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Understanding of unsafe situations by children with intellectual disabilities

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This article deals with vital questions of the health and safety of children with intellectual disability (mental disability and mixed specific disorders). Theoretical analysis has demonstrated insufficient study of the problem, both in national and foreign psychological and pedagogical studies, although a number of approaches exist. Researchers agree that development of these children is an important condition for the existence of both individual and society at large. At the contemporary stage of development of our society, the safety of the children is all the more relevant since the degree of their development is an important condition of socialization and normal interaction with the environment. Diagnostic tools to estimate the comprehension and recognition of unsafe situations by children with these disorders are still insufficiently developed.

This paper describes the application of a technique called “Recognition of Unsafe Situations”, which was designed to study the ability of children with intellectual disability to recognize potentially life-threatening situations (handling household appliances, electricity, medicine, hot or sharp objects, behavior at heights and with stray animals) and to predict the consequences of their actions in such situations. The results of this study allow us to determine the differences in recognizing unsafe situations by children with mental disability and children with mixed specific developmental disorders. We show that children with mixed specific developmental disorders have a certain ability to identify potentially unsafe situations, and with support provided by adults, they are able to predict the consequences of their actions. Children with mental disability, however, have insufficient knowledge of safe behavior; but special activities that take into account these children’s ability to compensate enable them to develop the essential skills for behavior in potentially life-threatening situations.

Keywords: children with intellectual disabilities, children with mixed specific developmental disorders, health and safety, understanding of dangerous situations

Introduction

Today the problem of safe/secure behavior is being considered in various aspects in psychology and pedagogical science research. I.A. Bayeva and her colleagues put forward the concept of safety in the educational environment and psycho-pedagogical support for its participants to overcome various threats, including psychological injuries (Bayeva & Semikin, 2005; Bayeva & Gayazova, 2012; Bayeva & Yakimanskaya, 2013). The authors claim that better understanding of the psychological characteristics of the educational environment requires the study of conditions allowing a person to reveal his inner nature. These conditions are understood as “psychological safety”, which provides for “positive personal development of all the participants in an educational process” (Bayeva, 2010, 35). The concept of “safety/security” is understood as “a phenomenon without which neither the personality nor the social organization, society or the economy, and especially the state can undergo normal development” (Bayeva & Semikin, 2005, p. 9). The formation of a healthy sense of security as one of the basic feelings of the person in the view of Bayeva and Yakimanskaya, starts in early childhood in the course of interaction with significant adults (Bayeva & Yakimanskaya, 2013).

Another understanding of the “safety/security” category is offered by T.M. Krasnyanskaya, who takes into account the complexity of the subject and suggests designating the concept as a “system”, a relatively stable, self-developing, and self-regulating entity (Krasnyanskaya, 2006a; 2006b). She maintains that one of the major factors in the achievement of security by any system is the complexity of its organization. Elementary systems (for example, primitive organisms) are less adapted to avoid danger, so they perish in a constantly changing environment, whereas “complex, highly organized systems, advanced species, which, owing to certain qualities, possess the developed ability to coordinate their inner and outer functioning in interaction with the world surrounding them, change actively and also influence the environment. It is possible to assume that the complexity of a system is a source that helps build more harmonious relationship with the environment” (Krasnyanskaya, 2006a, p. 239). The author maintains that ability to control endogenous (internal) and exogenous (external) factors guarantees the safety and preservation of an intricate system. If these factors are incorrectly assessed, the subject is exposed to danger, in certain cases even death. On the other hand, Krasnyanskaya notes that “attributing a safety status to any system is quite relative: Speaking about one and the same subject-object interaction, and relying on different reference points, it is possible to refer to a larger or smaller degree of safety of its subject, about a larger or smaller approach to a safety ideal” (Krasnyanskaya, 2006a, p. 240). Thus, the bounds of danger are rather flexible, and the system can regulate its level by means of assimilation, adaptation, or change of the unsafe situation itself. The author also notes that one of the most important psychological reasons for a person finding himself in unsafe situations is “the imperfection of his perception, which doesn’t allow him to create an adequate picture of the surrounding world and also to single out signs of danger” (Krasnyanskaya, 2006a, p. 245).

It should be noted that in both above-mentioned approaches, the authors focus their attention on the dangers proceeding from the social environment. In this regard, the task of psychological services lies in the organization of appropriate

psychological assistance to help the individual develop safe behavior appropriate to their age, membership in a particular social group.

We believe that the problem of safe behavior formation should be examined with reference to the restricted awareness of external dangers on the part of children with such developmental disorders as intellectual incapacity. One of the important problems of socialization of children with such developmental disorders is teaching them safe behaviors, i.e., the rules for preservation of life and health, an intention to carry them out, means and methods of health preservation, ways of reacting, and behaving in potentially unsafe situations (Baryanova, Boykov, & Lipatkova, et al., 2001; Shipitsyna, 2005).

The process of a child's socialization implies the mastery of social norms and rules of conduct, including those related to ensuring life and health. L.F. Bayanova points out that any cultural environment is presented through a system of standard situations which, in turn, are a condition for differentiation of rules: "The standard situation is the space of a person's activity and regulates the person's behavior according to the given cultural rule" (Bayanova, 2013, p. 286). To develop the rules of safe behavior of children, it is necessary for them to know which situations are dangerous, to distinguish them from other situations, and to predict adverse effects in case the rules of safe behavior are violated. This is especially relevant to children with intellectual disabilities, whose ability to predict consequences is considerably reduced in comparison with their normally developing fellows.

Today there are some works dealing with the formation of children's safe behavior, including children with intellectual disorders. Scholars and practitioners have worked to develop such behavior in these children (Fantahun, 2009; Mechling, 2008; Ruegg, 2003; Grigoryan, 2008; Davydova, 2009, 2010 etc.). So, according to A.N. Kosymova, the formation of feelings of freedom and safety require teaching children with intellectual disabilities to understand cause-and-effect relations in different vital circumstances. The instability of their intentions and their great suggestibility lead to the development in such children of fixed patterns of behavior, rather incorrect views, which they adopt from their immediate environment without the necessary criticism (Kosymova, 2006).

L.C. Mechling and E. Ruegg write that persons with intellectual disabilities have a specific need to develop their skills for integration into society, since they are unable to distinguish and avoid unsafe situations and don't possess the communicative skills enabling them to report imminent danger (Mechling, 2008; Ruegg, 2003). Analyzing the research dedicated to training both adults and children with intellectual disabilities over a 30-year period (1976-2006), Mechling notes that education (mainly on an individual basis) is necessary for the formation in people with intellectual disabilities of independent behavior which will enable them to move independently outdoors, avoid unsafe situations indoors (fire, poisoning), and injuries (burns, cuts), and provide first aid for themselves (treatment of small cuts, burns, stings of insects), etc.

Research described by A. Fantahun was directed to teach self-help skills to children with intellectual disabilities, including improving their social functioning, interaction with people around them, and safe behavior. It was carried out in Ethiopia at the Kokebe Tsibah educational institution (Fantahun, 2009). The author notes that the purpose of the institution's program is to develop the skills of children of

this category, so that they can be successful in everyday life, live independently in the future, and even develop a professional career. Selection of the individual program for each child was carried out on the basis of his supervision, conversation with parents, and analysis of the children's mastery of the previous programs.

Despite available programs of training in safety skills both in foreign and domestic education of children with intellectual disabilities, formation of these skills is either incorporated into the general educational process, which leads to a lack of attention to safe behavior, or these programs aim at developing skills to overcome only specific problems, such as violence (physical, psychological, or sexual) (Kim, 2010) and safe behavior on the road and at home (Mechling, 2008). Furthermore, researchers who have studied children's skills of recognition, prediction, and reaction to dangerous situations, have used such methods as observation, analysis of documents and products of the children's activity, and also surveys of parents and experts working with these children (Fantahun, 2009). These methods cannot always provide objective information.

Thus, there is a need for further investigation of such children's ability to distinguish situations potentially dangerous to health and life. Such data would allow improvement of methods to teach safe behavior to children with intellectual disabilities. There is also a need to identify distinctions in the abilities of children with intellectual disabilities and mixed specific developmental disorders to single out various situations, including those that are dangerous to health and life. This information would allow a differentiated approach to the formation of safe behavior in these groups of children.

Method

Method of diagnosis

Since diagnostic tools to deal with this problem are not currently available, we have developed a technique called "Recognition of Unsafe Situations" (the author is L.F. Fattikhova), which is directed to the study of children's ability to recognize situations that are dangerous to human life and health, and to predict the consequences of these situations. The technique probes the children's ability to orient in such potentially dangerous situations as dealing with household appliances, electricity, medicines, hot or sharp objects, behavior at heights, and stray animals. Stimulus materials are presented by a series of three images for each of the following situations:

1. Picturing potentially unsafe situations;
2. Picturing a situation in which the character is heedless of danger;
3. Picturing the negative consequences of events that have already occurred.

For example, in the series titled "Drugs," the first picture shows a child who has found drugs (Figure 1); the second, a child who has taken a drug (Figure 2); the third, a child who has become sick as a result of unsupervised consumption of drugs (Figure 3). The first picture of each series is presented to the child and the following questions are asked:

1. What is shown in the picture?
2. What could happen?
3. What must be done to prevent it?



Figure 1. Picture 2 from the “Drugs” series demonstrating a potentially dangerous situation

The instrument is based on the principle of the training experiment and the method of L.S. Vygotsky on the leading role of training in the mental development of the child, taking into account the “zone of proximal development” (Vygotsky, 1935). The idea of using a training experiment and devising different kinds of assistance in working with children with intellectual disabilities was developed by A.Y. Ivanova (2015), B.V. Zeigarnik (1986), V.I. Lubovsky (1989), S.D. Zabramnoy (1995), and S.J. Rubinstein (1999). Thus during a diagnostic training experiment, Ivanova used such forms of assistance as encouragement to take an action, explanation of the nature of the action, presentation of pictures showing how to solve the problem, demonstration of the action for the child to follow.

We provide the following types of assistance if a child is unable to fulfill the diagnostic task of recognizing dangerous situations:

1. If a child can't answer the first question, the experimenter describes the situation him/herself;
2. If a child can't answer the second question, the experimenter provides assistance in three stages:
 - a. Showing picture 2, in which the character is heedless of danger, and asking the same question again (see Figure 2);
 - b. Showing picture 3, representing negative consequences of events that have already occurred, and asking the same question again (see Figure 3);
 - c. Answering the question him/herself.
3. If a child cannot answer the third question, he is offered possible answers. For example, in the “Drugs” series, the following answers could be suggested:
 - a. One should not use drugs without a doctor's permission and adult supervision;
 - b. One should throw the medicines into the rubbish bin;
 - c. One should take medicines.

An assessment of the results is carried out for each series separately:

Score of 5 — The child answers all the questions him/herself, understands unsafe situations, is able to identify them and predict their consequences. The child's answers are accurate, based on the specific situation examined;

Score of 4 — The child's answers are inaccurate; he/she detects unsafe situations based only on personal experience but not what is shown in the picture, which is why he/she needs an experimenter's help (assistance type 1), predicts the consequences of unsafe situations, and finds a way to avoid them by him/herself;

Score of 3 — The answers are inaccurate; the child finds it difficult to recognize a dangerous situation, as he/she proceeds only from everyday experience, predicts it when using the second picture of the set (assistance type 2a), finds a way to avoid it;

Score of 2 — The child's answers are inaccurate; he/she finds it difficult to understand the danger of the situation, is able to predict its consequences only when considering the whole situation—the second and third pictures of the set (assistance types 2a and 2b); can't find a way to avoid the danger immediately. The child's reasoning is based only on personal experience;

Score of 1 — The child does not identify an unsafe situation, cannot predict its consequences even when offered help, can name a way to avoid an unsafe situation only when the experimenter offers a list of possible answers (assistance type 3). The child's answers are monosyllabic, unreflective, based on the code of behavior imposed by adults;

Score of 0 — The child does not fulfill the task even if aid is provided, does not detect a dangerous situation, and does not predict its consequences.

The maximum possible grade for all 7 series is 35 points.



Figure 2. Picture 2 from the “Drugs” series in which the character suffers after taking drugs



Figure 3. Picture from the “Medicines” series representing negative consequences of events that have already occurred

The study involved pupils of special (correctional) educational institutions for children with mental retardation and developmental disorders in Ufa, Republic of Bashkortostan, Russian Federation. In Russia, according to 2011 data, there were 1,238 schools for children with mental retardation, and 139,395 students in these schools. There were 131 schools for children with developmental disorders (according to the International Classification of Diseases [ICD], 10 children in this group were classified as children with mixed specific developmental disorders), and 18,740 children were studying in them (*Education in Russia*, 2011).

Participants

Today in Ufa there are three special (correctional) schools for children with mental retardation and one for children with developmental disorders. We examined 77 students of 8-9 years of age:

- 44 students with a diagnosis of “F70 mild mental retardation” (ICD), at special (correctional) school No. 59 for children with mental retardation;
- 33 students with a diagnosis of “F83 mixed specific developmental disorders” (ICD), at special (correctional) school No. 120 for children with developmental disorders.

Children with a diagnosis of “F70 mild mental retardation” are characterized by low cognitive abilities (IQ 50–69) and reduced social functioning. Children with a diagnosis of “F83 mixed specific developmental disorders” have a mixture of specific disorders of speech development, scholastic skills, and motor functions. Common to these disorders is general cognitive impairment, as well as decreased intelligence that does not, however, reach the degree of mental retardation. In Russia, these conditions are described as “developmental disorders”.

Results

To determine the quantitative differences in development of the ability to identify unsafe situations by pupils with intellectual disabilities and mixed specific developmental disorders, a statistical analysis using Student's t-test was applied. The results are presented in Table 1. Statistical processing of the results was done with SPSS v.10.0 for Windows, from StatSoft Corporation.

Table 1.Differences in the ability of students with intellectual disabilities and mixed specific developmental disorders to recognize dangerous situations (Student's t-test)

No.	Situations	Mean (children with intellectual disabilities)	Std. Deviation (children with intellectual disabilities)	Mean (children with mixed specific developmental disorders)	Std. Deviation (children with mixed specific developmental disorders)	t- criterion	p- level of significance
1	Household equipment	2.00	1.57	2.51	1.58	1.360	0.178
2	Electricity	2.65	1.82	3.85	1.56	2.987	0.004
3	Medicines	3.12	1.97	4.76	1.03	4.492	0.001
4	Hot items	3.07	1.8	3.94	1.51	2.238	0.028
5	Sharp objects	3.72	1.5	4.39	1.17	2.067	0.042
6	Height	3.09	1.89	4.33	1.17	3.302	0.001
7	Stray animals	2.73	1.86	4.12	1.44	3.508	0.001
8	Integrated indicator of the ability to recognize dangerous situations	20.53	8.53	27.94	5.2	4.406	0.001

According to the data presented in Table 1, there were differences in the recognition by children with intellectual disabilities and with mixed specific developmental disorders of the situations, such as "Electricity" ($p < 0.004$), "Medicines" ($p < 0.001$), "Hot items" ($p < 0.028$), "Height" ($p < 0.001$), "Stray animals" ($p < 0.001$). For "Household equipment," no differences were found between the two groups of children ($p > 0.178$). According to the integrated indicator of the ability to recognize dangerous situations of children of these groups, the differences are statistically significant ($p < 0.001$). Thus, children aged 8-9 with mixed specific developmental disorders were able to recognize situations potentially dangerous for life and health and to predict the consequences of these situations better than their peers with intellectual disabilities.

Let us now present the specific features of understanding unsafe situations by the children of the groups under study.

Understanding of unsafe situations by children with intellectual disabilities

Our research confirmed that the ability of children with intellectual disabilities to understand a dangerous situation is underdeveloped.

During the discussion of "Household equipment" (which shows a boy trying to get into the refrigerator, whose door can shut and trap the child), children of this group most often started to enumerate objects of the setting, for example: "A refrigerator, a boy, products, a towel, gloves ..." when answering the question, "What is shown in the picture?" Many children simply said, "A boy and a refrigerator". After being shown images with the consequences of the dangerous situation, the children paid attention to the actions of the main character: "He takes something from the fridge". When asked to predict the situation, the children used their personal knowledge, which did not always coincide with the specific situation in the picture. For example, to the question: "What could happen?" they replied: "He could fall", "He could fall down and break a jar", "Food could fall on him", "Mother could scold him for taking it without asking". Since the children gave similar answers, one can come to a conclusion about poor life experience and lack of understanding of the danger. Answering the question, "What should be done to prevent it?" the children could not choose a correct answer by themselves, and answers had to be suggested to them. Many children said, for example, "You cannot open a refrigerator or come up to it without Mom's permission", "I should ask mother's permission to open the fridge", that is, they believe that unsafe situations can be avoided with the help of parents.

The children coped successfully with the "Electricity" series of pictures (careful handling of wall outlets). This area has been discussed at school repeatedly, so most children answered on their own. The children answered the question, "What should be done to prevent it?" in the following way: "Don't meddle with the wall outlets until adults come home", "Do not put objects into a wall outlet", "You have to ask adults to turn on the lights; wall outlets are for adults", "You should not go near the wall outlets" — that is, the children's answers are quite adequate and appropriate to the situation.

Children with mental retardation also coped with the "Drugs" pictures (prohibition of uncontrolled medication) quite well. Some of them needed help in the form of guiding questions, after which the correct answer followed. To the question, "What could happen?" (in the case of the boy in the picture who has taken a lot of medicines), the children mostly answered, "He could die" or "He could choke".

The situations "Hot items" (the need for careful handling of hot irons), "Sharp objects" (the prohibition against playing with them), "Height" (the prohibition of reckless acts on balconies), "Stray animals" (caution) did not cause much difficulty. Children gave the right answers or made the best use of the experimenter's help when there were difficulties. In the "Hot items" situation, answering the question "What could happen?" children often said: "He could burn down the house"; "It could cause a fire, he could burn himself". These answers lead us to conclude that the children already have a stereotype of unsafe situations with hot and flammable objects, but they need help to find other ways out of the situation. In the "Stray ani-

mals” situation, the children gave different answers to the question “What should be done to prevent it?”: “Do not touch”, “Do not touch the dog”, “Do not tease”, “Get away from it”, “Do not swing your arms, do not come up close to the dog”. In general, students with intellectual disabilities were able to orient in this situation, offering appropriate variants of behavior.

The children with intellectual disabilities accepted help and were able to use this aid effectively. The second and third types of assistance proved the most effective. Prediction of the consequences of the situation “Household equipment” caused the greatest difficulties.

Understanding of dangerous situations by children with mixed specific developmental disorders

During the examination it was found that children with mixed specific developmental disorders are underdeveloped in their ability to understand a dangerous situation, as are children with mental disabilities.

In the “Household equipment” situation, pupils of this group often said in answer to the first question, “What is shown in the picture?”: “The boy wants to eat,” “The boy takes something the refrigerator”, or started to enumerate objects in the picture, for example: “A refrigerator, a boy, foods, a towel, gloves...”. After being shown images of the consequences of an unsafe situation, some children understood that the main character tries to get inside the refrigerator, thereby exposing himself to the danger of being locked in the refrigerator. When asked to predict what would happen, the children used their personal knowledge, which did not always coincide with the specific situation in the picture. For example: “He could fall”, “He could fall down and break the jar”, “Food could fall on him”, “Mother could scold him for taking it without asking”. Most pupils needed help to predict this situation correctly. Some children needed help in the form of possible answers.

The children coped with the “Electricity” situation successfully. To the question “What could happen?” almost all the children said that the main character could get an electric shock. To the question “What should be done to prevent it?” the children replied: “Do not put any object into wall outlets” or “Do not touch wall outlets” — i.e. the children’s answers are quite appropriate; they understand how to avoid adverse effects.

The “Drugs” situation was also resolved quite successfully by children with mixed specific developmental disorders. Some needed help in the form of guiding questions, after which the correct answer followed. To the question “What could happen?” (to the character who has taken a lot of medicines), the children often answered, “He could die” or “He could get sick”. Generally, the children answered the first two questions correctly and needed help answering the third question.

Recognition of the unsafe situations “Hot items”, “Sharp objects”, “Height”, “Stray animals” and predicting their consequences did not cause any difficulties for the children of this group. Children gave correct answers and did not need assistance. In the situation “Hot items”, the children, answering the question, “What could happen?”, often said: “He could get burned” or “Fire”. In the “Stray animals”

situation, answering the question "What should be done to prevent it?", the children said: "Do not touch stray animals", "Do not touch the dog", "Do not tease them", or "Get away from the dog". In general, children with mixed specific developmental disorders were able to orient in this situation, offering appropriate variants of behavior.

Children with mixed specific developmental disorders received aid in the process of examination. The directing assistance was the most effective.

Discussion

The problem of safety/security is examined in various aspects in psychological science: as psychological safety of the educational environment and safety of a complex system capable of overcoming danger through assimilation, adaptation, or transformation of the dangerous situation. Representatives of both approaches consider it necessary to organize psychological services and to develop a methodology to provide psychological assistance for an individual to cope with dangerous situations, most of which come from the social environment.

Analysis of the research on this problem has also found that children with intellectual disabilities do not show a complete inability to recognize situations potentially dangerous for life and health. Remedial work has aimed at forming in children with intellectual disabilities ideas of safe behavior rules with regard to their compensatory abilities and other psychological characteristics that will ensure their adaptation.

Our results show that children with mixed specific developmental disorders are able to perceive the issue of safety, but not enough. Children cannot always recognize a potentially unsafe situation; they need the experimenter's help to predict its consequences more precisely. Children of this group have difficulties in identifying ways to avoid the danger, which implies a poorly developed social imagination. However, children with mixed specific developmental disorders have some knowledge and understanding of safe behavior. The "Household equipment" situation caused the greatest difficulty. Both children with mixed specific developmental disorders and children with intellectual disabilities had the greatest difficulty in determining the consequences of this unsafe situation.

Conclusion

The empirical study allows several conclusions:

1. Children aged 8-9 with intellectual disabilities are characterized by a reduced ability to recognize situations that are dangerous to life and health and to predict their consequences. Both the current and potential development of this ability in children with intellectual backwardness is lower than in children with mixed specific developmental disorders. This is related to the inability of children with mental retardation to identify the reasons for a situation. This inability is caused by insufficient development of logical thinking and manifests itself in all situations that require the establishment of such relationships, including the recognition of dangerous situations and predicting their consequences. However, these children

can be trained to recognize the most typical situations threatening their life and health, and to prevent dangerous behavior in time. This requires special training with remedial technologies aimed at both correction of cognitive activities and the formation of the necessary life skills.

2. Children with intellectual disabilities and those with mixed specific developmental disorders have differences in the ability to orient in such potentially unsafe situations as those involving electricity, medicines, hot or sharp objects, height, and stray animals, but such differences were not found in the ability to orient in a dangerous situation associated with household equipment. The differences can be explained by the greater abilities of children with mixed specific developmental disorders to predict, compared with children with mental retardation; by the ability of the first group to make observations about their lives and draw their own conclusions from these observations. Children of the second group are less capable of such observations, and conclusions are usually drawn only with the help of an adult and with special training.

The research results can be taken into account when setting targets and developing safety programs for primary school children with intellectual disabilities and mixed specific developmental disorders.

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