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**INTEGRATED SUPPORT OF EDUCATION AND REHABILITATION
PROCESS IN EDUCATIONAL INSTITUTIONS FOR VISUALLY IMPAIRED
CHILDREN**

Nowadays, the search for innovative medical, psychological, and educational approaches to teaching, up-bringing, and development of individuals with disabilities is a task of paramount importance, a focal point for the efforts of the state educational and healthcare systems, as well as social services.

According to the research conducted by the UNO and WHO, there are more than 130 million individuals with low vision and about 45 million blind people worldwide. For the last 20 years, this figure has increased by 20 million, and it is predicted by WHO that it will have doubled by 2020. It should be mentioned that over 1,5 million of the blind are children; what is more, every minute one child in the world goes blind (S. O. Rykov, T. O. Alifanova, et al.) [5].

In Ukraine, the absolute number of children with different forms of visual impairment caused by eye diseases is 11092, which makes for 12,6 per 10000 children. The highest rate of primary visual disability in children is found in Luhans'k Oblast', where 1,8 per 10000 children are declared disabled (with 1,2 rate in Ukraine on average).

At the moment, pedagogical and organizational problems in education, up-bringing, and social adaptation of children with visual impairment, as well as the basis of this process, namely psychological, medical, and educational diagnostics, require thorough consideration. The organization of education and rehabilitation process in innovative institutions involves internal integration and socialization of the children with various eye conditions.

The system of work with visually impaired children, who are in the need of vision correction, must ensure complex and on-going psychological, educational, social, physical, and medical help to create the most favorable conditions for their development.

Education, development, and further successful professional socialization of visually impaired children is one of the most important tasks of special education. Being confined to special schools or nursing homes for a long time, visually impaired children are deprived of the opportunity to fully and independently participate in social life. Many of them experience problems related to the integration into the society of healthy people (O. H. Litvak, T. M. Grebenyuk, I. M. Nekrasova, Y. P. Synyova, S. F. Fedorenko) [2; 3].

The notion of integration in typhlopedagogy refers to the socialization of children with visual impairment on the terms equal to the sighted. This requires an integrated support of children with various eye conditions at the early stages of their development. Thus, the main strategic aim of the educational process and integrated support of children with visual disabilities in a rehabilitation centre is their integration into the society of healthy peers [2, p.52-63; 3].

Support provided through special education was addressed in the works by I. D. Bekh, V. I. Bondar, L. S. Vygotsky, G. M. Dul'nyev, O. H. Litvak, S. D. Maksymenko, V. M. Synyov, O. P. Khokhlina, et al.

Various aspects of medical rehabilitation of the visually impaired individuals were discussed in the works by Y. D. Aheev, V. M. Akimushkin, O. L. Oleksiev, V. P. Biran, S. Ye. Haidukevych, V. P. Hudonis, L. I. Plaksina, O. M. Ruts'ka, S. O. Rykov, L. O. Semenov, N. M. Serhienko, L. I. Solntseva, et al. [1; 3; 4; 5; 6].

Socialization of special needs individuals were investigated by L. I. Akatov, I. M. Bhazhnokova, Y. V. Bohyns'ka, V. I. Bondar, N. F. Dement'yeva, Z.I. Lavrent'yeva, V.I. Lyashenko, V.M. Synyov, Y.P. Synyova, Y.I. Kholostova, Z. P. Khrapylina, M. V. Shakurova, A. H. Shevtsov, L. M. Shypitsyna, et al. [2, p. 52 – 63].

Despite a variety of research in the field, there are just a few works that can be seen as a system research into the organization and integrated medical, psychological, and pedagogical support of education and rehabilitation process as a critical component of the successful socialization of visually impaired children in the innovative institutions.

Educational practice suggests that all-round development of children with serious visual impairment can only be possible within special educational and rehabilitation environment, which provides them with the skills to cope with their functional disability, on the one hand, and ensures continuity in education and medical treatment, on the other [4].

In Rubizhne Educational and Rehabilitation Centre *Kryshhtalyk*, a scientific experiment taking into account the afore-mentioned considerations has been under way for the last 5 years. It is directed and supervised by the Defectology and Psychological Correction Department of Luhansk Taras Shevchenko National University and Ophthalmology Department of Luhansk State Medical University.

The first stage of the experiment – organizational and diagnostic – is aimed at collecting information, medical and psychological diagnostics, initial testing, prognosis, adaptation and initial correction.

On the basis of the test results and interviews with the children and their parents, individual needs for psychological, educational, and social rehabilitation were determined. Then, an individual rehabilitation program (IRP) for each child was developed by a social worker in cooperation with a psychological counselor.

Medical rehabilitation professionals were invited to participate in the examination as well; they provided recommendations and prescriptions and conducted an Open Label Clinical Study with the purpose of assessing the course of the rehabilitation of children with various degrees of visual impairment. The following methods of examination were used:

1. Visiometry with correction and without it [4].

The chart consists of 2 parts. The first part is composed of the letters of the Russian alphabet; the second is Landolt C Eye Chart. The table has 12 lines.

The letters in the first line correspond to the visual acuity of 0,1, the tenth – to 1,0, the twelfth – to 2,0. Visual acuity was measured under standard conditions [4].

For children aged 5 to 7, visual acuity test was carried out using special charts for children composed of easily recognizable pictures [4].

2. Binocular functions were tested with the help of Worth 4 dot lights test (IIT-01), which helps to determine the vision type (binocular, monocular, simultaneous perception) and eye dominance [4].

The 4 dot test is a wall-mounted device, which consists of a box, on the cover of which there are 4 round holes organized in 90 degree reversed T-shape. The hole located separately is covered with the red light filter, the middle one is colorless, and the two left have blue-green light filters. All four light filters are mat and evenly illuminated by the lamp in the box. The child wears anaglyphic glasses with red lens over the right, and the blue-green – over the left eye. Thus, lighted blue-green holes are seen with the left eye, the red one is perceived with the right eye, the colorless light can be discriminated with both eyes.

The test is performed at five-meter distance, or at a shorter distance in case of low vision. The perception of the illuminated lights depends on the binocular vision condition. A child with normal binocular vision sees four-colored tests. With one eye dominant, the middle colorless light hole takes the color of the lens covering the dominant eye. In this case, the child with the right dominant eye will see two horizontally oriented red lights and two vertically oriented blue-green lights; in case of the left eye domination - one horizontally organized red and three vertically organized blue-green tests. Provided there is no domination, an alternation takes place, and the child sees colorless test in red or green and blue, but sometimes in white. Concomitant strabismus is usually accompanied by monocular vision. If the right eye squints and the left fixes, the child sees three blue and green tests vertically. If the left eye squints, and the right eye fixes, the patient is able to see two horizontally oriented red lights. Simultaneous vision is a condition when the right eye perceives two red tests and the left eye – three blue-green. The merging of the colorless test, which corresponds to both eyes, does not occur. The child can see five

tests: esotropia allows seeing two red lights to the right and three blue-green to the left, while exotropia is diagnosed when the patient sees three blue-green lights to the right, and two red – to the left.

Diagnostics demonstrated that the prevailing visual impairment in the students of the education and rehabilitation centre is amblyopia (69%). It is not related to any organic changes in the eyeball or optic tract, but is usually caused by insufficient visual experience in early childhood as a result of uncorrected refraction anomalies, strabismus, loss of transparency in the refractive media of the eye and other conditions, which negatively affect the perception of the images of the outside world (V. G. Abramov, Y. S. Avetisov) [1]. Amblyopia, also known as “a lazy eye” condition, means that one eye does not function properly whereas having no structural anomalies or eye conditions (Y. S. Avetisov, N. O. Puchkovska, I. M. Loghai, Y. V. Sergiyenko, K. J. Ciuffreda, D. Levi, A. Selenov) [1; 4]. Some authors suggest viewing this visual disorder as a syndrome, which involves lower edge sensitivity, spatial aberration, unstable and inaccurate monocular fixation, tracking disorder, lower contrast sensitivity, reduction in accommodation. All these factors have a negative effect on the educational process of children with amblyopia and determine the psychological pattern of their learning.

The second stage of the experiment is correctional. Successful learning is an important component of the socialization of visually impaired children. The educational process in Rubizhne Centre is based on the principles of individualized and differentiated approaches developed according to the medical condition of the child.

Learning in the Center has an established order, working routine; each student enjoys tailor-made techniques, course of rehabilitation, individual forms and methods.

Correction and education include:

- special correction classes (visual perception development, remedial gymnastics, eurhythmics, speech therapy); and
- correction embedded in the general curriculum in mathematics, painting, speech development, physical education, etc.

To ensure the efficiency of medical treatment and correction, ophthalmologists conduct special classes based on various schemes developed to eradicate the most common forms of visual impairment found in children. They also perform vision correction, pleoptoorthoptic treatment of strabismus and amblyopia with the help of *KEM-CT* macular colour-light stimulation set, panoramic retinal photostimulation with successive images glares, laser stimulation with *JACT-1*, and computer-aided methods of treatment [4]. Positive results of medical rehabilitation ensure effective correction and development of visually impaired children, considerably facilitating the process of social adaptation of Rubizhne Centre students.

Besides medical treatment properly performed by doctors, considerable attention is given to the correction of secondary defects that develop as a result of the primary visual disorder. This work is done by educators.

Due to the importance of the visual system in the child's development and daily life, its impairment inevitably impinges on the formation of mental processes, motor system, and child's physical development. Children with visual impairment are usually diagnosed with a number of internal systemic deviations – malfunctions in the visual system caused by the primary defect.

The following internal systemic deviations can be distinguished: impaired color discrimination, visual fixation, estimation of distance and depth perception, as well as spatial relations disorder, inadequate objects' tracking, perceptual unity, and micro/micro orientation in space.

Adjacent secondary disorders are also taken care of in the Centre. For motor skills impairment, remedial gymnastics and eurhythmics classes are conducted. The teacher chooses methods and techniques taking into consideration both locomotor system and visual impairment (primary) defects. For instance, while reading children with residual vision (nystagmus, refraction anomalies, amblyopia, albinism) tend to sit lowering their heads, which affects cardiovascular, respiratory, cardiovascular systems development. As a result, secondary defects such as torticollis, scoliosis, lordosis, osteochondrosis emerge. Individual remedial gymnastics classes are prescribed by the

school ophthalmologist and pediatrician, who monitor children's physical load once or twice a month.

Speech therapy classes aimed at mental impairment and speech defects are also conducted taking into account the developmental features of children with visual impairment. Classes with a psychological counselor take place in a sensory room. A sensory room is organized as a special environment, which includes a great number of various stimulators affecting organs of vision, hearing, smell, tactile and vestibular receptors. In Rubizhne Centre, the sensory room facilities are targeted at the organ of vision stimulation. Equipment used in this room is described below.

Soft environment ensures quiet, comfortable conditions, safety. The main objective is to create a place for relaxation and rest. This is achieved by using soothing colors for such elements of the interior design as a dry pool, beanbag padding poof, etc.

Visual environment includes tranquility music, soft light, which gradually changes. All these have a calming and relaxing effect. Brighter colors and tones are used for visual and hearing stimulation. So, the room is equipped with Light Corrector and Light Garland.

Tactile environment helps master new sensations, develop tactile sensitivity, improve visual-motor coordination. For tactile functions development, the following is installed in the room:

- a) dry shower – a tent with many-colored satin ribbons, fixed to the horizontal suspended platform;
- b) tactile panel for games – a strip of carpeting with items of different shapes and colors;
- c) sensory tread - a strip of carpeting with bags of different shapes adhered to it.

Smell environment takes advantage of aromatherapy as a treatment based on the use of natural oils, which can positively affect the nervous system.

Introduced in the experiment integrated medical, psychological, and pedagogical support of the educational process in *Kryshalyk* Centre addresses the following challenges of educating children with visual impairment:

- development of positive self-image, attitude to other people and the environment (self-respect and self-confidence, positive attitude to one's own development, health; initiative, ability to set goals and determine priorities in the work and personal life; time management; positive attitude to changes, acknowledgment of each person's uniqueness, creativity);
- development of competences critical for effective communication;
- development of constructive thinking (problem solving and decision making, efficient application of various technologies);
- development of cooperative and group work skills (understanding the group's aim and its working habits, ability to successfully work in group; planning and making decisions in cooperation with other members, respecting the point of view of other people).

The criterion of the effective socialization of the children with visual impairment shall be a sufficient competence in the conscious life-management, namely:

- ability to use compensatory capacity of the body, activate its available physiological resources to enhance self-development and life competence;
- skills to regulate emotions and feelings, fight depression;
- adequate communicative skills, maturity of emotions and will;
- ability to see life positively and success orientation;
- mature mechanisms of regulating role behavior;

- ability for professional self-determination that is suited to the child's aptitude and personality;
- awareness of the system of life priorities and values;
- willingness to take responsibility for one's life;
- ability to plan one's life on the basis of one's own life project;
- competence in building one's own life trajectory, responsibly for one's destiny and actions; and
- personal living culture (degree of humanization, civility; consistency between lifestyle and universal values).

The experiment is still under way. Its third stage is professional socialization of graduates with visual impairment as a result of successful complex cooperation of educational, healthcare, and social services professionals.

The results of the experiment were reflected in the practical courses taught by the faculty of the Ophthalmology Department of Luhansk State Medical University, Defectology and Psychological Correction Department of Luhansk Taras Shevchenko National University, were applied by the teachers and ophthalmologists of Rubizhne Education and Rehabilitation Centre *Kryshtalyk*, Education Complex for children with visual impairment (Kindergarden #1), Comprehensive Secondary School # 31 of I-III levels (Horlivka, Donetsk Oblast).

Further research in this field will be aimed at building a model of integrated medical, psychological, and pedagogical support for the professional self-determination of graduates with visual impairment on the basis of education and rehabilitation centre.

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Bystrova Y., Petrunya A., Lupyr S. Integrated Support of Education and Rehabilitation Process in Educational Institutions for Visually Impaired Children

The article describes the stages of an integrated medical, psychological, and pedagogical support of education and rehabilitation of children with amblyopia. This support is seen as the main component of their successful socialization in special education institutions. The first stage of the support, that of organization and diagnostics, aims at collecting information, initial testing, prognosis, adaptation, and initial correction. The second stage of the experiment is correctional. Correction and education includes: educational component (correction and education during classes) and pathology component (special correction classes for visual perception development, remedial gymnastics, eurhythmics, speech therapy). The third stage

addresses professional socialization of graduates with visual impairment as a result of effective complex cooperation of educators, health care and social services professionals.

Keywords: educational process, rehabilitation, socialization, amblyopia, visual impairment.

Бистрова Ю. О., Петруня А. М., Лупир С. А. Комплексний супровід навчально-реабілітаційного процесу в освітніх закладах для дітей з порушеннями зору

У статті визначено етапи комплексного медико-психолого-педагогічного супроводу навчально-реабілітаційного процесу дітей хворих на амбліопію як основної складової процесу їхньої успішної соціалізації в умовах навчально-реабілітаційного центру. Перший етап супроводу – організаційно-діагностичний – етап збору інформації, початкового тестування, прогнозування, адаптації та початкової психокорекції. Другий етап – корекційний. Корекційно-педагогічна робота здійснюється за напрямками: педагогічний (організація корекційно-педагогічного впливу на уроках); дефектологічний (спеціальні корекційні заняття з розвитку зорового сприймання, лікувальна фізкультура, ритміка, корекція мовленнєвих порушень). Третій етап – професійно-трудова соціалізація випускників з порушеннями зору, як результат успішної комплексної співпраці фахівців системи освіти, охорони здоров'я та соціального захисту.

Ключові слова: навчальний процес, реабілітація, соціалізація, амбліопія, порушення зору.

Быстрова Ю. А., Петруня А. М., Лупыр С. А. Комплексное сопровождение учебно-реабилитационного процесса в образовательных учреждениях детей с нарушениями зрения

В статье раскрываются этапы комплексного медико-психолого-педагогического сопровождения учебно-реабилитационного процесса детей с

амблиопией как основной составляющей процесса их успешной социализации в условиях образовательных учреждений нового типа. Первый этап сопровождения – организационно-диагностический – этап сбора информации, первичного тестирования, прогнозирования, адаптации и первичной психокоррекции. Второй этап – коррекционный. Коррекционно-педагогическая работа осуществляется по направлениям: педагогическое (организация коррекционно-педагогического воздействия на уроках); дефектологическое (специальные коррекционные занятия по развитию зрительного восприятия, лечебная физкультура, ритмика, коррекция речевых нарушений). Третий этап – профессионально-трудовая социализация выпускников с нарушениями зрения, как результат успешного комплексного сотрудничества специалистов системы образования, здравоохранения и социальной защиты.

Ключевые слова: учебный процесс, реабилитация, социализация, амблиопия, нарушения зрения.

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