

Mental and Pedagogical Techniques in Teaching Children with Special Educational Needs: Neuropedagogical Aspect

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Abstract: *The relevance of the topic is in characterizing the neuropedagogical aspect of mental and pedagogical techniques in teaching children with special educational needs. The article contains the theoretical analysis of the elaborations on this topic, the definition of the concept «inclusive education», the chief principles of teaching students with limited capabilities; the neuropedagogical aspect of mental and pedagogical techniques in teaching children with special educational needs. The understanding of the concept of inclusive education has been studied, the literary sources on this topic have been summarized. On the basis of the findings it has been concluded that it is essential to critically review traditional approaches in the neuropedagogical aspect of mental and pedagogical techniques in teaching children with special educational needs. The author of the article remarks that in the context of vocational training for teachers' educational activity there might be efficient the techniques of teaching children with special educational needs, contributing to the better integration of children with special educational needs into the educational process. The system forming foundation of the inclusion is the postulate of acknowledging the capabilities of each student. Consequently, educational process must be arranged so that fully reveal the educational needs of each child.*

Keywords: *Inclusive environment; methodological techniques of teaching activity; integration into the educational process; principles of education; teaching techniques.*

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Introduction

Nowadays the number of children with special educational needs is rapidly increasing, which means that in the neuropsychological aspect modern education system should be transformed and renovated so that all the children could get qualified and up-to-date mental and pedagogical educational support.

Inclusive education is a wholesome phenomenon, which foresees equal access to the qualified education for all the people without exception.

«Inclusive» education is a subtype of comprehensive education, in which education becomes accessible for all the categories of children regarding their specific needs. This approach provides the facilities of teaching children with specific educational needs. Inclusive education offers for the variety of students' requests the corresponding complex of educational services, most suitable for educational activity.

The system forming foundation of the inclusion is the postulate of acknowledging the capabilities of each student. Consequently, educational process must be arranged so that fully reveal the educational needs of each child. The principle of acceptance of otherness is based upon humanism, intellectual development and elaboration of other skills, the balance of intellectual, ethnical, emotional and physiological components of every personality.

The pedagogical staff of comprehensive schools admits children regardless of their social status, intellectual and physical abilities, emotional state. The educational process must be based upon such mental techniques and methods which are fully oriented at the children's needs. When switching to inclusive education students are enabled to form the essential competences according to the educational standards.

There are numerous research works on neuropsychology, which serve to improve the educational process involving students with special educational needs, relying on the experience of the foreign countries (Berbets et al., 2021; Demchenko et al., 2021; Karasievykh et al., 2021; Kosholap et al., 2021; Prots et al., 2021; Sarancha et al., 2021; Sheremet et al., 2019). Anishchuk (2016) considers that in the neuropsychological aspect the modern education system must be urgently transformed and rebuilt so that all the children could have the qualified and up-to-date mental and pedagogical educational support and consequently suggests relying on the experience of the European countries; proves in her research works that the system-forming foundation of inclusion is the postulate of accepting the

peculiarities of each student; in Darling-Hammond's (2010a) opinion, the educational process must be arranged properly to fully distinguish the educational needs of every child, relying upon the overseas experience, where this aspect has been much earlier studied. Treviranus (2010) assures that for the children with physical, intellectual and mental disorders there are required special techniques and standards to facilitate their secondary education, and the content of education should be reviewed.

The main principles of teaching students with limited capabilities

Children with limited capabilities are children, whose physical and mental state hinders the acquisition of comprehensive education outside the boundaries of the special educational environment. The students with limited capabilities have various developmental disorders like: hearing, eyesight, speech and motion problems, intellectual thinking, emotional disorders, developmental retardation and complex developmental disorders. Therefore, an individual approach to each child and a special individual curriculum for children with limited capabilities are the chief advantages in educating such children, Ashytok (2015).

According to Voloshyna and Dmitrenko (2017) it is possible to outline the main principles of teaching students with limited capabilities:

1. Building an appropriate communicative situation, the possibility of correcting mistakes.

Students should be offered such tasks, which will contribute to building an appropriate situation, acknowledging the student's right to correct mistakes. For example, while doing a crossword puzzle, a student is allowed to erase the text if a mistake occurs.

The tasks based upon schematic drawing are also of great use. This reasonably facilitates the activity of the students, which find it difficult to give oral or written answers.

2. The complication of the educational stuff step-by-step, its presentation in small parts. But the tasks should be constantly complicated.

3. There should be employed enough educational aids and manuals.

4. The practical orientation of the tutorials and reliance on the child's life experience should be amplified.

5. There should be revision and reference to «previous» knowledge. There should be mandatory tasks for repetition at each lesson. There should be also arranged the overall revision at the end of each topic with the

employment of various methods and techniques (crossword puzzles, puzzles etc).

6. To facilitate students' work it is important to employ the sufficient number of tasks with the pattern, that is tasks based upon reproduction. These include tasks on filling in the schemes, symbolizing specific objects in the pictures. The educational stuff should be preliminary studied with the students on the basis of a textbook and only after that students may be given the task to perform the task in their copybooks.

The reality nowadays is such that it is difficult for the children with special needs to get adapted to social life. And in this case correctional and educating techniques for teaching the children with special needs are useful. It is very important that teachers on all the levels of education should employ the methods, which contribute to the socialization of the alternatively able students, and their maximal adaptation to the normal life. There are many definitions of the term «educational technology» (Raptis & Spanaki, 2017).

The neuropedagogical aspect of the mental and pedagogical technology in teaching children with special educational needs

Technology is a complex of techniques, employed in any business, skills or art, Budnyk (2017).

According to Kasyanenko (2018), technology is the structure of educational activity, in which all the actions are given in the specific order and wholeness, and their realization is foreseen and presupposes the achievement of the required result. The correctional and educational technology results in positive dynamics in educating and teaching children with limited capabilities. There should be singled out the neuropedagogical aspect of modern technology, which elements may be employed in special education acquisition:

1. Multilevel teaching technology;
2. Problem-based teaching technology;
3. Project-based teaching technology;
4. Compensatory teaching technology;
5. Gaming technology;
6. Information and communication technology;
7. Moral technology;
8. Safe and healthy technology.

The efficient combination of the traditional and innovative technology contributes to the development of cognitive activity, creativity and school motivation of students in the educational process.

The most important are educational techniques oriented at the employment of the teacher's continuous emotional interaction with children. Traditional technology allows to enrich children's imagination, arousing numerous associations with their social and emotional experience while stimulating speech development as well, Berehova (2019).

One of the ways of modernizing traditional technology is the inclusion of the elements of developing education and the integration of information as well as of the teaching methods and forms.

The multilevel educational technology takes into account each child's individual peculiarities, forms comfortable mental and educational environment for active cognitive activity of students, develops their thinking and independence, Chupakhina (2019a).

The neuropedagogical aspect of the multilevel education is the technology of the educational process arrangement, which presupposes different degrees of tutorial acquisition depending on the skills and individual peculiarities of each personality, but never below the basic level. It is especially urgent in correctional educational institutions for children with special educational needs.

This technology is aimed at facilitating the acquisition of the basic knowledge and skills by all students for further development. It enables the improvement of students' individual gifts and their awareness of the professional and social self-identification, Voyevutko (2017).

Level differentiation should be employed while studying complex topics or sections. Multilevel test works are the most recurrent at final lessons. There should be defined the purpose of students' education by the end of the section and respectively multilevel tasks should be provided.

One can also act differentially when studying a new topic. Explain the topic from the more complicated matters to the simpler ones. In the end the level of material acquisition may be assessed.

The analysis of the knowledge of the students' with multilevel education elements has resulted in the following findings (Crowl et al., 1997):

- such education favors the differentiated way of teaching regarding the students' individual peculiarities;

- reflexivity is increased (why; what I am doing; it should be admitted) and motivation for education is risen;
- the level of the satisfaction or dissatisfaction with the teaching results by the teacher and the students.

Problem-based education is understood as the arrangement of the educational process, including challenges provided by the teacher and the students' independent activity. There occurs creative professional knowledge, skills and thinking ability development mastering. The problem-based technology is aimed at the acquisition of the Knowledge, Skills and Abilities, the inclusion of independent activity ways, the development of cognitive and creative abilities.

Problem-based education consists in motivation through challenges, thus adequate didactic tutorials are required as a chain of challenges, Martynchuk (2018).

There are distinguished two types of challenges in the modern theory of problem-based education: mental and educational. The former ones include the students' activity, the latter – the educational process arrangement.

Pedagogical challenges are dealt with by means of motivating actions, teacher's questions, focus on the new meaning, vividness or other peculiarities of the object of cognition.

Mental challenges arise in various ways. Cognitive tasks, neither too complex, nor too simple hardly ever result in challenges for children, Kearsley (1992).

Challenges may arise on all the stages of the educational process: explanation, repetition, revision.

The term «gaming teaching techniques» encompasses quite an extended set of methods and techniques of arranging educational process in the form of pedagogical games, prominent and formed according to teaching and cognitive orientation.

Depending on the kind of activity the games are subdivided into physical (motional), intellectual (mental), action, social and psychological. When selecting games for the children with limited capabilities the following requirements should be met (Mattson & Hansen, 2009).

- gaming lesson form is created by means of gaming techniques and situations, employed to motivate children and stimulate educational activity;
- the adaptation of the game to the child's age or his\her current development level;
- the calculation of the mistakes structure;

- the selection of tutorials with consequent complication;
- the interaction of the game content with the child's knowledge;
- the correspondence to the correctional teaching purpose;
- the study of the activity types diversity principle;
- the employment of prominent, memorable toys and manuals;
- the correspondence to the standards of life safety and hygiene.

This teaching techniques type includes all the kind of role game, didactics and board games. To draw children's attention, teachers may use fairy tale characters. Due to the involvement of the famous characters of children are prepared to do the given tasks, become enthusiastic about the game itself and education on the whole. Almost every child is curious about the technology of «fairy tale lessons». The gaming process engages children for quite a long time, discreetly gains their attention, arouses high spirits. Moreover, children become motivated for education, so students perform tasks eagerly. Gaming technology in teaching children with limited capabilities is an efficient educational method, which is both interesting and easy to understand for children, Chupakhina (2019b).

As practice reveals, gaming challenges which add excitement to the educational process, contribute to active cognitive interest development in students. Such lessons create unique atmosphere, including elements of creativity and free choice. The ability to work in groups is developed: its victory depends on the efforts of each personality. It often helps to fight shyness and indecisiveness.

It is possible to employ gaming activity in teaching in the following cases:

- as a part of lesson (vocabulary work with terms);
- in vocabulary revision (frontal enquiry with competitive elements in groups);

The most efficient are the following games: vocabulary bingo: on one side of the board words are written, on the other – their definitions. Match the words with their definitions. Which group is faster?; word auction: the one who knows the biggest number of words and is the last one to say the word, wins.

Gaming technology may be employed as a type of activity, for example, travelling games, didactic games on revision, repetition and generalization of knowledge, crossword puzzles, riddles, puzzles etc., Bondarenko (2018).

Thus, didactic games enrich, optimize and extend knowledge and contribute to the child's holistic development.

Information technology improves the educational process due to novelty, objectivity and dynamics, employment of animated images and introduction of gaming elements. While using information technology, knowledge comes through different perception channels (visual, aural), which means it is better mastered and faster memorized. In a nut shell, this technology is guided by the principle: «When said forgotten. When shown remembered. When done understood». This statement proves the necessity of employing information technology in teaching children with special educational needs.

Information technology is employed in various ways. Most widely distributed there are multimedia presentations. Presentation preparation is a serious artistic process, each element of which should be studied and understood from the student's point of view, Ashytok (2015).

The preparation of presentations for teaching enables tutors to employ the methods of active learning oriented at actions. The realization of such lessons requires special teacher's training. Lessons become more interesting, engaging, emotional which enables students to perceive knowledge visually, aurally and mentally and penetrate deeper into the tutorials. Multimedia presentations contribute to the better comprehension of information.

Nowadays the role of testing as one of teaching methods is constantly increasing, and electronic texts are used for better knowledge acquisition and assessment. Self-assessment may be realized via doing electronic crossword puzzles. Interactive crossword puzzles arouse great interest as they allow to check the answers. If the answers are correct, there appears a word or illustration in the crossword puzzle field, but if they are wrong, music plays or there appears the word «Think». Interactive games and simulators on different topics may be of great use for teachers and students, Kasyanenko (2018).

Moral education technology contributes to the development of personality and breeding of nobleness by displaying the personal peculiarities; it leads to the formation of humanism and tolerance and optimizes self-education. Teachers should cultivate high moral standards, tolerance to teach students cultural competence. Moral presentations may be used in class to illustrate the report as auxiliary visual and aural aids.

Due to the influence of the environmental problems and social challenges the number of children with disabilities is increasing. Therefore,

the employment of safe technology is one of the priorities in modern educational reformation. According to the oriental aphorism: «The one who is healthy, has a hope, the one who has a hope – has everything».

To come into being, to get adjusted to life, to identify oneself, one's abilities and limits, to define one's role and importance in the whole world – all this requires life and creative activity, Martynchuk (2018).

To such technology there might be included exercises, fitness, sports etc. The main purpose of health improvement technology in teaching children with limited capabilities is the formation of abilities, skills and knowledge which enable full-scale life style with the fewest limitations and the development of health culture. The employment of such teaching methods in educating such children is of great relevance in their overall and complex development *вiдiрпae* and social adaptation.

The principles of safe technology:

- to form the tolerant, specific environment, individual work with each child;
- harmonious combination of teaching and health improvement and rehabilitation in educational institutions;
- resources restoration (for this purpose the change of activity or load as well as intervals for rest is used).

The following type of educational technology for teaching children with limited capabilities is not only an educating factor, but also a distinguished means of improving children's health, developing their personality, will-power and readiness for group work.

The important part of health protecting teacher's activity is rational arrangement of classes. First new information is discussed, then students take down the most essential part of it, process cards with tasks, analyze tables and schemes, make use of thematic presentations, in the meanwhile the students' activity is constantly changing, Darling-Hammond (2010b).

To improve children's ability to work, to avoid stamina and excessive workload, it is necessary to have intervals with exercises, emotional relaxation, eyesight training exercises, minutes of joking and mind the correct posture.

The employment of health protecting technology in the educational activity in correctional institutions allows not only to keep children with limited capabilities healthy without additional expenses but also contributes to the greater efficiency of the teaching process.

The technology of compensatory education presupposes diagnostic and correctional curricula, employed to reveal irregularities in children's development and correct them, as well as to help less gifted students catch up with the rest. The majority of compensatory means of the rehabilitation include: love for children (care, humane attitude, warmth and tenderness); sympathy with children's challenges and difficulties; readiness to accept children with all their advantages and drawbacks, tolerance, assistance, support in developing self-control skills.

Equally relevant there are various forms of educational knowledge perception support, Treviranus (2010):

- eager learning (on the basis of interest, success, trust);
- interaction of aural, visual, motional, mental and logical skills in knowledge acquisition;
- employment of the approximate bases for actions (sample signals);
- mutual teaching, dialogical methods;
- optimal speed of perception.

Art-therapy technology (music therapy, phototherapy, fairy tale therapy, origami therapy).

Painting is not only the reflection of reality in children's mind, but also their attitude to the reality, its modeling and rearrangement. While painting, children reveal their emotions and feelings, wishes and dreams, rebuild their relationship in various situations and fearlessly faces scary and awkward images. The employment of various visual aids allows to mobilize the child's creative potential and discover most suitable ways in accordance with the emotional state, needs in self-realization, contributes to the emotional communication activation and adds up to its variability. Every child may express his\her thoughts, reveal the emotional state by sound, movement, tune, picture (Chupakhina, 2019b).

Sand game therapy is a wonderful opportunity to display the attitude to the environment, discover the child's worries, relieve the fears.

Sand game has a positive impact on the children's emotional state. All this makes it a wonderful instrument for students' development.

Sand therapy is much more efficient than standard teaching techniques. Not only psychologists, but also teachers may make use of a sandpit in an educational institution by providing games with the sand to learn letters, numbers, concepts of space and time. Drawing in the sand help to develop creative thinking, imagination, perception and memory, as well as hand motility and sensitivity. While playing with the sand, children become

more enthusiastic, try to do it in the correct way, carefully and, what is important, quickly (Crowl et al., 1997).

There are various sand games. They are employed to train reading, writing, counting skills, they help to develop phonemic hearing and correct speech defects. Cognitive games enable children to master the variety of the environment, to learn the history of their city, country etc.; project games serve to reveal the child's potential and develop creativity and imagination.

Modern school system provides technological methods of educational activity for teaching children with special educational needs, the specific employment of which enables these students to develop both mentally and personally.

Conclusion

In the article the analysis of the theoretical survey on the topic has been performed, the concept «inclusive education» has been defined, the main principles of teaching students with limited capabilities have been presented; the neuropedagogical aspect of mental and pedagogical techniques in teaching children with special educational needs has been reviewed.

Therefore, it has been proved, that inclusive education is a process of teaching and bringing up, in which children regardless of their physical, mental, intellectual or other peculiarities are involved in the comprehensive school system. They go to common schools with their peers but their educational needs are taken into account. They are also supported.

This gives everyone right for education regardless of the correspondence to the school system requirements. The development of the personality occurs through respect and tolerance to other individuals. At the same time children become a part of community, they learn to socially interact and build up relations to solve educational problems in a creative way. Inclusive education presupposes involvement of students with limited capabilities in the educational process and collective teaching and problem-solving, by employing strategies of active participation – games, projects, laboratory works, field research etc.

Inclusive education extends all the children's personal abilities, contributes to humanism and tolerance.

References

- Anishchuk, A. (2016). *Inclusive education: Manual for the students of higher institutions specialty «Preschool education»*.
https://npu.edu.ua/images/file/vidil_aspirant/dicer/%D0%94_26.053.23/Chupakhina.pdf
- Ashytok, N. (2015). The problems of inclusive education in Ukraine. *Human Studies. Pedagogy*, 1(33), 4-11.
https://dspu.edu.ua/pedagogics/arhiv/33_1_2015/3.pdf
- Berbets, T., Berbets, V., Babii, I., Chyrva, O., Malykhin, A., Sushentseva, L., MEDYNSKII, S., Riaboshapka, O., Matviichuk, T., Solovyov, V., Maksymchuk, I., & Maksymchuk, B. (2021). Developing independent creativity in pupils: neuroscientific discourse and Ukraine's experience. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(4), 314-328. <https://doi.org/10.18662/brain/12.4/252>
- Berehova, M. (2019). *Dydaktyko-praktychna pidhotovka maybutnikh korektsiynykh pedahohiv do roboty v umovakh osvity obo inklyuzyvnogo prostoru* [Didactic-practical training of future correctional teachers for work in the inclusive educational environment]. [Unpublished PhD Thesis]. Kiev: National Pedagogical University named after M. P. Drahomanov.
https://repository.ldufk.edu.ua/bitstream/34606048/26497/1/%d0%91%d0%b5%d1%80%d0%b5%d0%b3%d0%be%d0%b2%d0%b0_avtoref_2019.pdf
- Bondarenko, T. (2018). Vykorystannya informatsiynykh tekhnolohiy dlya zabezpechennya dostupnosti ta rozvytku inklyuzyvnoyi osvity [The employment of information technology to provide accessibility and development of inclusive education]. *Information Technology and Teaching Techniques*, 5(67), 31.
https://ino.nau.edu.ua/files/syllabuses/information_technologies_inclusive_environment_ict.pdf
- Budnyk, O. (2019). Innovatsiyna kompetentnist' uchytelya: krashchi yevropeys'ki praktyky [Innovative competence of a teacher: Best European practices]. *Journal of Vasyly Stefanyk Precarpathian National University*, 1, 76-89.
<https://journals.pnu.edu.ua/index.php/jpnu/article/view/1895>
- Chupakhina S. (2019a). Information technologies in inclusive education: future teachers readiness. *International Scientific Conference Scientific Development of New Eastern Europe: Conference Proceedings*, 85-89.
http://www.baltijapublishing.lv/download/conference/all-science/all-science_part_1.pdf
- Chupakhina, S. (2019b). Methodological provision of IT support for educating primary school pupils with intellectual irregularities. *Journal of Drahomanov*

- National Pedagogical University. *Correctional pedagogy and special psychology*, 38, 152 - 164.
https://npu.edu.ua/images/file/vidil_aspirant/dicer/%D0%94_26.053.23/Chupakhina.pdf
- Crowl, T. Kaminsky, S., & Podell, D. M. (1997). *Educational psychology windows on teaching*. Irvine: McGraw-Hill College.
- Darling-Hammond, L. (2010a). Teacher education and the American future. *Journal of teacher education*, 61(1-2), 35–47.
<https://doi.org/10.1177/0022487109348024>
- Darling-Hammond, L. (2010b). Information and Communication Technology (ICT) for Inclusion: United Kingdom (Northern Ireland).
- Demchenko, I., Maksymchuk, B., Bilan, V., Maksymchuk, I., & Kalynovska, I. (2021). Training future physical education teachers for professional activities under the conditions of inclusive education. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(3), 191-213.
<https://doi.org/10.18662/brain/12.3/227>
- Karasievych, S., Maksymchuk, B., Kuzmenko, V., Slyusarenko, N., Romanyshyna, O., Syvokhop, E., Kolomiitseva, O., Romanishyna, L., Marionda, I., Vykhreshch, V., Oliinyk, M., Kovalchuk, A., Halaidiuk, M., & Maksymchuk, I. (2021). Training future physical education teachers for physical and sports activities: Neuropedagogical approach. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(4), 543-564.
<https://doi.org/10.18662/brain/12.4/264>
- Kasyanenko, O. (2018). Pidhotovka maybutnikh pedahohiv do navchannya ditey doshkil'noho viku v inklyuzyynomu seredovyshchi [Future teachers training for educating children of preschool age in the inclusive environment]. <http://docplayer.net/115962945-Ministerstvo-osviti-i-nauki-ukrayini-mukachivskiy-derzhavniy-universitet.html>
- Kearsley, G. (1992). Educational leadership in the age of technology: The new skills. *Journal of Research on Computing in Education*, 25(1), 50–60.
<https://euromentor.ucdc.ro/EUROMENTOR%20June%2025%2006%202020.pdf>
- Kosholap, A., Maksymchuk, B., Branitska, T., Martynets, L., Boichenko, A., Stoliarenko, O., Matsuk, L., Surovov, O., Stoliarenko, O., & Maksymchuk, I. (2021). Neuropsychological bases of self-improvement of own physical health of future teachers in the course of university education. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(3), 171-190.
<https://doi.org/10.18662/brain/12.3/226>
- Martynchuk, O. (2018). Pidhotovka vchyteliv-defektolohiv v inklyuzyynomu osvitu'omu seredovyshchi [Training teachers of special education in

- inclusive educational environment].
http://ispukr.org.ua/articles/19/19061814_d.pdf
- Mattson, E. H., & Hansen, A.-M. (2012). Inklyuzyvna ta eksklyuzyvna osvita u Shvetsiyi: dumky ta dosvid dyrektoriv [Inclusive and exclusive education in Sweden: Principals' opinions and experiences of headmasters]. *European Journal of Special Needs Education*, 24(4), 20-29.
https://psyjournals.ru/files/50095/jmfp_2012_1_n3_Liventseva.pdf
- Prots, R., Yakovliv, V., Medynskiy, S., Kharchenko, R., Hryb, T., Klymenchenko, T., Ihnatenko, S., Buzhyna, I., & Maksymchuk, B. (2021). Psychophysical training of young people for homeland defence using means of physical culture and sports. *BR/AIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(3), 149-171. <https://doi.org/10.18662/brain/12.3/225>
- Raptis, J., & Spanaki, E. (2017). Teachers' attitudes regarding the development of socio-emotional skills in elementary schools in Greece. *International Journal of Psychology and Educational Studies*, 4(1), 21-28.
<https://files.eric.ed.gov/fulltext/EJ1217247.pdf>
- Sarancha, I., Maksymchuk, B., Gordiichuk, G., Berbets, T., Berbets, V., Chepurna, L., Golub, V., Chernichenko, L., Behas, L., Roienko, S., Bezliudna, N., Rasskazova, O., & Maksymchuk, I. (2021). Neuroscientific principles in labour adaptation of people with musculo skeletal disorders. *BR/AIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(4), 206-223.
<https://doi.org/10.18662/brain/12.4/245>
- Sheremet, M., Leniv, Z., Loboda, V., & Maksymchuk, B. (2019). The development level of smart information criterion for specialists' readiness for inclusion implementation in education. *Information Technologies and Learning Tools*, 72(4), 273-285. <https://doi.org/10.33407/itlt.v72i4.2561>
- Treviranus, J., Stolarick, K., Denstedt, M., Fichten, C., & Ascunson, J. (2010). *Leveraging inclusion and diversity as Canada's digital advantage*. Toronto: Inclusive Design Research Centre.
http://openresearch.ocadu.ca/id/eprint/1476/1/Treviranus_Inclusion_2010.pdf
- Voloshyna, O., & Dmitrenko, N. (2017). Pedagogical aspect of future teachers training in inclusive educational environment. *Education of people with special needs: ways of rebuilding*, 13, 80-86. https://vinps.vn.ua/wp-content/uploads/2018/06/%D0%97%D0%91%D0%86%D0%A0%D0%9D%D0%98%D0%9A_13_2017.pdf
- Voyevutko, N. (2017). Suchasni tendentsiyi modernizatsiyi profesynoyi pidhotovky maybutnikh uchyteliv v Ukrainy [Current tendencies of future teachers vocational training modernization in Ukraine].
https://seanewdim.com/uploads/3/4/5/1/34511564/voyevutko._n._yu._current_trends_of_modernization_of_teacher_training_in_ukraine.pdf