Kotsiubynskiy State Pedagogical University, Ukraine, isarancha@gmail.com

² Izmail State University of Humanities, Izmail, 0674256781@ukr.net

³ Vinnytsia Mykhailo Kotsiubynskiy State Pedagogical University, Ukraine, galina.gordiuchyk@gmail.com

⁴ Pavlo Tychyna Uman State Pedagogical University, Ukraine, berbec08@ukr.net

⁵ Pavlo Tychyna Uman State Pedagogical University, Ukraine, berbec1977@ukr.net

⁶ Mykhailo Drahomanov National Pedagogical University, Ukraine, chepurnal@gmail.com

⁷ Pavlo Tychyna Uman State Pedagogical University, Ukraine, golub-vol-nad@ukr.net

⁸ Pavlo Tychyna Uman State Pedagogical University, Ukraine, lydachernichenko@meta.ua

⁹ Pavlo Tychyna Uman State Pedagogical University, Ukraine, begasld@ukr.net

¹⁰ Pavlo Tychyna Uman State Pedagogical University, Ukraine, svet.roenko@gmail.com

¹¹ Pavlo Tychyna Uman State Pedagogical University, Ukraine, bezludniy_oi@ukr.net

Abstract: *The article proves that the socialization of adults and children with musculoskeletal disorders (MSDs) is closely related to development, education, rehabilitation and includes the following neuropsychological aspects: social adaptation, labour adaptation, assessment of prospects for one's adult life and creation of a non-discriminatory environment in society. Besides, the article shows how the photography club implements such goals, as well as evaluates the effectiveness of its activities. The educational aim of the photography club was to familiarize persons with MSDs with the basic types of working with digital photography and basic computer programmes that enable processing of digital information; to develop their knowledge about the photography and design business, computer skills and independent work skills. The experimental group (EG) consists of 40 leavers (18 males and 22 females) from the Vinnytsia Centre for Social Rehabilitation of Children with Special Needs "Promin", who were diagnosed with cerebral palsy and six leavers with mild mental disorders. The age requirement for EG is 14-19 years old. The control group (CG) consists of 40 persons diagnosed with CP and seven persons with mild mental disorders (23 males and 17 females). The respondents managed to study different types of shooting: portraits, landscapes, group and individual photography. The photography club used different methods: verbal methods (mini-lectures, stories, explanations, conversations); practical methods (computer exercises, independent work, role-playing games), as well as paid considerable attention to the psychological correction of persons with MSDs. Unfortunately, most options of the respondents for employment are rather passive. Therefore, it is necessary to prepare persons with MSDs for competition in the labour market through psychological training and counselling. It is also crucial to promptly inform them about the dynamics of the labour market. The international relevance of the article lies in an attempt to adjust available electronic and software technologies to labour adaptation of people with MSDs and consider neurophysiological patterns of such a process.*

Keywords: *photoshoot, social adaptability, socialization, cerebral palsy, computer literacy, feelings, developmental impact.*

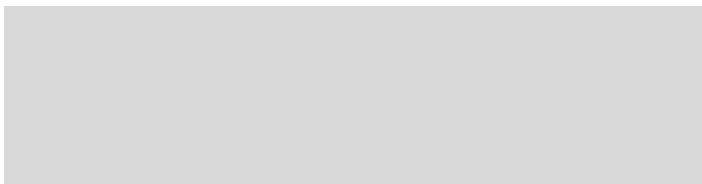
How to cite: Sarancha, I., Maksymchuk, B., Gordiichuk, G., Berbets, T., Berbets, V., Chepurna, L., Golub, V., Chernichenko, L., Behas, L., Roienko, S., Bezliudna, N., Rasskazova, O., & Maksymchuk, I. (2021). Neuroscientific Principles in Labour Adaptation of People with Musculoskeletal Disorders. *BR·AIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(4), 206-223. <https://doi.org/10.18662/brain/12.4/245>

¹² Municipal institution "Kharkiv Humanitarian and Pedagogical Academy" of the Kharkiv regional council, Ukraine,

olgarasskazov69@gmail.com

¹³ Izmail State University of Humanities, Izmail,

0963113686@ukr.net



Introduction

In Ukraine, an annual increase in chronic diseases among young people and adults results in repeated cases of disability. Now, childhood disability can be characterized by the following aspects: congenital abnormalities – 23.7%; diseases of the nervous system – 19.7%; mental and behavioural disorders – 16%. In Ukraine, cerebral palsy (CP) is becoming a more and more acute problem, given 2.4-2.5 cases among 1000 children (Burmenskaya et al., 1990).

The establishment of a democratic society presupposes public support for children and young people with special needs, who should study in traditional educational institutions, actively communicate with their peers, live in a family and have a full social life. Visible defects should not cause a negative attitude or specific “immunity” on the part of society. Everyone has certain limitations, although it may be difficult for some people to hide them (Romanchuk, 2008).

The Standard Rules for the Equalization of Opportunities for Persons with Disabilities, approved by the United Nations in 1994, is an incorporating document covering all aspects of the life of persons with special needs. Their ideology is based on equal opportunities implying that persons with special needs are members of society and entitled to remain in their communities. They should receive the support they need under the traditional systems of healthcare, education, employment and social services. There are twenty such rules (Kholostova & Dementieva, 2006).

The socialization of adults and children with MSDs is closely related to development, education, rehabilitation and includes the following components: social adaptation, labour adaptation, assessment of prospects for one’s adult life and creation of a non-discriminatory environment in society (Bakhmat et al., 2019; Behas et al., 2019; Bezliudnyi et al., 2019; Halaidiuk et al., 2018; Koziuk et al., 2020; Kozlovsky et al., 2018; Maksymchuk et al., 2018; Melnyk et al., 2019; Sitovskiy et al., 2019; Sheremet et al., 2019).

Akatov (2003) defines social adaptation as a constant, active adaptation of the individual to the conditions of the social environment, as well as the result of this process. Social adaptation is rather continuous and usually associated with dramatic changes in the life and activities of the individual and his or her environment. The acceptance of the individual’s social role is at the heart of social adaptation.

The child’s psychological adaptation to his or her problems and needs related to disability is of three types: high, average and low. Socially

psychological adaptation of children with MSDs implies active adaptation to a changing environment (Koval et al., 1997). Besides, the child's adaptation is part of his or her socialization. On the one hand, it is a particular integration, during which the individual with certain natural inclinations acquires the qualities he or she needs for life in society. On the other hand, it means personality development under the impact of learning, education and acceptance of culture, norms, values, and social roles which are essential to this society and specific social communities.

In this regard, **the article aims** to organize and incorporate the photography club in educational and rehabilitation processes to ensure labour adaptation of people with MSDs via neurophysiological mechanisms of creativity, cognition, subjective self-realization, and reflection.

The instructional aim of the photography club was to familiarize persons with MSDs with the basic types of working with digital photography and basic computer programmes that enable processing of digital information; to develop their knowledge about the photography and design business, computer skills and independent work skills.

The correctional and developmental aim of the photography club was to develop creative skills, fine motor skills, logical and analytical thinking, independent work skills, self-control, communication, and teamwork skills in persons with MSDs, as well as organize their psychological correction.

The educational aim of the photography club was to foster a friendly attitude of persons with MSDs towards themselves through the products of their activities, cultivating respect for the work of others and developing their aesthetic taste.

Neuroscientific Principles in Labour Adaptation of People with MSDs

Children and adults with MSDs need to be included in the system of rehabilitation to restore their social relations and realize themselves as individuals. Recently, a system of institutions has been established in Ukraine to ensure the rehabilitation of those who need it, that is, to return the patient to a healthy life and work within the limits of psychophysical and neurophysiological capabilities. This article considers adaptation as a comprehensive, multi-stage system of medical, neurophysiological, socially psychological and pedagogical actions aimed at eliminating or mitigating the developmental limitations of children with MSDs, integrating them into the social environment and involving them in public life and work (Bondar & Synov, 2011).

Shevtsov (2004) believes that the rehabilitation of persons with special needs is a specially organized, open, personality-oriented, systemic and synergistic process of medical, social, psychological, pedagogical, physical, professional, labour, technical, legal, economic, cultural, creative and informative actions aimed at eliminating limits in their life activity, restoring their physical, mental and social health, ensuring their socialization, social adaptation and integration, optimizing the level of their activity, including educational and labour activities, and enhancing the quality of human life and developing their independent style.

Thus, the characteristics of the emotional sphere in the development of children with CP, which will influence the further development of their personality, are an unstable emotional state, mood swings, anxiety, fears, an adverse reaction to one's physical condition, shyness, insecurity, aggression towards peers, parent dependency, affective fixation and conflicts with their parents (Illiashenko et al., 2003).

According to Kapska (2006), the integration into society is a process of restoring a person's lost connections with society, which ensures his or her inclusion in the primary spheres of life (work, leisure).

Shipitsyna & Mamaychuk (2004) indicate that the integration of children with special needs into society is a deliberate process of transferring social experience to society, taking into account their characteristics and needs if they actively participate in it, and ensuring relevant conditions for it. As a result, such children integrate into all social systems, structures, societies and relationships that exist for healthy children and start to actively participate in the primary areas of life and activities of the society following age and gender, preparing themselves for self-realization.

The process of developing life competence is an essential element of socialization of children with MSDs. Such competence cannot be abstracted from their real health and living conditions. According to Tytarenko (1998), it necessitates the consideration of the basic situations in the lives of such children, which can be emotionally complicated, problematic, critical, crisis-related, existential and terminal by content and nature. Yashchuk (2001) assumes that life competence encompasses the knowledge, skills and life experience necessary to solve life's tasks and realize oneself.

Theoretical studies on labour and physical adaptation indicate that its success lies in constant control of action selection, planning and execution, as well as in one's ability to adapt behaviour. Ullsperger et al. (2014) study such parameters of labour adaptation as "the neurophysiology of evaluating action course and outcome with respect to their valence, i.e., reward and punishment, and initiating short- and long-term adaptations, learning, and

decisions”. They claim that such studies help one determine physiological principles of performance monitoring and adaptation and, consequently, connect them with neuroanatomy, and neurochemistry (Ullsperger et al., 2014). In turn, the use of the above-mentioned techniques shows that the basal ganglia, frontal cortex, thalamus, and monoaminergic nuclei of the brainstem are sensitive to labour stimuli and results, selection of action and behaviour. This makes labour adaptation rather a long-term but quite effective type of neurotherapy.

At the same time, labour adaptation is not only planning, execution, and selection of actions. Primarily, it is the ability to be flexible in changing conditions, which may cause problems in the case of neural rigidity. Therefore, rehabilitation specialists should constantly monitor changes and levels of adaptability, while feedback should reflect deviations from the expected conditions.

The use of neurophysiological methods to diagnose stress-related behavioural disorders seems important for labour adaptation and therapy of patients with CNS diseases. This applies, first of all, to the stage of life when the place of residence or stay changes. However, cognitive control is also necessary for labour adaptation. Karpova et al. (2020) define the concept of “behavioural cognitive control” as such, “which includes the ability to voluntarily activate or suppress actions aimed at achieving life goals in changing conditions”. Both development and application of cognitive control can help one avoid destructive factors of occupational therapy and adaptation, such as nervous fatigue, inconsistency of work performed with existing neurocognitive capabilities, stress.

It is also essential to consider neurophysiological factors in labour adaptation. In the late 20th century, the Canadian Occupational Performance Measure (COPM) was used as a client-centred outcome measure on a neurological rehabilitation unit (Bodiam, 1999). Clients with various neurological disorders chose activities they considered important to improve (hobbies, occupational therapy). The ratings of performance and satisfaction turned out to be the most sensitive parameter. As noted by Bodiam (1999), “the increase in ratings between initial and final assessments was higher for satisfaction than for performance in clients with only physical problems, compared with clients with both physical and cognitive problems”. Hypothetically, such differences are due to difficulties in self-assessment of performance or lack of awareness of cognitive deficits by the last group of clients (Bodiam, 1999). However, the author’s programmes of labour adaptation tend to show moderate efficiency in the context of rehabilitation.

Even though occupational therapists use a wide range of tools to study the impact of occupational therapy on the adaptation and rehabilitation of patients with neurological disorders, it is still difficult to formulate definitive conclusions due to the length of such therapy (adaptation) over time. This contradicts the educational requirements and programmes, usually limited to a semester or school year. Besides, many methods of labour adaptation are important to rehabilitation specialists and social educators but ignored by clinicians focused on more sustainable and rapid effects. According to Doucet (2012), it is vital to teach clinicians to use neurological rehabilitation methods, capture the data more accurately and incorporate them in practical strategies of occupational therapy.

Phipps & Richardson (2007) conducted a study among 155 ethnically diverse clients with traumatic brain injury and stroke to achieve their desired goals and the relatively complete (in their subjective opinion) outcome of occupational therapy. They found that “a statistically and clinically significant change in self-perceived performance and satisfaction with tasks of daily life occurred at the end of a client-centered occupational therapy program ($p < .001$)” (Phipps & Richardson, 2007). Also, the researchers claim that “there were no significant differences in performance and satisfaction between the TBI and CVA groups, even though the group with right CVA reported a higher level of satisfaction with performance in daily activities than the group with left CVA ($p = .03$)” (Phipps & Richardson, 2007). Thus, one can conclude that labour adaptation programmes should be focused on both the professional competence and nosological status of the client. However, measuring the results of occupational therapy helps one determine significant goals of professional activities and build an individual occupational trajectory.

One should study the effects of occupational therapy, adaptation, and rehabilitation after acute neurological diseases based on clients' professional activities. As noted by Skubik-Peplaski et al. (2012), there are noticeable changes in neuroplasticity and growth of behavioural motor functions after 15-20 sessions of occupational therapy. Besides, the scholars state that corticomotor reorganization of the CNS was observed in all cases studied, even though the best results were obtained in conditions similar to a familiar home environment (Skubik-Peplaski, et al., 2012). In addition, there was an increase in certain professional indicators, as well as the expansion of functional (partially lost) capabilities. These data support the expediency of using labour adaptation and rehabilitation both in rehabilitation centres and in other controlled conditions.

It is also important to distinguish between occupational adaptation and occupational therapy. According to Napoleone et al. (2019), occupational therapy is defined as “the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of enhancing or enabling participation in roles, habits, and routines in home, school, workplace, community, and other settings”. It aims to ensure maximum autonomy of performance and vital functions of patients with CNS disorders, including rest, education, entertainment. The difference is that occupational therapists use remedial and compensatory approaches to reduce the existing deficit (Napoleone et al., 2019).

Thus, there are many empirical and neuroscientific data on the labour adaptation of people with CNS disorders. The authors of the article have chosen photography as a type of adaptive activity that allows one to establish new neural connections related to visuality, and use creative approaches to the reflection of different objects. The results from the implementation of the photography club and its effectiveness are presented in the next section.

Activities of the Photography Club within the Centre for Social Rehabilitation of Children with Special Needs “Promin”

Before experimenting, the authors of the article resolved all necessary ethical issues: a) parents and children were informed about their voluntary participation in the experiment and the opportunity to leave it at any time; b) the experiment was agreed with the Committee for Protection of the Rights of People with Special Needs at the regional level.

The experimental group (EG) consists of 40 leavers (18 males and 22 females) from the Vinnytsia Centre for Social Rehabilitation of Children with Special Needs “Promin”, who were diagnosed with CP and six leavers with mild mental disorders. The age requirement for EG is 14-19 years old. The control group (CG) consists of 40 persons diagnosed with CP and seven persons with mild mental disorders (23 males and 17 females).

Rehabilitation lessons in the photography club of forty minutes’ duration were held at 3 p.m. on Tuesdays by a handicraft teacher together with a practical psychologist. They were of two types (group and individual) since it was crucial to promote the development of interpersonal competency and collectivism.

The topics which persons with MSDs worked on during rehabilitation lessons in the photography club (thematic planning):

1. ***Holidays.*** Goals: to actualize and express different feelings, disclose creative skills and resources and develop self-control; to study the system of relationships, if necessary; to actualize and resolve internal personal relationships. Content: the pupils were asked to take a series of holiday photos, print out their works and discuss them.

2. ***Seasons.*** Goals: to develop the emotional sphere, disclose creative skills and resources, develop self-control, understand the dynamics of external and internal changes, gain new experience. Content: the pupils were asked to take a series of photos reflecting the change of seasons, as well as other participants of the club, and include them in calendars and postcards.

3. ***My friends.*** Goals: to actualize and express feelings related to the inner self and self-attitude, identify and understand values and needs of the pupils, study the system of relationships, actualize and resolve interpersonal conflicts; to contribute to psychological bonding of persons with MSDs. Content: the pupils needed to bring photos of themselves and their friends, show them to each other and discuss them (the club leader asked them to tell why this or that friend was dear to them).

4. ***My hobbies and interests.*** Goals: to actualize and express feelings related to the inner self and self-attitude, identify values and needs of the pupils; to actualize and understand internal and external resources; to study the system of relationships. Content: the pupils needed to bring photos of themselves in different situations related to their interests and hobbies and took similar photos at the centre (taking photos of each other).

5. ***Creating a portrait.*** Goals: to disclose creative skills; to actualize, express and comprehend feelings; to develop teamwork skills; to reach a mutual understanding; to support emotionally. Content: the pupils needed to paint portraits of children and staff from the Vinnytsia Centre for Social Rehabilitation of Children with Special Needs “Promin”.

6. ***Making postcards and calendars.*** Goals: to develop creative skills; to boost self-esteem; to gain experience of working with different programmes which can help to create such things. Content: the pupils needed to make holiday postcards from the photos taken during rehabilitation lessons in the photography club. They include photos of the flowers grown on flower beds near the centre, handmade products made by persons with MSDs, as well as the events happening at the centre. Also, teachers helped children to choose appropriate poems for these photos.

The photography club used different methods: verbal methods (mini-lectures, stories, explanations, conversations) together with visual aids and activities of the pupils themselves; practical methods (computer exercises, independent work, role-playing games), as well as psychological correction of persons with MSDs.

The photography club also aimed to develop computer literacy in persons with MSDs, teach them to choose different objects, angles and moments of shooting and use specific techniques. It can be a contributing factor in the development of such functions as thinking, memory and attention, as well as fine motor skills.

As part of this research, people with MSDs studied different types of shooting: portraits, landscapes, group and individual photography. Thus, they have learned how to shoot both in natural and artificial light.

The photography club has made it possible to realize the tasks and functions presented in Table 1.

Table 1. The use of photographs and their psychological functions

<i>Tasks</i>	<i>Functions</i>
to actualize and express different feelings, ensure the emotional release	focusing, actualization, stimulation, mobilization
to identify needs and anxiety	objectification, the occurrence of new sensations, display of change dynamics, organization
to identify and correct maladaptive manifestations of behaviour and thinking	objectification, the occurrence of new sensations, display of change dynamics, organization
to develop coordination	stimulation, mobilization
to develop skills and mechanisms of psychological defence and self-control	defence, organization, mobilization
to develop independence and nurture responsibility	organization, mobilization, focusing, actualization, objectification, the occurrence of new sensations
to develop spontaneity and the ability to experiment with new forms of experience	focusing, actualization, mobilization, stimulation
to develop visual and conceptual thinking, sensorimotor skills and aesthetic views	stimulation, organization, mobilization, the occurrence of new sensations, display of change dynamics, focusing, actualization, designing

to comprehend the connection between various aspects of mental experience and the system of relationships; to secure the inner self and personal boundaries	display of change dynamics, organization, integration, objectification, focusing, the occurrence of new sensations
to actualize and demonstrate latent needs and personality traits; to disclose internal resources and creative skills	stimulation, mobilization, focusing, organization, defence, the occurrence of new sensations
to develop interests and motivations; to comprehend attitudes and values	mobilization, focusing, objectification, display of change dynamics, the occurrence of new sensations
to develop interpersonal competency, that is an ability to understand and perceive others and engage in meaningful interaction with them	focusing, actualization, objectification, the occurrence of new sensations, organization, mobilization, deconstruction, display of change dynamics
to develop teamwork skills	stimulation, organization, mobilization, display of change dynamics, deconstruction, focusing, actualization
to comprehend and accept group norms and values; to realize common problems and human experience	focusing, display of change dynamics, the occurrence of new sensations, reconstruction

The options for using photography can differentiate depending on what creative forms the pupils can add to it. Thus, the process of taking photos also involved creating photo collages, posters or “the photo book”. Photography also implied inventing stories or mini scripts related to literary creativity.

People with MSDs, independently or with teachers, took photos of all holidays and celebrations at the centre, as well as the events aimed at social rehabilitation of children and young people with MSDs outside the centre. They have learned to take ID photos, create postcards and calendars. It has helped them to develop creative thinking, attention, memory and imagination. When creating postcards and calendars, they matched flowers to an appropriate season, event, date. They also retouched images, using Photoshop.

Given the ever-growing computerization, it is much easier for persons with MSDs to realize their ambitions and opportunities for learning and employment if they have a computer. Computer literacy for children and adults with MSDs remains an essential element of social rehabilitation

and, therefore, this research incorporates such activity in the photography club. The analysis of the obtained results proves the effectiveness of the selected method for teaching computer literacy to persons with MSDs. The results of the experiment are presented in Tables 2 and 3.

Table 2. The programmes and devices persons with MSDs use when working

Programmes and devices	EG		CG	
	Before experiment	After experiment	Before experiment	After Before experiment
	%	%	%	%
Word	62.5	80	65	62.5
Excel	22.5	37.5	20	22.5
Nero	17.5	32.5	15	17.5
Antivirus programmes	15	27.5	20	22.5
Pragma	7.5	15	5	10
Explorer	15	45	17.5	17.5
Managers	5	17.5	7.5	10
Printers	30	35	32.5	32.5
Scanners	25	35	22.5	27.5

* The total score in all tables exceeds 100% as the respondents made several choices.

It is crucial to continue the process of social rehabilitation of persons with MSDs to improve their computer literacy.

Table 3 shows how persons with MSDs have reconsidered their views on their professional qualities in comparison with those of healthy persons.

Table 3. Views on professional qualities

Grade	EG		CG	
	Before experiment	After experiment	Before experiment	After experiment
	%	%	%	%
Much better	10	15	12.5	12.5
Better	20	42.5	25	32.5
The same	35	22.5	27.5	30
Worse	25	12.5	22.5	15
Much worse	10	7.5	12.5	10

If persons with MSDs are aware of the importance of work in their lives, they can overcome all difficulties on the path to employment. The results of the experiment are presented in Tables 4 and 5.

Table 4. The importance of work in the lives of persons with MSDs

The importance of work	EG		CG	
	Before experiment	After experiment	Before experiment	After experiment
	%	%	%	%
The most important thing in life	62.5	67.5	60	67.5
A tool for self-realization	32.5	57.5	30	37.5
The way to gain independence	30	52.5	27.5	35
A tool for self-affirmation	27.5	45	30	32.5
Burden	5	2.5	7.5	5
Something insignificant	5	2.5	5	5

After all, work is a means to fulfil hopes for most persons with MSDs.

The experiment focused much on the development of partner communication skills and collaboration skills in persons with MSDS so that they can meet their needs.

The results of the experiment are presented in Table 5.

Table 5. What are persons with MSDs ready to do to obtain employment?

Steps	The number of respondents			
	EG		CG	
	Before experiment	After experiment	Before experiment	After experiment
	%	%	%	%
to use one's help	50	45	52.5	55
to do in-service training	37.5	52.5	35	40
to contact the employment office	32.5	47.5	35	37.5
to search independently	30	55	30	32.5
to contact the authorities	10	12.5	10	7.5
to compete with others	10	7.5	10	12.5

Conclusions

The results of the formative experiment show that it is possible to include photography in various programmes of treatment, correction, psychoprophylaxis, neurorehabilitation, and development:

1. Photographing can be used once or sporadically, especially at certain stages of rehabilitation, when persons with MSDs want to use it. At the same time, they can be merely curious or ready to gain new creative experience, be closer to reality, avoid feelings, get visual confirmation of the changes that have occurred to them and memorize especially crucial moments in their life or work. These needs may be temporary. When they become interested in photography, they may switch to other means and materials. The specialist should, as far as possible, understand the needs of a particular person or group and strengthen their interest in photography, providing it is associated with significant trends of their development.

2. If a particular person or group is keen on photography, they can use it regularly throughout the whole process of rehabilitation. In doing so, the specialist can either offer them full freedom of action and following the principles of a nondirective approach, provide optimal working conditions and facilitate the expression of feelings, or teach them specific techniques and exercises that allow them to organize their work and focus on solving specific tasks.

3. It is also advisable to organize special groups of photographing therapy to work in the form of psychotherapy and use photography as the primary working tool.

The paper proves that it is vital to organize a photoshoot in an environment that acts as a significant external resource. For one, photoshoots in nature can enhance sensory stimulation, evoke positive emotions and aesthetic experiences. Also, photoshoots can take place in an environment leading to social confrontation and complicated feelings, which can be quite helpful in some cases. They can help persons with MSDs to understand the nature of their social behaviours and attitudes and prepare them to meet reality.

The positive influence of photography on persons and their relationships with the outside world can be manifested both in self-employment and in the creation and discussion of photos with the specialist.

A photo can be considered a game. It allows one to “play” with reality and its visual reflections, namely, to choose from it what is most important and exciting for persons with MSDs and combine different

elements of reality and create another fantastic reality (surrealism), which one cannot see.

Photographing is often associated with self-presentation, which implies presenting a particular image of oneself to a real or imaginable audience. Quite often, people do not realize the extent to which their appearance and behaviour can change and do not know “the script” of drama played out in front of the camera. It is somehow similar to a mini-show, which influences the participants and audience.

When showing photos to someone, one tells its story. Not only does the story convey one’s attitude to what is depicted in the photo and clarify what is hidden behind the scenes, he or she also explains the essence of events and experiences and links together different aspects of these experiences. The stories that accompany the show of photos are often very inventive and colourful, which not only enhances the impact of visual images but also expresses the fuller and deeper feelings associated with them.

Unfortunately, most of the respondents’ options for employment are rather passive. Therefore, it is necessary to continue preparing persons with MSDs for competition in the labour market through psychological counselling. It is also important to inform them about the dynamics of the labour market.

Photographing therapy can help persons with MSDs to express themselves, improve their computer literacy and become more confident.

Persons with MSDs should find their life-long goals during the rehabilitation, as well as realize and understand them during social rehabilitation. Further social rehabilitation largely depends on adults’ ability to use children’s life prospects, personal incentives triggering their inner strengths and abilities.

Cognitive activity. First, it is related to the stimulation of the child’s sensorimotor development. The development of sensorimotor functions in combination with the positive emotional communication of the child serves as the basis for developing all mental functions, presented in such categories as speech, attention, purposeful activity, emotional reaction, thinking and imagination.

The specifics of sensorimotor education of children with MSDs is aimed at the simultaneous development of sensory organs and motor skills. In the case of CP, rehabilitation should consider the correct position of the body, head, arms, legs, which is associated with such a category as posture.

Children with CP quite often cannot focus on the same object. In turn, it is related to such psychological categories as visual focus and object

tracking and the first voice reactions in the case of the child's positive emotions.

Acknowledgments

The authors of the article have equally conducted this comprehensive study. On the one hand, they researched and modelled the activities of the photography club to ensure labour adaptation of people with MSDs, taking into account neuroscientific achievements. On the other hand, they implemented these activities in the educational process of the mentioned rehabilitation centre and proved their effectiveness.

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