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ДОСТУПНОЕ ОБРАЗОВАНИЕ: ПРОЕКТИРОВАНИЕ ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ ДЛЯ УСТОЙЧИВОГО РАЗВИТИЯ

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Рассмотрена проблема достижения доступного и качественного образования, поставленная Глобальной программой действий в области образования для устойчивого развития (2014). Раскрывается связь доступности образования с приданием ему инклюзивного характера в его широком понимании, как образования для всех. Автор выдвигает гипотезу о том, что многие из трудностей, которые возникают при организации инклюзивного образования, могли бы быть устранены еще на стадии проектирования образовательной среды. Проанализированы запросы современной педагогики к образовательным средам общего образования и сделан вывод о том, что в них не в полной мере отражены интересы инклюзивного образования.

Цель исследования – принципы проектирования доступной образовательной среды общеобразовательных организаций, реализующих инклюзию. Рассмотрены общие и специальные подходы к проектированию доступной образовательной среды в условиях инклюзии.

Обоснована роль здоровьесберегающего и развивающего характера образовательной среды, а также ее культурно-и природосообразности для обеспечения доступности образования для всех обучающихся, как субъектов учебной деятельности и субъектов здоровья.

Ключевые слова: образовательная среда; инклюзия; доступность; адаптивность.

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ACCESSIBLE EDUCATION: DESIGNING THE EDUCATIONAL ENVIRONMENT FOR SUSTAINABLE DEVELOPMENT

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The problem of achieving accessible and quality education set by the Global Action Programme on Education for Sustainable Development (2014) is discussed. It reveals the connection between accessibility of education and making it inclusive in its broadest sense, as education for all. The author hypothesizes that many of the difficulties that arise in the organization of inclusive education could be eliminated at the stage of designing the educational environment. The requests of modern pedagogy for educational environments of general education are analyzed and it is concluded that they do not fully reflect the interests of inclusive education. The aim of the study was to the principles of designing an accessible educational environment of general education organizations that implement inclusion. The general and special approaches to designing an accessible educational environment in conditions of inclusion were considered. The role of health-saving and developing character of the educational environment, and also its cultural and natural appropriateness to provide accessibility of education for all students as subjects of educational activity and subjects of health is grounded.

Keywords: educational environment; inclusion; accessibility; adaptability.

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Problem Statement

Accessible and quality education for all throughout life is a highly humanistic goal of civilization in the 21st century. The whole world supported it by adopting the Sustainable Development Agenda in 2015.

Many educators have pointed to the possibility of integrating children with developmental disabilities into the environment of normally developing peers. L. S. Vygotsky wrote: «It is extremely important from the psychological point of view not to confine abnormal children into special groups, but to practice their interaction with other children as widely as possible» [1].

After the Second World War, on a wave of active mastering by the world community of the global humane idea of human rights (the Universal Declaration of Human Rights, 1948) the number of adherents of joint training of usual children and children with limited opportunities began to grow in all countries. The time was characterized by the transition from a «culture of usefulness» to a «culture of dignity», in which the leading value is the value of the person, regardless of whether something can be gained from it to perform a particular task or not. At the turn of the 20th and 21st centuries, the leaders of several advanced powers at once named this direction of the educational process as a priority concept. In 1994, in Salamanca, the World Conference on Special Needs Education, held under the auspices of UNESCO, coined the term «inclusion» and proclaimed the principles of inclusive education.

As for children with disabilities inclusion is a way to eliminate discrimination in the educational process, a key to social justice, overcoming social isolation, the possibility of exercising the rights of people with disabilities to jobs, the possibility of social elevator [2].

In world practice, historically, the first option of inclusion was represented by the mainstream (general flow) in world practice. It does not provide for special efforts of teachers to adapt the child to school or school to child. In these conditions children of pedagogical risk group actually dropped out of education at its initial stage and became underachievers as they progressed through the stages of school education, were left to repeat schooling, fell into the risk group for behavioral deviations. Their transfer from a «usual» class to compensatory (pedagogical support) or corrective (special) education classes was accompanied by psychological traumas and could significantly slow down their socialization and self-realization.

The option of integration (inclusion in the narrow sense) involves the school's efforts to adapt children with developmental disabilities to school. Their own programs are used for them, while other children study in general education, joining in common classes, performing common work.

Inclusive education in the broad sense is such an organization of the learning process, in which all children, regardless of their physical, mental, intellectual, cultural, ethnic, linguistic or other characteristics, are included in the general education system, receiving permanent or occasional some kind of corrective or psychological and pedagogical assistance. In European countries, which were the first to embrace inclusion, the process of its implementation has already taken several decades, but cannot yet be considered complete [3; 4].

Inclusion implies systemic changes in secondary, vocational and higher education simultaneously at three levels: macro (policy, law, funding structure), meso (municipal education management, schools), micro (class, educational process) and requires a long time [5; 6].

We emphasize that every child at a certain period of life needs help, sympathy, support due to family circumstances, moving to another place of residence, because of illness, the need for rehabilitation, ill health, fatigue, etc. Inclusion is a multitude of opportunities for all without crossing out or emphasizing. Everyone has the right to respect, the right to be themselves, to remain different from others. Inclusion is not a girl in a stroller, but «we sang and ate ice cream with her»; not a boy with autism, but «we made a snowman together.

The problem is the unexplored question: to what extent the approaches to the design of modern educational environments of general educational organizations take into account global trends to make all education inclusive [7]?

The aim of the study is to the approaches to the design of modern educational environments in general educational institutions from the perspective of the implementation of inclusive education objectives.

Results and their discussion

Educational environment is a set of influences, conditions, factors and opportunities for the formation and development of personality in its social and spatial-subject environment [8]. The concept of «environment» first appeared in the Enlightenment. It was introduced into philosophy by I. Taine, the founder of the cultural-historical school of art history. Jean Jacques Rousseau considered it necessary to create a special «educational environment» where the needs and opportunities of the student would not only be taken into account and balanced, but also the possibility of self-education. Célestin Fresne also believed that the educational environment helps people to develop their individual abilities and capabilities, and the task of the adult is to properly manage this environment, contributing to the maximum development of the child's personality.

In Russia, a lot of research is devoted to the design of the educational environment, including its spatial-subject, communicative, technological and informational components [9; 10], although the concept of «educational environment» is absent in the normative documents. In special education the notion of a special educational environment is stipulated by normative documents [11]. The special educational environment is considered as a subject-space environment for children with disabilities in accordance with the nature of the disability [12]. Peculiarities of the organization of the subject educational environment in inclusive education are regulated normatively [13]. However, the features of the organization of an inclusive educational environment in its integrity remain understudied [5; 14]. Since inclusion is implemented in a narrow sense, as the simultaneous education of children in a class by different programs – general education and «adapted» programs («side by side, but not together»), the recommendations for the organization of an inclusive educational environment are compilative in nature.

Let's consider for example the pedagogical recommendations on the creation of the subject-space organization of educational environments in general educational organizations [15; 16].

General pedagogy defines the following requirements for the design of object-spatial environments:

- functional and constructive appropriateness;
- layout, justified by the nature of students' activities, age features of students;
- functional division of the interior space;
- unity of all elements of the interior, aimed at fulfilling the main task of creating the best conditions for education and upbringing in a school building;
- compactness, convenience, safety and maximum adaptability to the peculiarities of educational activity;
- consideration of the specifics of the subject being studied;
- taking into account the age of the pupils (for elementary school pupils preference is given to single tables complete with chairs because this allows to change the traditional classroom layout and place tables in a semicircle, perimeter, in a square, etc. depending on the type of activity of the children and the form of their communication between themselves and with the teacher);
- avoiding space overload and emphasizing the main and the secondary;
- prolonging learning work without reducing mental performance;
- inclusion of decorative elements (monumental and decorative painting, sculpture, mosaic, stained glass, paintings) which have a semantic meaning and can be used for relaxation or educational purposes;

- the use of transformer elements that allow the environment to change depending on the activity of the students;
- exclusion of bright, provoking colors and their disharmonious combination;
- ensuring coziness and creating nooks for privacy;
- harmonization of sizes, proportions, light and colors;
- compliance with modern didactic requirements and ergonomics;
- compliance with the ergonomic work of the visual apparatus of the subjects of education;
- taking into account the need for rest for both students and teachers and staff;
- compliance with standards for school furniture;
- compliance with lighting requirements;
- taking into account the possibility of changing postures and body positions while studying (furniture with high legs, desk chairs, overhead bollards, desks so that a child can change the posture from «sitting» to «standing» directly in the course of the lesson;
- opportunities to meet basic physiological needs during the lesson (e. g., a tea area in the classroom, simple exercise equipment in the classroom, a mat, massage mats);
- comfort of the teacher's workplace;
- blackboard in green, at a comfortable height for children, wide enough (blackboard-book, 3 m);
- provision with technical teaching aids;
- culture of using the blackboard (glove, crayons of additional color relative to the color of the blackboard);
- ergonomic design of the walls (to provide eye saccades, exercises to relieve eye fatigue);
- consideration of new organizational forms of the educational process (transferring the emphasis from the class-lesson form of classes to a system of individual and group classes, creating conditions and opportunities for mutual communication, consultation, helping students to each other, self-learning), which should be provided in the structural areas of the classroom, their equipment.

V. A. Yasvin singles out the following principles of optimal spatial and subjective educational environment: the principle of diversity (heterogeneity) and complexity, providing the possibility of spatial and subjective choice by all participants in the educational process; connection of different functional areas; flexibility and controllability of the environment; symbolism; personalization (individualization) of the environment, providing the subjects of the educational process an opportunity to meet the needs of a personalized space [17].

From the point of view of the theory of organization of inclusive educational environments, the principle of heterogeneity and complexity is the possibility of making choices by the subjects of the educational process, creating a variety of «micro environments», including motor, sensory, manipulative-cognitive, play and artistic activities. Connectivity of different functional zones is the possibility of multifunctional use of those or other elements of the subject environment. An example of such an environment is given by the American ethnographer N. Johnson – it is a structured environment of the cave of ancient man, which provided, among other things, the formation of children's social and cultural experience. The principle of flexibility and manageability of the environment is the possibility of its creation, encouraging students to be active, make independent decisions, authorship in the creation of the environment (starting from their desk and up to social projects in the neighborhood). Symbolism of the environment allows you to form a sense of cohesion and consciousness, so that no one feels superfluous and unnecessary. Personalization of the environment allows you to move from the position: «everything is nobody's, everything is the same» to functioning in the most favorable rhythm for everyone, corresponding to their age, sex, individual characteristics.

However, the main requirements for the organization of an inclusive educational environment – its accessibility and adaptability – are not directly mentioned. But it is precisely these properties that an inclusive education environment should have, according to the Federal State educational standard for primary general education for students with disabilities [13].

In addition, according to our research, it is necessary to combine special measures with general approaches to inclusive educational environment, that focus on the health and development of the child. General and special approaches to the organization of educational environments are interrelated and, without duplicating, complement each other. Only in this unity can they be effective.

General approaches to the design of inclusive educational environments are based on the principles of humanism, equality, cooperation, the value of uniqueness of each person, respect for educational needs and capabilities of each child («diversity includes everyone», «everyone is talented in his/her own way», «we are different, but we are together») [18]. General approaches to the design of educational environments under conditions of inclusion are purposefully implemented by teachers non-specific (not depending on the clinical diagnosis) and continuous orientation of the educational process to the formation of students as subjects of learning activities and health subjects – health-saving and developing approaches [19].

The magnitude of health and development resources in all people is different, but their composition is the same. These are socio-cultural, personal, intellectual, psycho-emotional, psychophysical resources.

The formation of socio-cultural resources of students' health and development is provided by teachers' work on:

- ensuring the culturally appropriate nature of the educational process: immersion of students in the culture of the peoples of Russia, their appropriation of national cultural values; formation of cultural identity as a condition for raising a mentally healthy generation; overcoming ethnocultural dissociation;
- creating an atmosphere of respect for all subjects of education without exception; the value of each person individually and the diversity of others, the value of cultural diversity; corporate spirit and cooperation; prevention (or overcoming the consequences) of social isolation of students (including children with disabilities, persons with disabilities, children from migrant families);
- to develop communicative universal learning activities in all students; motivation and skills to kindly interact with others; positive socio-cultural personal experience of communicating with people with and without disabilities, both in school and outside it;
- improving the culture of teaching and communication at school;
- psychological and pedagogical education of the family.

The formation of personal resources of students' health and development is ensured by the readiness of teachers to optimistically forecast the development of each student, to form in each child

- belief in his or her own capabilities and unique abilities («everyone is talented in his or her own way»);
- personal and regulative universal learning activities and skills;
- creative personality, perceiving the language of music, plastics, art word, fine and decorative art, folk crafts, technical creativity; acquiring personal experience of creative self-realization in different spheres and application of their creative abilities through activity tests;
- practical experience of safe behavior in different life situations, self-service, taking care of relatives, house-keeping, participation in public affairs;
- motivation for self-organization, self-improvement, critical self-analysis without blaming others for their failures.

The formation of students' intellectual resources of health and development is provided by the work of teachers on

- maintaining and developing students' cognitive and learning interest, their learning motivation, as a condition for self-development;
- mastering by students cognitive universal learning activities and skills as a means of «getting around» the difficulties of learning associated with their disabilities, as well as a tool for self-knowledge, self-education, and self-help;
- mastering by students of varied ways and methods of remembering, processing, presenting, understanding and using information, the skills of conscious choice of individually rational ways and methods of learning, self-assessment as a condition of successful adaptation to the changing conditions of the world around them;
- creation of educational situations of dialogue between rational and irrational in knowledge, feelings and logic, scientific and everyday concepts, general cultural and personal-emotional content, abilities to use associations, analogies, artistic and conceptual metaphors, symbols, as conditions of expansion of protective-compensatory possibilities of organism and personality, human life resistance in the global world.

The formation of students' psycho-emotional resources of health and development is provided by the work of teachers to create conditions for

- observance of the regime of study and rest, as the most important condition for a healthy lifestyle;
- development of emotional intelligence (the ability to understand the emotions of others and the state of natural objects, adequately express their emotions), as a condition for normal mental development and psychosomatic health;
- physical, musical, artistic, labor development of students, including through extracurricular activities and additional education;
- prevention of natural deprivation of students, which inhibits the development and reduces the health of the child (making up for the lack of a variety of natural sounds, rhythms, shapes, colors, movements in the child's environment).

The formation of students' psychophysical resources of health and development is provided by the work of pedagogical and medical staff to create conditions for

The formation and realization of an individually rational healthy (correct) way of life, taking into account the existing diseases and the peculiarities of the environmental situation in the place of residence on the basis of self-knowledge, understanding of their strengths and weaknesses, readiness for self-development.

The purpose and meaning of accessible education for children in a general (mass, non-special) education institution is the full development and self-realization of children, regardless of the specific educational needs and health status of students, mastering their general education program (state educational standard), the most important social skills along with their peers, taking into account their individual and typological features in cognitive, physical, social and emotional development.

The accessibility of the physical and spatial educational environment should not be reduced only to providing comfortable and effective access to the premises and removing physical barriers for all children. Accessible environment is information, communication, transportation so that a person with limited abilities can feel completely independent. There should be comfortable workplaces for students, rooms (areas) for rest and recuperation. Classrooms shall have spaces that provide opportunities for recreation, extracurricular and in-class activities. There shall be rooms for specialists: a teacher-psychologist, a speech therapist, a speech pathologist. The building shall have rooms for therapeutic, preventive, recreational, and diagnostic work. Timing is set in accordance with the FSES for children with disabilities, the Federal Law «On Education», SanPiN, the orders of the Ministry of Education and Science.

The length of the school day for a particular child is determined taking into account his or her specific educational needs and readiness to be without parents among his or her peers. It is necessary to provide for parallel lessons and extracurricular activities, including remedial and developmental activities. Extracurricular activities may be carried out in the afternoon of the school day, which are connected both with the implementation of the remedial program and the plans for additional education of the children. During the lesson, physical exercises (physical activity breaks) aimed at relieving muscular tension are necessarily provided. The class should have for this purpose simulators, including those to prevent visual fatigue, hiking and massage mats, a small sports corner, a ball to correct posture, 1–2 standing workstations with benches, a «tea» area, for elementary school – a zone of favorite toys.

School textbooks and other materials should be placed at such a distance that a child can reach them with his hand without assistance, the use of a stand for books is mandatory. The child in the classroom must have open access to the information on the blackboard, information boards, etc. Personal computers adapted for children with disabilities may be installed on the desk.

Recreational facilities should provide play activities accessible to all children, carrying a corrective and developmental nature. They should allow the organization of children's games, including folk games, the corrective effect of which has been proved by science (including neuropsychology), and multi-generational historical experience of raising mentally healthy generations. These games develop attention, memory, self-control, the ability to switch from one speed of work to another, sensorimotor coordination, etc. Thus, in recreational areas there can be organized zones for playing «classics», «rubber band» and other moving games, as well as zones for board games and even dances – theories of free movement to music.

Adaptability of the educational environment is its culture- and nature-appropriateness, on the one hand, and its openness to each learner on the basis of feedback, on the other hand. An important task of the educational environment is to reduce social and natural deprivation of the child, to realize his/her needs, including special ones, in adapting to the natural and social environment [20].

The physical environment should be full of objects and information about cultural heritage objects (architectural, visual, applied, musical, theatrical, cinematographic) of the native land, country, peoples of Russia living in this area, about the historical memory of the Russians, about the cultural life of the school. Immersing children in the context of cultural values gives them an opportunity to reflect on their personal aspirations, sets guidelines, and awakens a desire for cultural creation and self-realization.

The subject environment should also be nature-appropriate, saturated with natural objects and information about the nature of the native land, country, their natural heritage, eliminate the negative effects of natural deprivation. It is no accident, experts in the structure of the accessible educational environment distinguish three components: spatial (physical) component, socio-cultural component (communicative and program-information) and the natural component, as an independent. Each of them serves not only as a background of training, education and development, but also as a means, acting as a «third teacher. The natural component is extremely important for activation of protective-compensatory forces of an organism. Natural deprivation is a significant factor in reducing the resources of especially the growing body. It is important to immerse children in the world of real natural sounds, direct contacts with animate and inanimate nature, actively using minerals, fruits, branches, indoor plants.

To reduce color deprivation, especially in the fall and winter, it is important to provide a competent color solution for classrooms and other rooms, taking into account the psycho-physiological laws of the influence of color on a child. Inclusion of bright color spots in the interior helps regulate the physical and mental work capacity of children. It was found, for example, that placing circles of yellow (sunny), green (grass) and red, each 20 cm in diameter, above the blackboard helps children control their psycho-emotional states (for example, fear) and motor activity (hyperactivity).

Accessible and adaptive educational environment is a varied environment, which gives an opportunity to form with the help of general and special education teachers personal educational environments of students - a specific space of possibilities for the child, allowing to meet his or her needs. This is a zone of child activity, being in the educational environment; «territory» of his/her closest development, in which a student shows himself/herself as a subject (shows his/her individual-typological features, preferences, aspirations, realizes different types of activity taking into account the meaning, goals, objectives, pace, forms and methods of learning, personal educational content, self-assessment of results. Personal educational environment of each child with disabilities has its own features, reflecting the specifics of motivational and semantic area of the child, his preferred choices, aspirations, the specifics of learning difficulties, the focus of remedial and developmental support.

The effectiveness of personal educational environments largely depends on how much the students themselves are the subjects of their creation and how open personal environments are to the educational environment of the educational organization and interact with it. If the personal educational environment is isolated, the effectiveness of corrective and developmental assistance to a child is significantly reduced, because successful individualization of the educational process requires an educational environment that implements a nonspecific health-saving developmental effect and trains the adaptive and protective-compensatory forces of the body.

Accessible adaptive educational environment should have the necessary information support not only for students, but also for specialists of general and special education, as well as for specialists of the support system, providing electronic libraries, portals and sites, remote advisory service, as well as for parents. In addition, information support provides for the creation and accumulation of a personal database of students, the coordination of all specialists, their regular and high-quality interaction, the exchange of information among themselves and with the family, as well as the possibility of obtaining external advice from qualified specialists in complicated cases.

The implementation of accessibility and adaptability approaches to the organization of an inclusive educational environment is manifested in:

- the balance of academic knowledge and social skills acquired in the process of education – adequate to the individual-typological features and relevant needs of the child and his family;
- the trinity of approaches to the organization of the educational environment in a combination of its cognitive (mastering the general educational program), behavioral (teamwork, cooperation, mutual assistance) and social-emotional (empathy, respect in communication, creative activity, social activity) effects;
- compromise between general and special education, creating and maintaining an atmosphere of acceptance, tolerance, cooperation; acceptance and consideration of differences, individual uniqueness of students and creating a situation of success for all students;
- adaptation of the child to the educational environment and the school to the child through the educational environment, variability of approaches, methods and forms of social adaptation (rehabilitation);
- optimization of the material, technical, regulatory, methodological, financial and economic, and organizational resources [15], including
 - accessibility of classrooms and other premises of the institution (elimination of barriers, ensuring the friendly environment of the institution);
 - equipping the educational process with assistive tools and technologies (technical means of providing comfortable and effective access);
 - corrective and developmental nature of the subject learning and socialization environment;
 - creation of premises (zones) for recreation and recovery;
 - provision of the subject-spatial conditions for psychological and pedagogical support;
 - consolidation of the pupil team, the development of skills of cooperation, interaction and mutual assistance.

14-year experience of organizing an inclusive educational environment in general education schools, combining the principles of accessibility and adaptability, general and special approaches was accompanied by biochemical, physiological, electrophysiological, psychological and sociological studies of students and is described in detail in a number of monographs [20; 21]. In general, it has been shown that such an environment allows to almost halve the frequency of psychosomatic disorders and school dysadaptation of students, increases their social inclusion.

Conclusion

Comparing approaches to the organization of the educational environment, historically separated in general and special education, is an urgent task in connection with the development of the inclusive education and the problems it faces. Usually these problems are associated with the understanding of inclusion as integration, when the classroom, in fact, turns into the territory of separate education of two groups of children – with «normative» and «non-normative» development at the same time. The transition to true inclusion, as education for all, means the creation of a single common and numerous personal educational environments that allow meeting the edu-

cational needs of each student, regardless of the presence of a diagnosis. The educational environment is seen as an important means of such a transition. Our research proves that the mandatory qualities of a single inclusive educational environment for all are its accessibility, adaptability, health-saving and developmental nature.

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