

# Study of the Characteristic Mental Development Features of Primary School Students with Vision Impairments

Ievgeniia Synova<sup>1,\*</sup>, Valentina Tarasun<sup>2</sup>, Iryna Sasina<sup>1</sup>, Tetyana Grebeniuk<sup>1</sup> and Kateryna Glushenko<sup>1</sup>

<sup>1</sup>*Department of Ophthalmopedagogics and Ophthalmopsychology, National Pedagogical Dragomanov University, Kyiv, Ukraine*

<sup>2</sup>*Department of Speech Therapy and Psychology of Speech, National Pedagogical Dragomanov University, Kyiv, Ukraine*

**Abstract:** Severe vision impairments are an obstacle to the adequate cognitive and social development of the child. The educational response to priority problems that occur with vision disorders requires appropriate training of vision impairment specialists. For this purpose, they need basic knowledge related to the classification of vision impairments and the main aspects of the development and education of this category of children. This study aimed to analyse the main features of educational activities of children with vision impairments using special diagnostic methods and to search for effective methods for correcting the cognitive activity of children with vision impairments. During the study, an experiment was conducted with children with vision impairments (15 children). To conduct the experiment, the study used methods proposed by V.V. Tarasun and adapted them to the contingent of children with vision impairments. In particular, the following methods: the method of motivational preferences "Three wishes", the method of "Memorising 10 words", and the method of "What, why, how". The depth and time of vision impairment are considered as a primary defect, which has corresponding secondary consequences and requires corrective action under the guidance of an experienced vision impairment specialist.

**Keywords:** Vision impairment, correctional work, emotional intelligence, developmental features.

## INTRODUCTION

The ability to see is the main means of maintaining the continuity of reflection of the surrounding world. Vision impairment (VI), as a diagnosis, is considered a disorder in which a person has a vision acuity of 3/10 or less with optical correction on the eye that sees better [1, 2]. If the eye that sees better has a vision acuity level of less than 1/10, it is considered blind from the medical and legal point of view. In countries with advanced health, blindness or low vision in childhood (i.e. established before the age of 4) is often associated with other disorders (neurological disorders, hearing disorders, etc.) since the same etiological circumstances in which vision is affected can simultaneously cause brain damage, in particular, the hearing area and other areas of the brain. The most common are congenital disorders such as retinopathy of prematurity, hereditary degenerative or tumour conditions of the cornea and retina or optical pathways, as well as occipital brain damage (blindness or "cortical" DVI) [3, 4].

In countries with low levels of health development, where, according to the United Nations Human Development Programme, 60% of births occur

worldwide, as well as the highest mortality rates before the age of five, blindness and vision impairment due to eye injuries are much more frequent, mainly due to infectious diseases (neonatal gonorrhoea, trachoma, etc.) and nutrition-related causes that could have been avoided by improving education and ensuring public access to hygiene conditions and medical procedures that are common in our environment [5-7]. Deep vision impairments, causing sensory deprivation of the child, negatively affect its cognitive development. There are qualitative and quantitative features in the field of cognition. The presence of such features requires specialists to be able to carry out correctional work. Correctional influence penetrates all areas of educational and rehabilitation work.

Typical for the development of a child with vision impairment are contradictions: between images of representations formed based on preserved analysers and real images of objects and phenomena; the desire to imitate adults and inability to do so; between self-assessment and assessment by others [8]; the legally guaranteed right to education and subjective opportunities for its satisfaction; etc. The mental development of the individual with vision impairments obeys general psychological laws:

1. Unevenness and heterochronism; various mental functions, properties, and formations do not develop synchronously. This is associated with

\*Address correspondence to this author at the Department of Ophthalmopedagogics and Ophthalmopsychology, National Pedagogical Dragomanov University, 01601, 9 Pirogov Str., Kyiv, Ukraine; Tel: +3800442393033; E-mail: synova@politechnika.pro

sensitive periods in the mental development of the individual.

2. The process of mental development is cumulative; in its course, the result of each previous stage is included in the next while transforming in a certain way. This accumulation of changes, carried out at the macro, mega, and micro levels, prepares qualitative changes in mental development [9, 10].
3. Mental development involves two interrelated tendencies: differentiation and integration of mental states and properties.
4. In the process of development, there is a change in its determinants, associated, in particular, with changes in the interrelationships of social and biological factors.

The study aims to analyse the features of the teacher's work with children with special educational needs, such as children with vision impairments, and to search for effective correctional methods that will contribute to the development of the cognitive activity of a child with DVI [11].

## MATERIALS AND METHODS

To achieve this purpose, the study consisted of the following stages.

1. Theoretical and preparatory. At this stage, the search and processing of psychological and pedagogical literature on the relevant topic and selecting effective methods for experimenting were carried out. At this stage, the literature on the diagnosis and development of educational abilities in primary school children with vision impairments was studied; methods were selected taking into account age characteristics and the research topic;
2. Practical and experimental. At this stage, an experiment was conducted using the selected methods, as well as the results were processed. Psychodiagnostics of the subjects was performed using 3 methods, after which the results obtained were processed and presented in the form of tables.
3. Generalising and recommendatory. At this stage, the study results were analysed and summarised, recommendations on effective

correctional methods were given, and conclusions were formulated.

To diagnose children's learning abilities with vision impairments, the authors conducted a corresponding study using the selected methods. The study was conducted among children with vision impairments of primary school age, and the selection consisted of 15 children from 6 to 9 years, 9 boys and 7 girls (Table 1) who study in different types of schools (inclusive, the school for visually impaired children, the school for blind children). Accordingly, the children had different levels of vision impairment, from mild to severe (from almost normal to blindness) [12-15].

**Table 1: General Characteristics of the Children who Took Part in the Study**

Name*	Gender	Age	Level of vision loss
I.A.	Female	7	Mild
S.V.	Male	8	Mild
P.B.	Male	6	Moderate
O.A.	Female	6	Moderate
M.P.	Male	7	Severe
D.K.	Male	8	Moderate
S.V.	Female	6	Mild
O. Yu.	Female	7	Severe
L.D.	Female	7	Mild
R.B.	Male	9	Moderate
N.B.	Female	7	Severe
P.T.	Male	8	Mild
V.G.	Male	6	Moderate
K.L.	Female	6	Severe
G.S.	Male	7	Moderate

Note: \*for confidentiality reasons, the names of children who participated in the study are provided with initials.

Three methods were selected for the experiment: the method of motivational preferences "Three wishes", the method of "Memorising 10 words", and the method of "What – why – how" [16-19]. Features of conducting and interpreting the results are as follows:

1. The method of motivational preferences "Three wishes". The purpose of this methodology is to assess the features of the development of motivational and need a sphere in primary school children with vision impairments, the influence of the level of vision loss on the development of motivational preferences [20]. To

experiment, the method was adapted to the state of vision of children. Thus, the experimenter drew a flower with three petals in advance on a piece of paper: of bright yellow, blue, and red colours, which are better perceived by children with mild levels of vision impairments. The same picture is given to children with moderate vision impairment, but its petals are larger than in the previous flower, have clear black or dark blue contours, and the same flower for children with severe vision impairment, drawn in an embossed way for tactile perception. It should be noted here that colour is given only for emotional perception! The focus of children's responses on themselves or other people will be important. Thus, the child is given instructions: "Imagine that this is a magic flower. It has three petals. On each petal, you can write a cherished wish" [21-23].

When experimenting with children who cannot enter their answer in the petal due to serious vision problems, the experimenter can do it himself at the child's request. If all wishes are self-centred, this indicates insufficient development of the motivational and need sphere. However, if all wishes are directed at others, this is also not an indicator of positive development (most likely, the child is simply afraid to express his own wish) [24]. Another unfavourable indicator of development is the rejection of wishes or naming, as the teacher's wishes, rules, and norms. The formal nature of the wish can indicate both the insincerity of the subject (the predominance of socially desired answers) and the underdevelopment of the motivational and need sphere (most often observed in case of pressure on the child from an adult which suppresses his initiative). The most considerable wishes are usually expressed first, so it is necessary to evaluate the order in which they are presented [25, 26].

When analysing responses, their categories are determined, representing a particular area that is important for the child. This can be the material sphere (for example, toys) [14], the sphere of communication (for example, "get to know someone of peers better"), the educational sphere (for example, the desire to improve academic performance), the family sphere (for example, "go to the zoo with dad"), and so on. Also, when analysing the answers, one should pay attention to their temporary relevance to the future or present. Orientation to the future in children is often a reflection of the position of adults [27].

2. The method of "Memorising 10 words". The purpose of this experimental method is to study arbitrary direct memory. Its essence is as follows:

Ten monosyllable and disyllable words with no obvious semantic connection were selected and invited the subject to reproduce them in any order.

Conventionally, the following words are used: house, forest, cat, needle, brother, night, bridge, window, horse, table. Then the experimenter writes the words named by the subject (both those included in the initial list and those added by the subject himself) [28-30]. To facilitate the procedure for registering a response, all words are numbered before starting the methodology. A table is drawn in which the named words are indicated, and extra words are written out at the bottom of the sheet. If the subject failed to name all the words the first time, the procedure is repeated (up to 5 times), each time the entire list is read out again, and the subject reproduces all ten words, even if he named most of the last time. For preschool children, naming 8-9 words out of 10 based on the results of five episodes is considered a normal result. If the child first calls a lot of words and then each more limited time, in this case, it is impossible to talk about a limited span of memory since it is about attention, in particular about a high degree of its exhaustion. In an experiment with children with deep vision impairments, memorisation is also affected by the underdevelopment of imaginative memory since the designated words have certain images that are inaccessible or have little access to such children. This method also allows assessing the span of attention. In fact, the number of words named reflects the amount of information that the child holds per unit of time [31, 32].

3. The "What – why – how" method. The purpose of this method is to identify the child's ability to take into account another person's emotional state, empathise, take care of him, and assess the level of need for assistance. The essence of the method is as follows: the teacher tells the children: "Now I will read you a story. Your task is to listen carefully and then answer my questions". For girls and boys, different stories with similar plots and the same questions are selected. The child, answering the question of a psychologist, must solve a certain problem related to the relationship between children, their assessment of situations, and understanding other people's emotional states. Responses are

evaluated on a three-point scale (according to the criteria used in the D. Wechsler test). Indicators' different results are carried out at three levels: low, average, and high [33-36].

## RESULTS

When experimenting using the "Three wishes" method, special conditions were met. The work was conducted with each child individually. As noted above, the methodology was adopted, taking into account the characteristics of primary school children with vision impairments. Appropriate lighting, proper location of the workplace was chosen [27], taking into account the specifics of this category of children, as well as the choice of the first half of the day, which is a productive time for conducting diagnostic studies in order to avoid reduced performance, negative reaction to tasks, and increased level of distraction. As a result of using the "Three wishes" method, it was established that most students make wishes not only for themselves but also for others, for example: "so that none of my relatives will ever get sick" or "so that all people in the world will be fine". The data obtained indicate the development of an understanding of their own and other people's emotions in children of primary school age with vision impairments. Subjects could make 3 wishes. Each of them was evaluated by points [37] (Table 2).

From the above table data, it is evident that among children with vision impairments aged 6 to 9 years, the

predominant *average* level of empathy compared to children who see normally (according to observations) is associated with limitations in social development due to vision impairment. The presence among the experimental group of children of those who have a *low* level of empathy can be explained by a severe decrease in vision, round-the-clock stay at school, and maternal derivation. A *high* level of empathy was observed mainly in children with mild vision loss, aged 6-7 years, who study in an inclusive school [38-41].

According to the experiment results, it is possible to see that a high level of empathy was identified in four children out of 16, which is a satisfactory result. Children with a high level of empathy were able to name all three wishes and formulate them relatively clearly. The average level of empathy was identified in 8 children; such children are well aware of their own emotions and desires and can recognise the desires and emotions of other people [41-43]. Low levels of empathy were found in three children who could not name more than one wish, and even leading questions and additional conversation did not help to formulate two more wishes, apparently due to limited life experience and being in a school for children with severe vision impairments, where all their desires are met by teachers and caregivers.

The experiment was again conducted with each subject separately when using the "Memorising 10

**Table 2: Results Obtained during the "Three Wishes" Method**

Name*	Number of points scored (max. 9)	Empathy level	Age	Gender	Level of vision loss
I.A.	6	High	7	Female	Mild
S.V.	5	Average	8	Male	Moderate
P.B.	4	Average	6	Male	Moderate
O.A.	8	Average	6	Female	Severe
M.P.	4	Average	7	Male	Severe
D.K.	5	Average	8	Male	Moderate
S.V.	7	High	6	Female	Mild
O. Yu.	3	Low	7	Female	Severe
L.D.	7	High	7	Female	Mild
R.B.	4	Average	9	Male	Moderate
N.B.	5	Average	7	Male	Severe
P.T.	4	Average	8	Male	Mild
V.G.	3	Low	6	Male	Moderate
K.L.	7	High	6	Female	Severe
G.S.	4	Low	7	Male	Moderate

words" method. The experiment involved 10 children. Children of primary school age with vision impairments were told the rules used for the method of "Memorising 10 words", after which 10 words were read out very clearly and slowly; for this experiment, the following words were selected: smoke, sleep, ball, fluff, bell, bush, hour, ice, night, stump. If necessary, the words were repeated several times (the maximum number in this experiment was 5), the corresponding number of points was set depending on the number of repetitions and the number of correct words that were named during each repetition [44] (Table 3).

**Table 3: Results Obtained during the "Memorising 10 Words" Method**

Name*	Number of points (max. 5)	Memorisation level
I.A.	4	Average
S.V.	4	Average
P.B.	4	Average
O.A.	5	High
M.P.	3	Average
D.K.	4	Average
S.V.	5	High
O. Yu.	2	Low
L.D.	3	Average

A high level was identified in two children, which indicates that the subject memorised 9-10 words after the 5th presentation, 8-9 words with delayed reproduction. The average level was found in most children – seven, and this indicates that the subject memorised 6-8 words after the 5th presentation and repeated 5-7 words with delayed reproduction. A low level was found in one child – O.Yu., who also showed the worst result in the previous experiment. A low level indicates that the subject memorised 3-5 words after the 5th presentation and 3-4 words during delayed reproduction. In addition, there were problems with establishing contact and organising herself for the experiment when experimenting with this subject. By delayed reproduction, the authors mean repeating a word/words that were not repeated immediately but within a minute or two after the words were announced for memorisation [45, 46].

During the experiment using the "What – why – how" method, special conditions were created for the subjects that meet the requirements of children with vision problems. These conditions include the

following: for each child, a personal form of work was selected during the experiment; all techniques and methods of conducting the experiment were adapted for each child individually; the test was conducted with appropriate conditions – in the first half of the day when the child has more concentration and attention than in any other period of the day, and special proper lighting was installed in the room, as well as in the other two experiments [47]. The level of emotional intelligence that was identified in the subjects during the "What – why – how" method is reflected in Table 4.

**Table 4: Results Obtained during the "What – why – how" Method**

Name*	Number of points (max. 10)	Level of development of emotional intelligence
I.A.	7	Average
S.V.	8	High
P.B.	5	Average
O.A.	9	High
M.P.	6	Average
D.K.	8	High
S.V.	7	Average
O. Yu.	4	Low
L.D.	7	Average
R.B.	6	Average

During the "What – why – how" method, it was established that three out of 10 subjects have a high level of emotional intelligence development, which indicates that these children have a developed sense of empathy, are able to listen and sympathise, understand the feelings and needs of other people. The average level and the previous two experiments were shown by the majority of subjects, namely six children. The average level of development of emotional intelligence indicates that the child has the ability to recognise the feelings of other people, but so far cannot do this in every life situation. The low level was again shown by only one subject, and this is O.Yu., who was able to answer only one question out of three and did not show sympathy for the characters of the story. A severe level of vision impairment affects the development of a child's emotional intelligence, and this problem should be solved not only by parents and psychologists but also by teachers at school. Therefore, it is necessary to know and understand the psychological and pedagogical foundations of creating a training programme for children with vision

impairments taking into account the degree of vision loss and qualitative features of visual perceptions in various eye diseases [48-51].

Teachers-vision impairment specialists, having special knowledge on the features of mental development of children with vision impairments, determine the ways of compensatory and corrective influence on the development of these children. It is more difficult for teachers who do not have this information of working in classes with an inclusive form of education. Let us describe some of the key points that are important to consider as features when working with children with profound vision impairments:

1. Development of the primary motor cortex. Visually impaired or blind children tend to have limited control over their hands, and they also have difficulty developing the primary motor cortex, as their vision part is minimal. They also have fundamental problems at the level of orientation and mobility, ignorance of the location of objects in their environment, insecurity at the first steps and learning difficulties compared to other children of their age.
2. Development of cognitive abilities. Cognitive and motor functions of the body will always be in a very close relationship. For this reason, the child must progress in the development of the motor part. However, the real obstacle to developing their cognitive part can be the lack of direct contact with the environment and problems with mobility.
3. Development of the perceptual part. The perceptual part is usually a real problem since integration between external stimuli is usually very slow. For this reason, it is necessary to strengthen the work of the hands and perform exercises aimed at the upper muscles; this should be the basis of training.
4. Development of linguistic abilities. One of the features is that it is difficult for a child with vision impairments to understand words and their meanings well. Especially when it comes to adverbs such as: down, back, up, forward, outside, inside, etc. However, this difficulty tends to decrease when a child with vision impairments begins to reach the age of 10-12 years.
5. Development on a social and emotional level. Children with vision impairments, in general, will

have needs very similar to those of other children, even though the process and method of giving them pleasure require special knowledge from parents and teachers, as well as constant attention. Thus, the development on an emotional level is often different, and this development will largely depend on the attitude of people around the child with vision impairments and the interest they show. It should be noted that from the first days of life, communication with parents is very important, but the education and methods used to work with children with vision impairments are also considerable [52-54].

## DISCUSSION

The behaviour of a child with vision impairments differs from that of children with normal vision. Hence, parents and teachers often show alarming signs that lead to the need to perform diagnostic procedures. A full-term newborn baby can look after a person in front of them or a moving hand of another person when they appear at a distance of about 60 centimetres if the object is static and has a light source behind it. From the age of 6 months, the child usually distinguishes the facial features of different people well. Older preschoolers and schoolchildren with serious myopia come close to objects to recognise them visually; they are clumsy in orientation and playing in large areas due to their low visual acuity. Children with blindness at an early age tend to move their eyes erratically and often develop abnormal self-stimulating behaviour, which is expressed by the following signs: shaking their head and torso and pressing their eyeballs with their own fingers.

On the other hand, this behaviour is not usually seen in those children whose vision deficits are caused by brain damage ("cortical blindness"). They tend to ignore their sensory deficits, adopt characteristic postures, "look through" to use their residual vision field and have the ability to distinguish colours. However, they do not distinguish the shapes of objects [11].

It is not easy to determine visual acuity in infants and young children with mental retardation. One of the most effective methods is the Sheridan method [12], which uses resources such as observing movements during the orientation of the child's head when small white spheres of decreasing size roll silently against a dark background from a distance of three meters. The "better look" method is more correct, based on the

selective attention that the child pays from the first months to stimuli consisting of black stripes alternating with white intervals. Next to the simple grey pattern, the black-and-white stripes presented become narrower until the moment comes when the child does not distinguish the specified pattern from the alternative grey pattern and randomly orients his sight. This will be his threshold of visual distinction (at a distance and depending on the lighting conditions), associated with the general population of the same age. This relatively classical method was improved and simplified using the "vision acuity mapping procedure" [55]. The field of vision is examined by requiring the child to indicate the appearance of a certain vision stimulus, which is consistently projected randomly on different areas of the hemispherical screen in the centre of which the child is located (perimeter according to Goldman manually or automated, Octopus Type). A tangent screen examination is made for each eye separately; when examined, they must look exactly in front. Young children or older adults with intellectual disabilities do not interact well in these study conditions. Mohn and Van Hof-van Duin [14] improved and typed this procedure, called "dynamic perimetry". Neurophysiological methods complement the ophthalmic clinical examination and provide information about the functional state of the retina (ERG electroretinograms) and the optic nerve pathways (vision evoked PEV potentials). Neuroimaging methods (computed tomography CT, magnetic resonance imaging MRI) allow obtaining accurate data on the anatomical integrity of the structures of the eye and brain. These technological tools help in the medical diagnostics of various pathologies but in no way replace the data of a clinical examination using the methods described above to assess the child's visual abilities.

Deep vision impairments interfere with a child's cognitive and social development [56]. The ability to see provides a global, simultaneous, and cautionary view of the environment. According to genetic epistemology, the acquisition of the concept of object constancy is based primarily on visual experience. Children with severe motor disorders cannot manipulate objects but with preserved vision abilities that allow them to sense the appearance and disappearance of objects, translation and cause-and-effect relationships. Consequently, all stages of sensorimotor development are possible without considerable differences compared to children without motor restrictions [16].

On the other hand, in children with congenital blindness, the development of an idea of an object is delayed since it is fixed in visual experience. Thus, the violation of the continuity of perception, which occurs due to the lack of vision control, causes shorter intervals of attention and delays in the ideas of causality. Spatial orientation (turning the head) towards an object that makes a sound similar to the child (rattle and other sounding toys) is difficult when it is not possible to see the object at the same time, so some blind children from birth may initially create a false impression of deafness.

Blind children initially have hypotension and acquire stability and autonomy when walking later than sighted children due to the lack of visual landmarks [11], lack of visual feedback, and inability to imitate the movements of others, which limits the development of movement [15]. In this sense, in the study of sensory deprivation of intelligence, Hatwell [17] concludes that blind children, compared to sighted children, have a delay in manipulative operational activity, which is dominated by the spatial image component and similar indicators in children with verbal thinking.

When planning an educational intervention in the correction process, several aspects should be considered: the age of vision loss, whether it was gradual or sudden, the degree of loss, whether there was stimulation, etc. Educational needs vary greatly if the deficit is congenital or occurred before the age of four than if the problems occurred later [18]. Thus, with acquired blindness, a set of visual images can remain in mind, which will be richer and more accurate the later the blindness occurs. These images will allow developing analogies to reorganise and expand the knowledge of new things or situations. However, emotional adaptation to the loss of sensitivity is a stumbling block that must be overcome with the support of the immediate environment. Conversely, for those blind from birth, accepting a disability does not create serious problems, but it can cause rejection. To avoid this and achieve self-confidence, it is necessary to provide appropriate means and constant verbal interaction to promote the functional use of sensory compensation [29].

As for the degree of loss, the concepts of poor vision, functional blindness, or blindness [20] describe and classify vision levels in terms of the degree of visual acuity and its significance for learning [51]. The use of the residual vision ability that a child may possess is closely related to the level of understanding

of indirect multisensory information received, which promotes mobility and spatial organisation and provides a fundamental resource for managing the environment. In the early years, a blind child needs special education in autonomous mobility, object constancy and continuity of perception, and improving the ability to receive information through alternative channels; later, it can be included in the regular school curriculum. The child's special support will then be sporadic and depend on the child's priority needs.

A child with complete or partial vision impairment may have special educational needs that require adaptation to the curriculum and full access to all educational aspects (e.g. material adaptation, furniture organisation, teacher's support) and curriculum development (what, how, and when should be taught and evaluated). A curriculum aimed at a child with vision impairments should cover the same levels, goals, and content as that of a child without vision impairments, and contain specific content according to their priority needs: orientation and mobility techniques, learning everyday life skills, developing listening and auditory perception skills, social skills, handling materials for maximum vision effectiveness, and developing instrumental techniques based on hearing and touching [52-54]. The methodology should be interdisciplinary and analytical, based on the experience developed for the student, which allows, through manipulations, observations, and experiments, carrying out the process of inducing properties or characteristics of elements of a class or category of objects, and allows acquiring new skills and content of each level of training.

## CONCLUSIONS

According to the World Health Organisation, children with various vision impairments increase worldwide every year. The main reason for this is the influence of such factors as the environmental situation, which is getting worse every year, total computerisation, increased workload of modern children, and much more. Vision impairments in children lead to distortion of visual perception, which inevitably affects the world's cognition processes, language acquisition, and the development of the emotional sphere. Children with vision impairments have their own developmental patterns that distinguish them from children who see normally, and they may face difficulties in understanding and controlling their own and other people's emotions, which is the main component of emotional intelligence. Based on this, a

special psychologist's timely correctional and developmental work is important to create conditions for developing emotional intelligence so that children with vision impairments experience fewer difficulties in communication, understanding their own and other people's feelings and experiences.

During the study, three experiments were conducted using different methods. According to the results, it was established that most of the subjects with vision impairment have an average level of development of emotional intelligence and the ability to memorise information. Several children in various experiments showed a high level, which indicates their full development in all spheres of life, and they do not need additional correctional work. But one of the subjects, who have serious problems with vision impairment, showed a low level of development of the skills that were tested during all the experiments. This indicates that the child needs help from parents, psychologists, and teachers. This is why it is necessary to study methods of working with children with SVI.

A promising study can be the full implementation of the correctional programme and analysis of the results obtained, its implementation in educational organisations. Furthermore, one of the prospects for studying this problem may be to identify other features of developing and establishing social skills in primary school children with vision impairments.

## ACKNOWLEDGEMENT

None.

## REFERENCES

- [1] Sinyova EP. Features of development and education of the person at deep visual disturbances. Kyiv: Dragomanov National Pedagogical University 2012.
- [2] Sinyova EP, Rykov SO. Inclusive education of children with vision impairments. Kyiv: Kafedra 2017.
- [3] Sinyova EP. Psychological features of development of activity at visual disturbances at children. Collection of Scientific Works of Kamyranets-Podilsky National University of a Name of Ivan Ogienko. Series: Socio-Pedagogical 2010; 15: 410-414.
- [4] Fedorenko IV, Fedorenko SV, Grebenyuk TM, Sinyova EP. Study of spelling and punctuation literacy of students of 6-7 grades with reduced vision in the conditions of inclusive education. Current Issues of Correctional Education (Pedagogical Sciences) 2019; 324-334. <https://doi.org/10.32626/2413-2578.2019-14.324-334>
- [5] Tarasun VV. Fundamentals of theory and practice of log didactics. Kyiv: Karavela 2017.
- [6] Tarasun VV. Autology: theory and practice. Kyiv: Vadex 2018.
- [7] Sasina IO. Diagnosis and correction of the developed attention of preschool children with reduced vision. Kyiv Dragomanov National Pedagogical University 2013.



- [8] Sasina IO, Grebenyuk TM. Peculiarities of psychological and pedagogical support of children with vision impairments in the conditions of inclusive education. *Actual Issues of Correctional Education* 2017; 9(2): 177-189.
- [9] Gladkikh NV, Glushenko KO. Diagnosis of the state of development of general and fine motor skills in children of primary school age with complex disorders of the musculoskeletal system, intelligence and vision. *Topical Issues of Correctional Education* 2015; 6(2): 26-40.
- [10] Glushenko KO, Gladkikh NV. Actual problems of education and upbringing of children with complex disorders of development in Ukraine. *Scientific Journal of Dragomanov National Pedagogical University* 2014; Series 19 Correctional Pedagogy and Special Psychology: 26. [http://nbuv.gov.ua/UJRN/Nchnpu\\_019\\_2014\\_26\\_13](http://nbuv.gov.ua/UJRN/Nchnpu_019_2014_26_13)
- [11] Jan JE, Sykanda A, Groenveld M. Habilitation and rehabilitation of visually impaired and blind children. *Pediatrician* 1990; 17: 202-207.
- [12] Sheridan M. *Manual for the STYCAR vision tests*. Londres: NFER Publishing Co 1976.
- [13] McDonald MA, Dobson V, Sebris SL, Baitch L, Varner D, Teller DY. The acuity card procedure: rapid test of infant acuity. *Investigative Ophthalmology and Visual Science* 1985; 26: 1158-1162.
- [14] Mohn G, Van Hof-van Duin J. Development of the binocular and monocular visual fields of human infants during the first year of life. *Clinical Vision Sciences* 1986; 1: 51-64.
- [15] Shon KH. Access to the world by visually impaired preschoolers. *RE: View* 1999; 30(4): 160-169.
- [16] Cioni G, Fazzi B, Ipata AE, Canapicchi R, Van Hof-van Duin J. Correlation between cerebral vision impairment and magnetic resonance imaging in children with neonatal encephalopathy. *Developmental Medicine and Child Neurology* 1996; 38: 120-132. <https://doi.org/10.1111/j.1469-8749.1996.tb12083.x>
- [17] Hatwell Y. *Privation sensorielle et intelligence*. Paris: Presses Universitaires de France 1966.
- [18] Dote-Kwan J, Chen D. Learners with vision impairment and blindness. En MC Wang, MC Reynolds, HJ Walberg (Eds.), *Handbook of Special and Remedial Education*. Oxford: Pergamon Press 1995.
- [19] Cox PR, Dykes MK. Effective classroom adaptations for students with vision impairments. *Teaching Exceptional Children* 2001; 33(6): 68-76. <https://doi.org/10.1177/004005990103300609>
- [20] Barraga N. *Disminuidos visuales y aprendizaje. Enfoque evolutivo*. Madrid: I.C.E.V.H.-ONCE 1978.
- [21] Tokareva N, Zykova S, Talismanov V. The relationship of psychological, clinical and biological components in epilepsy. *E3S Web of Conferences* 2020; 217: 08006. <https://doi.org/10.1051/e3sconf/202021708006>
- [22] Spicuzza L, Parisi GF, Tardino L, Ciancio N, Nenna R, Midulla F, Leonardi S. Exhaled markers of antioxidant activity and oxidative stress in stable cystic fibrosis patients with moderate lung disease. *Journal of Breath Research* 2018; 12(2): 026010. <https://doi.org/10.1088/1752-7163/aa9b39>
- [23] Leonardi S, Barone P, Gravina G, Parisi GF, Di Stefano V, Sciacca P, La Rosa M. Severe Kawasaki disease in a 3-month-old patient: A case report. *BMC Research Notes* 2013; 6(1): 500. <https://doi.org/10.1186/1756-0500-6-500>
- [24] Parisi GF, Papale M, Rotolo N, Aloisio D, Tardino L, Scuderi MG, Di Benedetto V, Nenna R, Midulla F, Leonardi S. Severe disease in Cystic Fibrosis and fecal calprotectin levels. *Immunobiology* 2017; 222(3): 582-586. <https://doi.org/10.1016/j.imbio.2016.11.005>
- [25] Maslak K, Favara-Scacco C, Barchitta M, Agodi A, Astuto M, Scalisi R, Italia S, Bellia F, Bertuna G, D'Amico S, La Spina M, Licciardello M, Lo Nigro L, Samperi P, Miraglia V, Cannata E, Meli M, Puglisi F, Parisi GF, Russo G, Di Cataldo A. General anesthesia, conscious sedation, or nothing: Decision-making by children during painful procedures. *Pediatric Blood and Cancer* 2019; 66(5): e27600. <https://doi.org/10.1002/psc.27600>
- [26] Koneva ES. The experience with the comprehensive rehabilitation of the elderly patients presenting with a concurrent pathology following the surgical intervention for the total endoprosthetics of the knee joint. *Voprosy Kurortologii, Fizioterapii, i Lechebnoĭ Fizicheskoi Kultury* 2014; 3: 45-53.
- [27] Parisi GF, Portale A, Papale M, Tardino L, Rotolo N, Licari A, Leonardi S. Successful treatment with omalizumab of allergic bronchopulmonary aspergillosis in patients with cystic fibrosis: Case reports and literature review. *Journal of Allergy and Clinical Immunology: In Practice* 2019; 7(5): 1636-1638. <https://doi.org/10.1016/j.jaip.2019.01.056>
- [28] Tuleutaev R, Oshakbayev A, Abzaliyev K, Rakishev B, Abzaliyeva S. Results of the thoracoscopic radiofrequency epicardial ablation with a bipolar electrode during longstanding persistent form of atrial fibrillation. *E3S Web of Conferences* 2020; 159: 08007. <https://doi.org/10.1051/e3sconf/202015908007>
- [29] Portnova TV. Self-determination of personality of creative beginning in choreographic context. *Space and Culture, India* 2019; 7(2): 143-158. <https://doi.org/10.20896/saci.v7i2.452>
- [30] Oliynyk O, Barg W, Slifirczyk A, Oliynyk Y, Gurianov V, Rorat M. Efficacy of tocilizumab therapy in different subtypes of covid-19 cytokine storm syndrome. *Viruses* 2021; 13(6): 1067. <https://doi.org/10.3390/v13061067>
- [31] Giallongo A, Parisi GF, Licari A, Pulvirenti G, Cuppari C, Salpietro C, Marseglia GL, Leonardi S. Novel therapeutic targets for allergic airway disease in children. *Drugs in Context* 2019; 8: 212590. <https://doi.org/10.7573/dic.212590>
- [32] Atabekova A. Constructivism in practice: Web-based task-focused teaching language for specific purposes. *Proceedings of the IADIS International Conference WWW/Internet* 2009; 2: 57-61.
- [33] Koneva ES, Liadov KV, Shapovalenko TV. Comprehensive programs and evaluation of the efficacy of early postoperative rehabilitation in the patients following total endoprosthetics of the lower extremity joints. *Voprosy Kurortologii, Fizioterapii, i Lechebnoĭ Fizicheskoi Kultury* 2013; 4: 31-34.
- [34] Portnova TV. Synthesised nature of fine arts and ballet theater: System analysis of genre development. *European Journal of Science and Theology* 2018; 14(5): 189-200.
- [35] Atabekova AA, Gorbatenko RG, Shoustikova TV, Valero-Garcés C. Cross-cultural mediation with refugees in emergency settings: ICT use by language service providers. *Journal of Social Studies Education Research* 2018; 9(3): 351-369.
- [36] Parisi GF, Leonardi S, Ciprandi G, Corsico A, Licari A, Miraglia Del Giudice M, Peroni D, Salpietro C, Marseglia GL. Cetirizine use in childhood: An update of a friendly 30-year drug. *Clinical and Molecular Allergy* 2020; 18(1): 1-6. <https://doi.org/10.1186/s12948-020-00118-5>
- [37] Parisi GF, Leonardi S, Ciprandi G, Corsico A, Licari A, Miraglia del Giudice M, Peroni D, Salpietro C, Marseglia GL. Antihistamines in children and adolescents: A practical update. *Allergologia et Immunopathologia* 2020; 48(6): 753-762. <https://doi.org/10.1016/j.aller.2020.02.005>

- [38] Parisi GF, Cutello S, Di Dio G, Rotolo N, La Rosa M, Leonardi S. Phenotypic expression of the p.Leu1077Pro CFTR mutation in Sicilian cystic fibrosis patients. *BMC Research Notes* 2013; 6(1): 461. <https://doi.org/10.1186/1756-0500-6-461>
- [39] Atabekova A, Radic N. EU legislative discourse on unaccompanied minors: Exploring conceptual-linguistic architecture. *Journal of Legal, Ethical and Regulatory Issues* 2020; 23(1): 1-9.
- [40] Kartushina NV. Application of total quality management mechanism for students of higher education institutions. *Asia Life Sciences* 2020; 22(2): 273-286.
- [41] Oliynyk OV, Rorat M, Barg W. Oxygen metabolism markers as predictors of mortality in severe COVID-19. *International Journal of Infectious Diseases* 2021; 103: 452-456. <https://doi.org/10.1016/j.ijid.2020.12.012>
- [42] Portnova T. Information technologies in art monuments educational management and the new cultural environment for art historian. *TEM Journal* 2019; 8(1): 189-194.
- [43] Atabekova A. Language representation of youth health concept in international institutional discourse. *Systematic Reviews in Pharmacy* 2020; 11(12): 1417-1427.
- [44] Galyaveeva AR, Vasileva US, Khaerzamanova AI, Rasin AN, Kislyy P, Allanina LM, Koneva ES. The problem of increasing number of myocardial infarction deaths in densely populated cities. *International Journal of Pharmaceutical Research* 2020; 12(4): 806-813. <https://doi.org/10.31838/ijpr/2020.12.04.139>
- [45] Atabekova A. Technology-facilitated harm to individuals and society: Cases of minor's self-produced sexual content in Russia. *Journal of Critical Reviews* 2019; 6(6): 410-415.
- [46] Oliynyk OV, Perviznyk BO, Yemiashev OV, Shlifirchuk A. The effectiveness of corticosteroid usage in complex therapy for severe sepsis and acute respiratory distress syndrome in cases of severe traumatic brain injury. *Advances in Clinical and Experimental Medicine* 2016; 25(6): 1223-1226. <https://doi.org/10.17219/acem/61013>
- [47] Baimbetov AK, Abzaliev KB, Jukenova AM, Bizhanov KA, Bairamov BA, Ualiyeva AY. The efficacy and safety of cryoballoon catheter ablation in patients with paroxysmal atrial fibrillation. *Irish Journal of Medical Science* 2021. <https://doi.org/10.1007/s11845-021-02560-z>
- [48] Koneva ES. The effectiveness of gait rehabilitation in the patients following endoprosthetic hip replacement by means of the biofeedback-based hardware video reconstruction of the walking stereotype. *Voprosy kurortologii, fizioterapii, i lechebnoi fizicheskoi kultury* 2015; 92(6): 23-29. <https://doi.org/10.17116/kurort2015623-29>
- [49] Portnova TV. Art technologisation in the context of theatrical science development. *Astra Salvensis* 2020; 1: 701-729.
- [50] Romashkina GF, Khuziakmetov RR. The risks of internet addiction: Structure and characteristics of perception. *Obrazovanie i Nauka* 2020; 22(8): 108-134. <https://doi.org/10.17853/1994-5639-2021-8-108-134>
- [51] Portnova TV. Historical aspects of project technologies development and opportunities for their use in scenic arts. *Space and Culture, India* 2018; 6(4): 48-56.
- [52] Sokolova NA, Sivrikova NV, Chernikova EG, Ptashko TG, Harlanova EM, Roslyakova SV. Conflict management training for future educators. *Obrazovanie i Nauka* 2020; 22(7): 101-124. <https://doi.org/10.17853/1994-5639-2020-7-101-124>
- [53] Atabekova A, Shoustikova T. Language issues within forced migration at borders and temporary settlements: An integrated content analysis. *European Research Studies Journal* 2018; 21: 690-700.
- [54] Atabekova A. University discourse to foster youth's sustainability in society amidst COVID19: International and Russian Features. *Sustainability (Switzerland)* 2020; 12(18): 2463. <https://doi.org/10.3390/su12187336>
- [55] Zhdanova NE, Vorobeva IV, Krivoshchekova MS, Velkova SI. Child-parent relationship as a predictor of youth's financial activity. *Obrazovanie i Nauka* 2020; 22(7): 33-51. <https://doi.org/10.17853/1994-5639-2020-7-33-51>
- [56] Zinchenko AS. Project-focused personnel management approach of higher educational institutions. *Asia Life Sciences* 2020; 22(2): 243-256.

Received on 18-06-2021

Accepted on 06-09-2021

Published on 20-10-2021

<https://doi.org/10.6000/2292-2598.2021.09.05.9>