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Emotional Comprehension of the Value of Environmental Safety by Schoolchildren with Intellectual Disability

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Abstract

The topicality of the study is explained by the fact that schoolchildren with a temporary intellectual disability perceive the world around them, the ecological situation, and natural processes in a peculiar way. Such children have difficulty comprehending some terminal values, such as “environmental safety”.

The purpose of the article is to theoretically and experimentally substantiate the methods and means of emotional comprehension of environmental safety by schoolchildren with temporary intellectual disability.

The research was based on the methods of theoretical analysis of domestic and foreign literary sources, testing of 20 students with intellectual disability, interviewing, and a pedagogical experiment.

The article theoretically justifies that emotional comprehension of the value of environmental safety by schoolchildren with temporary intellectual disability is possible as a result of their constantly organized assessment of environmental situations.

The analysis of diagnostics made it possible to establish that, without special work with schoolchildren with intellectual disability, 25% of the children emotionally inadequately assess the environmental situations offered to them visually and verbally. The majority of students (60%) does not feel the need for active action. 5% of children believe that they cannot in any way change or influence the ecological situations in their region.

The practical significance of the results of the study lies in the experimental proof that in order to understand the value of environmental safety for children with intellectual disability, it is necessary to use the methods of “emotional explosion”, empathy, emotional-value contrasts, accentuation of emotions, and during the collective project activity to role-play psychological situations.

Keywords: emotions; environmental safety; schoolchildren with temporary intellectual disability; values.

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Introduction

Any society determines the social order for the education of the personality of schoolchildren in accordance with the social situation and the dominant views on human values in society. Ecological values were, according to Meshcheryakova (2012), a consequence of the reflection of global environmental problems in the consciousness of all mankind.

Since “values change - norms change - the goals of education change” (Nikandrov, 1997, p. 9), at present, as one of the results of the educational activity of a modern school, all students should become aware of the importance of environmental safety, which is understood as a set of states, processes and actions that ensure the ecological balance in the environment and do not lead to vital damage (or threats of such damage) to the natural environment and man (Horuzhaya, 2002; Kozin & Petrovsky, 2005).

Purpose and objectives of the study

The aim of the study is to provide theoretical and experimental substantiation of the ways and means of emotional comprehension of the value of environmental safety by schoolchildren with a temporary mental development delay.

The goal requires solving the following tasks:

- identification of the quality of understanding of the concept of "environmental safety" by students with temporary intellectual disability;
- determining for them the rating of the importance of environmental safety among other universal values;
- study of the emotional assessment of students with intellectual disability of real environmental situations specific to their region.

Literature review

The solution to the problem of finding opportunities for emotional comprehension of the value of environmental safety by schoolchildren with a temporary intellectual disability, we began with the definition of the concept of “value”, which is currently considered as the most complex pedagogical category.

The concept of “values” was introduced into scientific circulation at the turn of the XIX and XX centuries by the German philosophers Windelband (1995) and Rickert (1926), who interpreted them as general principles of expedient activity, starting from which a person generally ascribes to certain objects of both the material and spiritual world a certain significance for him and forcing him to act and behave in a certain way. Rickert (1926) emphasized: “We cannot say about values that they exist or do not exist, but only that they mean or do not have significance” (p. 21).

The Philosophical Encyclopedic Dictionary (1998) interprets value as something that people’s feelings dictate to recognize as standing above everything and to which one can strive with respect, recognition, and reverence. Thus, it is emphasized that values include not only what is learned, but also what it is necessary to strive for, if necessary, changing “internal position”. Rokich (1973) also holds similar beliefs describing terminal values as “the goals of individual existence that, from a personal point of view, are worth striving for”.

The terminal value of “environmental safety” is included both in the field of health-saving and nature-saving values, which determine the conscious, purposeful organization of the life of the human community using the collective mind and will (on the basis of universal morality).

Unfavorable forecasts of environmental scientists on environmental changes raise, in the words of the philosopher, the problem of the “significance” of this value (Rickert, 1926, p. 21) in the process of educating schoolchildren, including those with intellectual disability.

School age, according to academician Likhachev (2001), is the most sensitive for environmental impacts, due to children’s awareness of the importance of environmental safety: “Children do not separate themselves from the external environment and feel like a part of nature. Between children, animals and plants, an intuitive mutual perception is established, so a child easily perceives and appropriates environmental rules, turns them into part of his nature” (p. 335).

In our research, we were guided by the scientific conclusion of psychologist Izard (1991) that an unmistakable indicator of a person’s true attitude to what is happening is his emotions, which “energize and organize perception, thinking and action” (p. 105).

In this regard, we have become close to the position of the Russian scientist Lev Vygotsky (1999), who recommended the following to teachers: “If you want to evoke the necessary forms of behavior in a student, always make sure that these reactions leave an emotional trace in him” (p. 180).

Methodology

The methodological basis of the study is the axiological approach, considered as “a philosophical and pedagogical strategy that shows the ways of developing professional art, using pedagogical resources for personal development and suggesting prospects for improving the education system” (Meshcheryakov & Zinchenko, 2009, p. 98); views on the value system of Rokich (1973), Windelband (1995) and Rickert (1926); LeDoux (2015), Ilyin (2001), Vygotsky (1999) on the role of emotions in education, the work of Izard (1991), which presents the semantic characteristics of emotional experiences.

The conducted research was based on the methods of theoretical analysis of domestic and foreign literature sources and the assessment of 20 students with intellectual disability, interviewing, pedagogical experiment, methods of mathematical processing and graphical representation of the results. The informed consent of parents of the children was obtained.

The empirical part of the study was conducted from 2019 to 2020 on the basis of the Department of individual development, which trains children with learning difficulties and adaptation to school, the Center of Education “Pskov Pedagogical Complex”.

The study of the problem was carried out in three stages. At the first stage, the theoretical analysis of the existing literature sources in the domestic and foreign psychological and pedagogical scientific literature devoted to the study of the research problem was carried out; the purpose and methods of the research were determined, and the plan of empirical research was drawn up.

At the second stage, an empirical study of the understanding of the term “environmental safety” by the fifth-graders with a temporary intellectual disability was carried out; the rating of the importance of environmental safety for them among other universal values was determined; the value of “environmental safety” was determined for this group of children by the method of absolute assessment; the emotional perception of environmental situations was studied.

At the third stage, optimal educational strategies were predicted and justified for emotional comprehension of the importance of environmental safety by the students with intellectual disability.

The introduction of students with intellectual disability to environmental problems, in our opinion, should begin, first, with the environmental problems of their region, and secondly, with the emotional assimilation of the importance of environmental safety.

The achievement of the designated educational goal is possible as a result of the assessment of environmental situations, circumstances, events that they face in their lives, the assessment of their own behavior in nature and the behavior of others, which is constantly organized in educational activities by students with intellectual disability.

Such an important role of evaluation in education is explained by the fact that evaluation is a psychological act carried out by a person, the result of which is the reproduction of value and, acting “in an alternative form of approval or disapproval...” (Windelband, 1995, p. 42), contains both cognitive and emotional components.

The cognitive component of the assessment of environmental situations, circumstances, and behavior in nature has two indicators – the strength of the impact and the effectiveness. If a student evaluates the situation as “weak”, then he considers it not worthy of his serious attention and vice versa. If the situation is assessed by the student as “effective”, then he has not only a desire to discuss the issue, but also to make specific decisions, to be active, to act.

The emotional component of the assessment reflects the personal meaning that the perceived environmental situations and circumstances have for the student, recreates the value attitude. A child with intellectual disability “does not so much reason as feel, and does not so much explain as evaluate. When the processes of cognitive analysis take place, they are under the strong and continuous influence of emotional factors that contribute to their course and result” (Etkind, 1981, p. 107).

So, the assignment of the significance of environmental safety as a terminal value can be carried out by students with intellectual disability on the basis of a cognitive assessment of environmental circumstances and related emotional experiences. Moreover, the emotional response often outstrips the cognitive one, preceding the rational one, indicating the significance of this situation, behavior or events for a child.

This theoretical conclusion should aim teachers at finding effective ways to implement the emotionogenic function of the value attitude of students to environmental situations and behavior in nature, since “emotional “lessons” can be imprinted in the child as unconscious imprints of his emotional life” (LeDoux, 2015) and become the psychological foundation of the terminal value “environmental safety”.

The aim of the empirical part of the research was to study the understanding of the term “environmental safety” by the fifth-graders with temporary intellectual disability; to determine the rating of environmental safety among other universal values; to study the value of “environmental safety” for this group of children by the method of absolute assessment; to study their emotional perception of environmental situations.

Results

The experiment was conducted in three stages.

At the ascertaining stage, the students with intellectual disability, studying in grades 5, were asked to choose two answers from six possible interpretations of the concept of “environmental safety”. More than half of the subjects made a choice in favor of everyday definitions that are accessible to their understanding: *“this is when nature itself and man are not in danger”* (55% of students); *“this is when there is clean air around, you cannot be afraid to drink boiled water from the river and swim in it, without fear of chemical burns”* (65%); *“this is a harmless life, when cities and villages are safe for life, there are a lot of fish, crayfish, beavers live in the rivers, there are a lot of birds and animals in the forests”* (60%). The fifth-graders with intellectual disability practically ignored popular scientific definitions of the concept under consideration, in particular, *“the permissible level of negative impact of natural and human factors of environmental danger on the environment and man”* (5% of children); *“natural balance, a balance that does not lead to vital damage or threats of such damage”* (5% of students), etc.

Ranking of terminal values, values-goals (health; environmental safety; pleasure, comfortable life; interesting, creative work; knowledge; enjoyment of the beauty of nature; having loyal friends; active help to nature; happiness of others; entertainment) by the students with intellectual disability; according to the degree of their significance, it showed that for 55% of children, environmental safety is not of value, 30% of schoolchildren put environmental safety in the second place in order of importance for them, and for 15% of the students, the importance of environmental safety was in the third, fourth or fifth place (see Fig. 1). It is important to note that 80% of the students participating in the experiment did not see “active assistance to nature” as a value-goal.

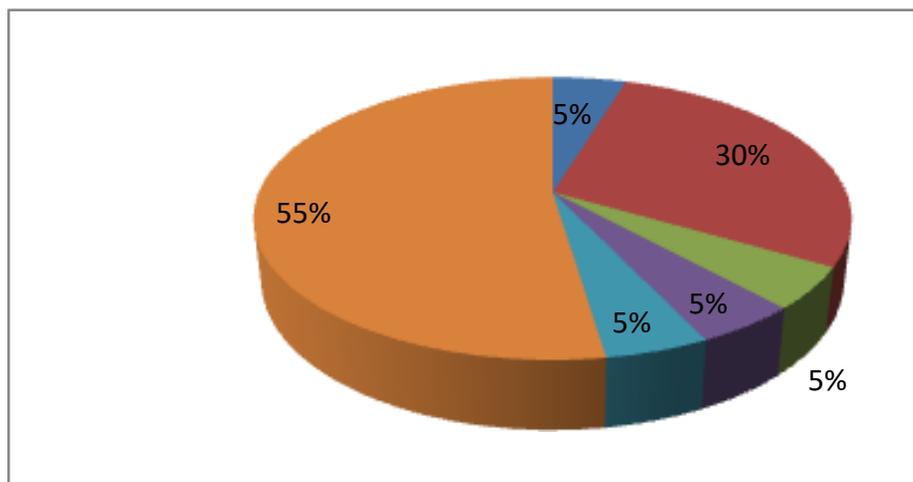


Figure 1. Diagram of ranking the importance of environmental safety by the schoolchildren with intellectual disability at the ascertaining stage

When studying the value of environmental safety for the schoolchildren with intellectual disability by the method of absolute assessment, we used a modified method for diagnosing personal values of Bukhvalova & Karpushina (2008). To do this, the students were asked to cognitively assess the importance of the content of a number of environmental judgments on a 7-point scale: categorically unacceptable; unacceptable; unattractive; indifferent; attractive; important; very important.

It is noteworthy that 75% of the children with intellectual disability considered it categorically unacceptable to “throw empty bottles and cellophane bags into the river”, 80% - “shoot birds with a slingshot”, 50% - “set fire to dry grass”; and the fifth-graders called attractive “participation in planting trees in their hometown” (40%), very important – “to bury food waste and take glass and plastic bottles from a trip to the city with them” (35%), “collecting waste paper so that fewer trees are cut for the production of new paper” (50%), “so that people do not wash their cars on the river bank” (35%), important – “so that waste is not taken to a landfill, but disposed of, that is, recycled” (40%), “use paper dishes instead of plastic during trips and while staying at the private houses” (30%).

Unfortunately, for some students with intellectual disability, using paper dishes during trips is categorically unacceptable (10%), unattractive (15%) or indifferent (10%). Also, the schoolchildren are categorically not ready to “use a bicycle instead of a car ride” (10%), for 25% of the children it is unattractive.

For the emotional assessment of real environmental situations specific to their region by the students with intellectual disability, both at the ascertaining and control stages, we proposed a modified Luscher test (Solovyeva, 2019), based on the assumption that the choice of colors, their combination and location reflects short-term experiences (emotions), feelings and emotional states of a person (Luscher test, 1996, p. 13). This test was chosen due to the fact that “our own and other people’s emotions and feelings are poorly perceived and understood by children. ... The exception is the basic emotions of fear and joy, in relation to which children of this age already have clear ideas that they can express verbally”(Ilyin, 2001, p.40). To understand the rest of the emotional states of students with intellectual disability, special tools are needed, one of which is the Luscher method.

At the ascertaining, as well as at the control, stages of the experimental work, the children were presented ten photos in turn, reflecting both positive environmental circumstances and problems of the city surroundings, with comments on them (in other words, the situation was proposed visually and verbally).

We will illustrate the diagnostic materials with five examples.

Situation № 1. Many large and small industrial enterprises have been closed in the Pskov region over the past 25 years. The Pskov region is among the top ten cleanest regions in Russia. Recently, in the historical part of the city of Pskov, special services and citizens themselves, including schoolchildren, annually plant flowering shrubs, a variety of coniferous trees. See how beautiful and green the center of our city has become (photo).

Situation № 2. At the moment, 303 waste dumps are marked on the map of the Pskov region. Ground water under tons of urban garbage is polluted and gets into the nearest reservoirs. In such dirty reservoirs, many animals quench their thirst and then die (photo).

Situation № 3. When you go to the Pskov-Saint Petersburg highway in summer, in calm weather you can find fog not only in the morning or in the evening (at the usual time for this natural phenomenon), but also in the afternoon in sunny weather. This is a photochemical fog, consisting not of water droplets, but of the products of chemical reactions of car exhaust gases. This fog immediately causes shortness of breath, headache, sore throat and cough. It is important to know that it can negatively affect your health not immediately, but after a few years, causing cancer (photo).

Situation №4. The forest in the Pskov region was cut down uncontrollably in the 90s of the XX and the beginning of the XXI century (photo). The natural restoration of the forest takes 120-140 years. Even its artificial planting in the conditions of the Pskov region due to the poor survival of the planting material, damage by moose is very slow (80-90 years).

Situation № 5. In the Pskov region, the issue of the disposal of toxic waste from industrial enterprises has not yet been resolved. The volume of this waste is about 30 thousand tons per year. Special attention should be paid to obsolete pesticides placed at the landfill near the village of Korsakovo in the Strugo-Krasnensky district, where more than 500 tons of toxic chemicals were buried between 1973 and 1984. There is no landfill for the disposal of hazardous waste in the region (photo).

The fifth-graders with intellectual disability, after perceiving each situation, chose two colored pencils from the following list (red, blue, green, yellow, brown, gray, purple, black) and filled in a small rectangle divided diagonally with them. The trainees were told that they should choose two colors that correspond to their feelings, which they experience, “mentally placing themselves” into this situation.

Following the Luscher method (1996), the following indicators of children’s emotional attitude to environmental situations were used based on a combination of colors:

- A) positive assessment of the situation without activity (blue and green, red and blue, red and yellow);
- B) negative assessment of the situation without activity (brown and yellow, blue and purple, blue and gray, blue and black, green and black);
- C) assessment of the situation without awareness of activity (blue and red, red and black, black and blue);
- D) assessment of the situation with the awareness of the impossibility of activity (green and purple, yellow and gray, green and brown, purple and green, purple and red);
- F) assessment of the situation with awareness of one’s own activity (yellow and green, gray and brown, red and green, black and brown);
- E) assessment of the situation with the manifestation of a tendency to cooperate, up to collaboration, that is, joint activity on the same project, even with a competitor for the benefit or common benefit (yellow and brown, purple and blue, brown and red) (Solovyeva, 2019, p.101-102).

As an additional clarifying diagnostic method, the students were interviewed.

The volume of the article does not allow us to present a qualitative analysis of the results of the emotional perception of the subjects of the ten situations presented to them at each stage of the experiment.

For qualimetric processing (i.e., quantitative assessment of the quality) of the obtained data, we used the scaling technique, the content of which is shown in Table 1.

Table 1. Scaling the characteristics of emotional reactions to environmental situations

Characteristics of the emotional response to the environmental situation	Number of points
The emotional response to the presented environmental situation (positive or negative) is inadequate	0 points
The emotional response to the presented environmental situation (positive or negative) is adequate, but without the need for activity or its unconsciousness (A, B, C)	1 point
The emotional reaction to the presented environmental situation (positive or negative) is adequate, with the awareness of the impossibility of showing activity (D)	2 points
The emotional response to the presented environmental situation (positive or negative) is adequate, with the awareness of the need for one's own activity (F)	3 points
The emotional response to the presented environmental situation (positive or negative) is adequate, with the awareness of the need for joint activities, up to collaboration (E)	4 points

At the end of the control stage of the experiment, the test results of the schoolchildren with intellectual disability were ranked (see Table 2) and statistically processed using a nonparametric sign criterion.

Table 2. Ranking of the results of the study of the emotional reactions of the schoolchildren with intellectual disability to environmental situations

Rank	Totalpoints
I	40 - 33
II	32 - 25
III	24 - 17
IV	16 - 9
V	8 - 0

It turned out that at the ascertaining stage of the experimental work (see Fig. 2), 25% of the fifth-graders with intellectual disability emotionally inadequately evaluated the environmental situations offered to them visually and verbally. The results of the diagnosis showed that the majority of the students with intellectual disability (60%) did not feel the need for actions, despite the fact that some of them were disappointed, worried, and afraid of the environmental situation. 5 % of the children felt that they could not change or influence the environmental situation in their region in any way. Few were willing to discuss them (5 %) or work together to improve them (5 %).

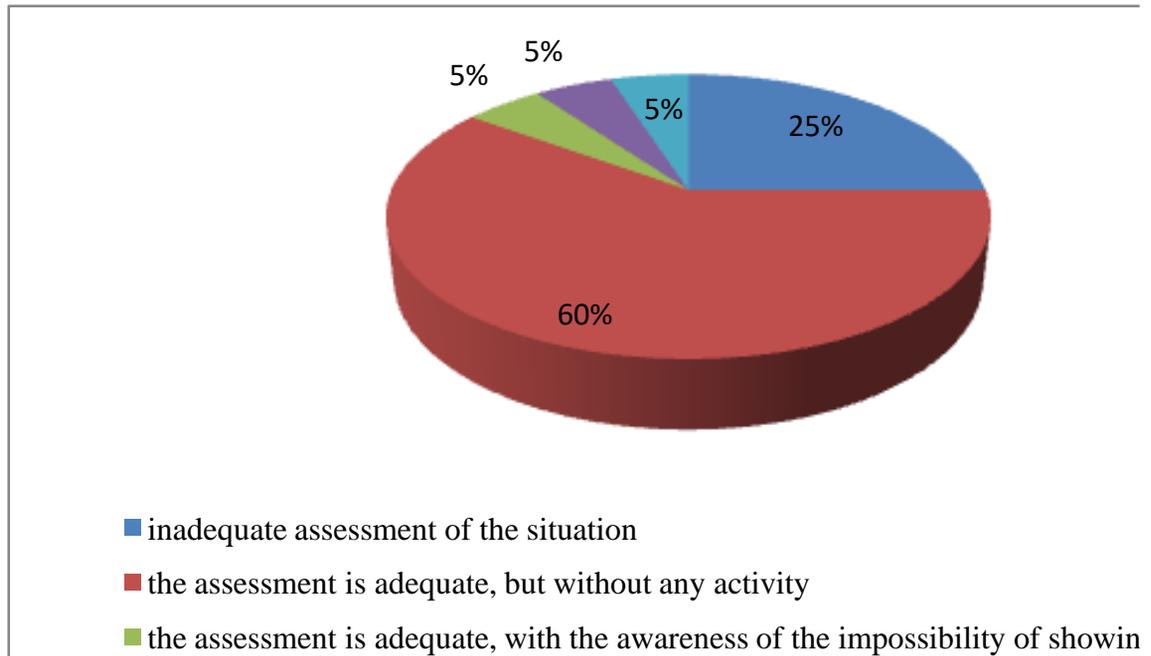


Figure2. Diagram of emotional assessments of environmental situations by the schoolchildren with intellectual disability (ascertaining stage)

At the formative stage of the experimental work, an environmental quest was organized for the students with intellectual disability. During a walk through the Summer Garden of Pskov, the arboretum, as well as the surroundings of the Mirozhsky Monastery, the children, using the “photos from the future” technique (that is, looking at specially created photos of the places where they were), visually perceived the “environmental troubles” that the residents of Pskov may face if “here and now” remain indifferent to the harmful behavior of the people around them.

With the help of a number of games (for example, “Who am I and what has happened to me?”, “Pass a fragile object”, “Cure our Earth”, “Good-bad”), solving environmental puzzles and solving problems, playing out psycho-role situations during the quest, the emotionogenic function of children’s value attitude to nature was realized.

At the formative stage of the experiment, we also tried to organize collective project activities of the fifth-graders with intellectual disability. Its product was the magazine “Ecology of Pskov”, whose pages were called “Ecological forecast for residents of the Flower City from the fairy tale of N. Nosov “Neznaika and his friends”, “Environmental myths or truth?”, “Second life to garbage!”, “It would be good...”, “I vote for the life of Pskov” and others.

Also of interest is a group project carried out by the fifth-graders in an experiment called “Do not buy primroses! I'll give you a picture of them”. At the final stage of the project, the students with intellectual disability (in the presence of their parents) offered potential buyers hepatica or liver leaf and anemone to refuse the purchase and accept as a gift a postcard made by their hands, which was not only an image and description of the flower, but also selected emotionally touching poems.

In parallel with extracurricular activities, the lessons of biology and mathematics were saturated with emotional environmental content. The lessons used the methods of “emotional explosion”, empathy, emotional-value contrasts, accentuation of emotions, techniques of photo, sound and music accompaniment.

The results of the diagnosis of the students with intellectual disability participating in the experiment at the control stage (see Fig. 3), followed by the statistical processing of the results using the Z-criterion, showed the effectiveness of the formative stage of the pedagogical experiment (at the level of significance $P=0,01$).

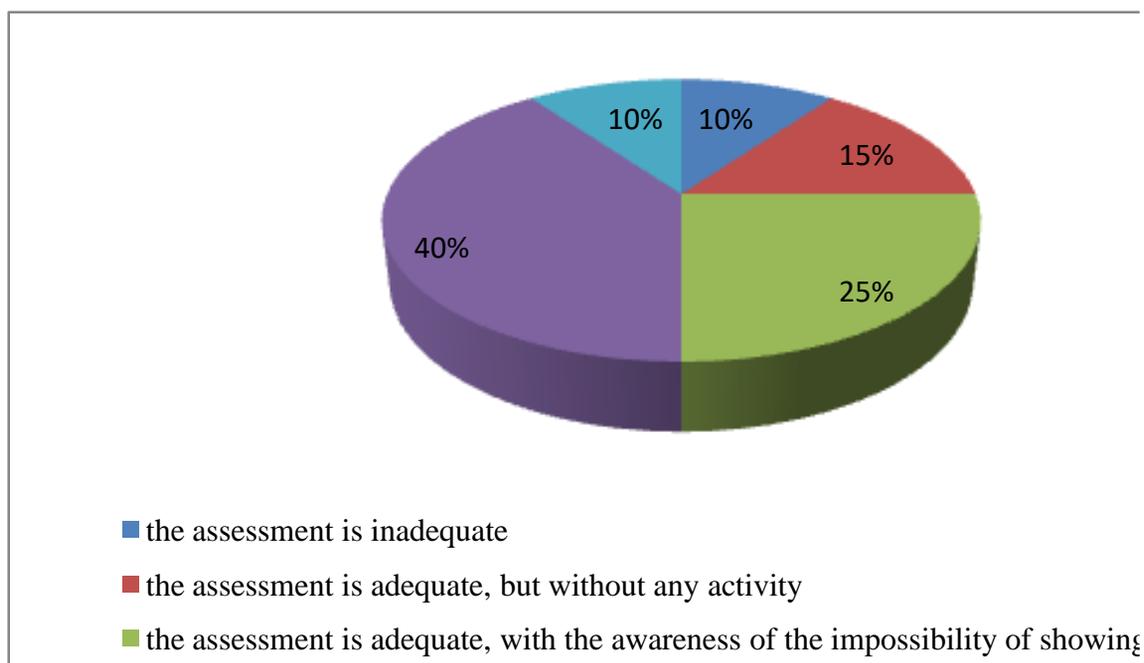


Figure 3. Diagram of emotional assessments of environmental situations by the students with intellectual disability at the control stage

As can be seen from Figure 3, only 10% of children with intellectual disability participating in the experiment had an inadequate assessment of the adverse environmental situations presented to them (such as “so what?”).

In 40% of children, adequate emotional reactions have already been accompanied by an awareness of their need for activity (“we need to do something”), and 10% of schoolchildren have become psychologically ready for joint environmental activities. At the control stage, only 35% of students with intellectual disability, responding adequately to environmental situations, either did not realize the need for their own environmental activity, or considered it impossible due to their age.

The repeated ranking of terminal values, values-goals, by the degree of their significance by fifth-graders with intellectual disability showed that at the end of the experimental work, only 10% of children still had no value for environmental safety, 5% of students put environmental safety in the first place, 35% - in the second place, for 20% of the subjects the importance of environmental safety was in the third place, for 30% - in the fourth or fifth place (see Figure 4). And only 45% of students with intellectual disability who participated in the experimental work did not specify “active help to nature” as a value-goal.

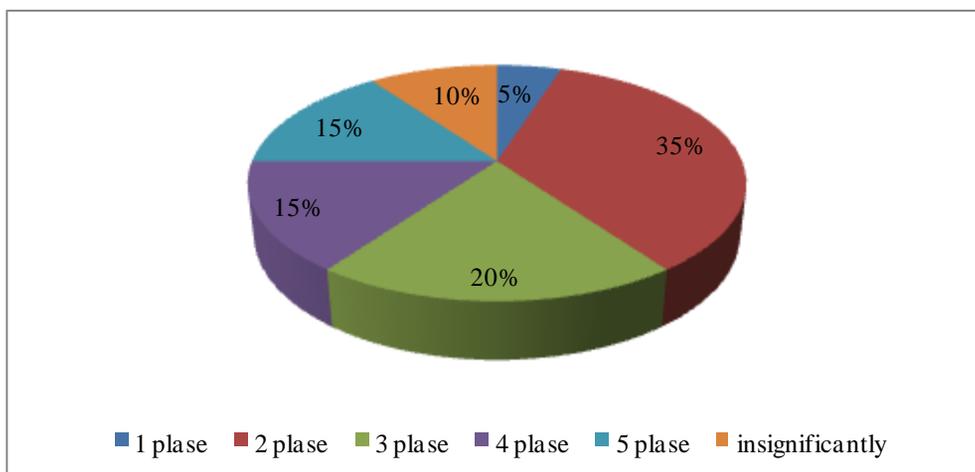


Figure 4. Diagram of ranking the importance of environmental safety by the schoolchildren with intellectual disability at the control stage

Discussion

The study of psychological and pedagogical literature allows us to state the absence of pedagogical recommendations concerning the possibility of introducing such a terminal value as "environmental safety" into the value system of schoolchildren with intellectual disability.

Our experimental work with the schoolchildren with special educational needs, in connection with their mental development delay, allows us to recommend to practicing teachers for successful emotional comprehension of the importance of environmental safety by these students to regularly implement the emotionogenic function of the value attitude to the observed, proposed or imagined environmental situations. To imply this, we recommend organizing not only virtual, but also real environmental quests, using the methods of “emotional explosion”, empathy, emotional-value contrasts, accentuating emotions, and during the collective project activity to act out psycho-role situations.

Conclusion

So, humanity’s awareness of global environmental problems gave rise not only to new principles of expedient human activity in the surrounding nature, but also to the need for “acceptance” by students, including those with temporary intellectual disability, as a terminal value of “environmental safety”.

The knowledge of the peculiarities of information perception by the schoolchildren with intellectual disability determines the general strategy of such children’s comprehension of the significance of these universal value-through emotions, experiences, possibly unconscious.

The emotions that arise in schoolchildren when they evaluate environmental situations should be considered as “a system of preliminary reactions that inform the body of the immediate future of its behavior and organize the forms of this behavior” (Vygotsky, 1999, p. 180).

The experimental work shows that it is not correct to draw conclusions about children’s awareness of the importance of environmental safety only on the basis of their cognitive assessment of environmental behavior in the natural environment. Verbally, students choose the behaviors that teachers “expect” from them, but emotional states during the assessment of environmental situations “give them away”.

The pedagogical experiment proved the effectiveness of assessing the environmental problems of the region, conducting environmental quests, and collective project activities that implement the emotionogenic function of children’s value attitude to nature, in order for them to understand the importance of environmental safety.

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