WAYS OF INDIVIDUALIZATION OF EDUCATION FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS: THE EXPERIENCE OF SPECIAL PEDAGOGUES'

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Abstract. *Researchers shows that both in Lithuania and in other countries the education of students with autism spectrum disorders (ASD) still poses significant challenges, especially for teachers in general education schools. Thus, not only students with ASD but also their teachers need the support of special needs teachers in the educational process. However, there is a lack of research in Lithuania on the strategies used by special needs teachers to educate students with special educational needs (SEN). The research aim - to examine special pedagogues' experience in individualizing the education of students with ASD. A theoretical analysis of the educational strategies and ways of individualized education of students with ASD has been performed. Empirical research was carried out by the method of survey of special pedagogues who have experience in educating these children. Quantitative data analysis was performed using the methods of descriptive statistics. According to the special pedagogues, the factors of individualization of education of students with ASD are the peculiarities of their learning, communication and cognitive skills of those children. The analysis of the educational goals indicated by respondents revealed their orientation towards the individualization of education, support for students participation in the educational process, etc.*
Keywords: autism spectrum disorder, individualized teaching, individual education plan.

Introduction

Importance of the topic. There is a growing body of evidence-based knowledge around the world on how to educate students with ASD effectively (Marder & deBettencourt, 2015). Some students with ASD still study in special schools, some attend general education schools. Research shows that both in Lithuania and in other countries, the education of students with ASD still poses significant challenges, especially for general education teachers (Lindsay, Proulx, Thomson, & Scott, 2013). Teachers need to understand the peculiarities of cognitive and social development of children with ASD (Manti, Scholte & Van Berckelaer-Onnes, 2013) and be able to apply effective evidence-based teaching

strategies (Marder & deBettencourt, 2015). Special pedagogues, being experts in their field and having mastered special education methodologies, can help teachers to understand the educational needs of these students. However, there is a lack of research in Lithuania on the experience, attitudes and abilities of special pedagogues to apply evidence-based strategies for the education of students with ASD. The research problem is described by the questions: *what kind of educational strategies for students with ASD are applied by special pedagogues?* Do their educational strategies meet the learning characteristics and special educational needs of students with ASD?

The research aim – to examine the experience of special pedagogues in individualizing the education of students with ASD.

Methods of research – theoretical analysis, questionnaire survey, quantitative data analysis. The method of theoretical analysis is used to examine the peculiarities of the development of children with ASD, educational strategies, principles of an individual educational plan's preparation, ways of structuring the educational environment, etc. The method of the questionnaire survey was used to research the opinions of special pedagogues about the ways of individualization of the education for students with ASD, the goals of the individualized education methods used in lessons.

Strategies for Educating Students with Autism Spectrum Disorders

Students with ASD have a wide variety of skills and needs, so their education does not have a single "correct" educational methodology or program (Hallahan, Kauffman, & Pullen, 2014). From the point of view of theories of ecosystems the education of children with ASD is based on the combination of various educational strategies and contexts, taking into account the unique social, academic and individual features of each student; environmental factors, i.e., where and how educational interactions takes place, under what circumstances and how the skills and behaviors of the student are manifested (Hallahan et al., 2014).

One of the key strategies for children with special educational needs is to individualize their education. This can be preparation of individual education plan (IEP), adaptation of the general education program, selection of educational methods according the characteristic learning style of a student with ASD (Marder & deBettencourt, 2015), selection of an individual place in a classroom, and so on. It is equally important that general education teachers and special pedagogues are able and motivated to cooperate not only with each other (Fleury et al., 2014), but also with parents of students with ASD (Schultz, Able, Sreckovic, & White, 2016). Hallahan et al. (2014) noted lack of scientific evidence on the effectiveness of teachers collaborative strategies for education

students with ASD in the general education classes; models of effective collaboration between teachers and special pedagogues are still being sought. More and more attention is being paid to teaching students with SEN natural interactions in a natural environment, including general education schools (Hallahan et al., 2014; Gunn & Delafield-Butt, 2016). As noted (Dykstra Steinbrenner & Watson, 2015), the results of many authors' researches show that the involvement of a student with ASD in learning activities in the classroom depends on various factors: both the student's individual characteristics - age, learning characteristics determined by disabilities, etc. factors. Pedagogues are responsible for modifications of learning environment, academic content, and process, for example, these students may be given more time to complete tasks; they need clear guidelines for action, support is needed to promote their social interaction with peers (CSESA, 2013; Gunn & Delafield-Butt, 2016).

Specific strategies for educating students with ASD are: structuring the teaching process and environment (Manti et al., 2013), visualization of learning and other activities (visual schedules, visual modeling, observation training, etc.). According Hume (2018), Manti et al. (2013) and others, structured learning (structuring the learning environment, learning pace, learning methods) is the strongest teaching strategy that promotes the growth of academic skills of students with ASD. These and other strategies are based on research into the specifics of the development and education of students with ASD.

Methodology

Empirical research was performed using quantitative research methodology.

Research tools. The method of questionnaire survey was chosen. The semi-closed questionnaire is based on the scientific literature on the developmental characteristics of students with ASD (American Psychiatric Association, 2018); their learning strategies (Fleury et al., 2014; Manti et al., 2013; Marder & deBettencourt, 2015 and other); preparation of individual education plan and collaboration with parents of students with ASD principles (MacLeod, Causton, Radel, & Radel, 2017), ways of adapting the educational environment, etc.

At the beginning of the survey questions are asked about the respondents' demographic data (6 nominal scales: respondents' gender, age, type of school represented and city where the school is located, respondents' pedagogical work experience and number of students with ASD during the research period). In the main part of the questionnaire – 14 questions, 8 of which are closed-ended questions about the individualization of the education of students with ASD. 7 questions were consisted using the Likert (ranking scales) method. Statements – possible variants of answers were given for each question. Respondents were asked to mark the answers to the questions based on the principle of ranking scales

(eg. 1 - not at all important; 2 - not important; 3 - doubtful; 4 - important; 5 - very important; or 1 - never, 4 - always).

Data collection procedure. The electronic version of the questionnaire was posted on the portal apklausa.lt. An invitation to participate in the survey and a link to the questionnaire were sent by e-mails to special pedagogues of general education and special schools in various Lithuanian cities. The research was conducted in 2020. March – April.

Methods of data analysis. The research data was processed by quantitative analysis methods. Quantitative data analysis was performed using SPSS Statistics software package *IBM SPSS Statistics 21* using descriptive statistics methods. The analysis of most of the responses to the closed-ended questions was performed by calculating the means of the approval statements (M) and the standard deviation (SD). The results of the quantitative research are presented in the tables. In order to process the answers to the ranking scale question about the methods of indivi-duallized education used in the lessons, the exploratory factor analysis of the principal components (Oblimin Rotation Method), evaluation of the suitability of the correlation matrix for factor analysis (MSA>0.7) were performed. The results of the factor analysis are presented in the table, indicating KMO, test reliability (Cronbach α), statistical significance (p); factor weight (L) and dispersion (in percent, %).

Research ethics. The essential principles of research ethics were followed in conducting the research and processing the research data: informed consent of the respondents, voluntary of participation, data anonymity, confidentiality (Buchanan & Zimmer, 2021; Denscombe, 2014).

Research sample. Special pedagogues with at least one year of experience educating students with ASD were invited to participate in the research. There-fore, in our research, special pedagogues are treated as experts who can provide valuable information about the education of students with ASD: preparation of IEP, setting educational goals, adapting curricula, choosing teaching methods.

68 special pedagogues participated in the research, which makes up 22.7% of Lithuanian special pedagogues working full-time in Lithuanian municipal schools. All special pedagogues who participated in the research have experience in educating students with ASD. Most respondents have up to 5 years of peda-gogical work experience (41,2 %); 20 years (23,5 %); 11-15 years (20,6 %); the smallest part of respondents (14,7 %) worked at schools for 6-10 years. According research data special pedagogues who participated in the survey during the research period educated: 26,5 % of respondents for 2 students with ASD; 1 student (23,5 % respondents); one-fifth (19,1 %) respondents – for 3 students; the others – for 4 (11,8 %); 5 students (10,3 %). The smallest part (8,8 %) of respondents stated that at the time of research they did not have such students.

Results of the Research
Special Pedagogues Apply Individualization Strategies for the Education of Students with Autism Spectrum Disorders

The opinion of special pedagogues on the preparation of individual education plans (IEP) for students with ASD was researched. Slightly more than a half (54.4%) of respondents stated that individual education plans were developed for each student with ASD in their schools; one-fifth (22.1%) of respondents said that IEP were prepared for some students, almost as many (23.5%) said that no such plans were being prepared.

An IEP is essentially a collaboration agreement between a student, his or her parents, and the school, while pursuing the student's educational goals (CSESA, 2013). Respondents were asked: who was involved in the preparation of the IEP for a student with ASD; they marked responses on a ranking scale from 1 – *never to* 4 – *always*. Almost all respondents stated that a special pedagogue (M = 3.84; SD = 0.409) is almost always involved in the preparation of the IEP, while a speech therapist (M = 3.75; SD = 0.469) and teachers (M = 3.68; SD = 0.558), educational support specialists - psychologist (M = 3.59; SD = 0.674), social pedagogue (M = 3.49; SD = 0.743) were less involved. According to the survey results, parents are not always involved in the preparation of their child's IEP (M = 3.46; SD = 0.656). Similar data on poor teacher collaboration with students' parents have been revealed by other authors (Schultz et al., 2016; MacLeod et al., 2017; et al.). According to our research data the student himself is very rarely involved in the preparation of the IEP (M = 2.84; SD = 1.045). Perfitt (2016) research shows that students have clear thoughts about their educational plan. Therefore, in the author's opinion, it would be beneficial for the student to participate in the preparation of the IEP, as the opinions of the student and adults may be different; however, pedagogues and parents should help student with limited speech to communicate, express his opinion about his education.

Our research revealed that the most important people in preparing IEP for a student with ASD are special pedagogues, speech therapists, and teachers. The student's parents and the student himself are not sufficiently involved in this process. According to Ganaie & Bashir (2014), parents' participation is important not only for the student but also for his pedagogues. By sharing responsibility for a child's education, pedagogues and parents can help each other to know more about the characteristics of the student, select individualized education methods that best meet the student's needs, and ensure continuity of specific educational methods at school and in the student's family (Fleury et al., 2014; Hallahan et al., 2014). On the other hand, parents also benefit from collaboration with professionals because not only the student but also his parents need the support of professionals (Ganaie & Bashir, 2014). According to the authors, family support

is also an extremely important factor in the emotional well-being of a student with ASD at school. Therefore, the poor cooperation between school and parents may have long-term consequences for the failure of the education of students with ASD.

Although children with ASS have inherent features of social interaction, verbal and nonverbal communication and limited / repetitive behavior (American Psychiatric Association, 2018), each of them has individual differences of academic, socialization, adaptation, communication, behavior skills and different strengths. It was asked what factors are taken into account when developing an individual education plan for students with ASS in the schools of the surveyed respondents. Respondents had to rate statements in the rank scale from 1 – *never* to 4 – *always*. The data of the factor analysis of the responses are presented in Table 1.

Table 1 **Characteristics of Students with ASD that are Taken into Account in the Preparation of the IEP** (KMO=0,818; p=0,000; α=0,901)

Factor matrix structure	L	%
Student's communication and social functioning skills		
Language comprehension skills	0,838	40,6
Social maturity	0,828	
Nonverbal communication skills	0,802	
Ability to adopt to changes	0,797	
Skills for social interaction and communication	0,757	
Peculiarities of sensory integration	0,754	
Student's interests (areas of interest, hobbies)	0,624	
Verbal communication skill	0,506	
Relationships with other students	0,504	
Cultural peculiarities and expectations of the family		
Cultural peculiarities of the student's family	0,806	10,7
Student 's gender	0,767	
Parental expectations	0,571	
Student's age	0,558	
Learning skills and personal characteristics		
Subject learning problems experienced by the student	0,845	8,1
Activity level	0,812	
Peculiarities of thinking	0,737	
Personal characteristics	0,662	

According to the research data, the student's *communication and social functioning skills*; *cultural peculiarities and expectations of the family*; students *learning abilities and personal characteristics* are main factors when special pedagogues preparing the individual education plan of students with ASD. The scientific literature emphasizes that when individualizing education it is necessary

to take into account students' special interests, motivations (Gunn, & Delafield-Butt, 2016), strengths, and not just his or her weaknesses and special educational needs (CSESA, 2013); the expectations of parents raising an ASD child; the peculiarities of education in the family (Gunn & Delafield-Butt, 2016; MacLeod et al., 2017). The data of the questionnaire survey revealed the orientation of special pedagogues both to the characteristic of communication and social functioning of these students, as well as to the individual learning peculiarities and personal characteristics of a student with ASD. The research data shows that special pedagogues understand the need to take into account the expectations of the student's family expectations and cultural differences.

On a ranking scale (1 - *not at all important*, 5 - *very important*), respondents were asked to rate the most important aspects of the individualization of the education child's with ASD. Data from the factor analysis of responses are presented
in Table 2.

Table 2 ***Opinions of Special Pedagogues on Priority Areas of Individualization of Education*** (KMO=0,856; p=0,000, α=0,895)

Factor matrix structure	L	%
Creating a safe learning environment		
Create a safe learning environment that meets the needs of a child with ASD	0,986	48,2
Provide individualized ASD assessment of learning outcomes	0,843	
Structure the learning environment in the lesson	0,750	
To strive for consistency and continuity of teaching and learning	0,652	
Provide opportunities to meet the student's special educational needs	0,631	
Provide teaching and learning strategies according to the child's abilities and needs	0,571	
Learning intensity and goals adapted to the student		
Predict learning intensity (pace) according to individual skills and SEN	0,816	10,2
Predict simpler (achievable) educational goals and learning outcomes	0,727	
Predict the development of student collaboration skills	0,556	

In the opinion of special educators, the priority areas of individualized teaching are: 1) *creation of a safe learning environment* 2) *learning intensity and goals adapted to the student*. Both factors help to develop learning skills that matches the individual abilities and needs of a student with ASD. The importance of adapting the learning environment to the student is emphasized by many authors. (Fleury et al., 2014) argue that the physical environment of a school can be cause of anxiety for many students with ASS because the school environment is noisy; students have to move to other premises; each subject is taught by different teachers with their own expectations and rules. According to the authors, the ability to anticipate changes and to understand activities, procedures and

expectations of teachers improves students' well-being, behavior, and ability to participate in learning activities. Thus, a structured learning environment is safe for a student with ASD; in such environment he or she is provided with clear visualized instructions about the sequence and consistency of the learning activities etc. (Manti et al., 2013; Lindsay, Proulx, Scott, & Thomson, 2014).

Educational goals are an important component of education, both in the preparation of individual education plans for students with ASD and in the planning of lessons. These goals are set by curricula, but in educating students with ASD, academic goals need to be individualized considering the specifics of students education, their academic and social skills. We asked special pedagogues what are the most important educational goals of students with ASD. Respondents marked the answers on a ranking scale (1 – *not important at all*, 2 – *not important*, 3 – *doubtful*, 4 – *important*, 5 – *very important*). Data on special pedagogues' responses (means and standard deviations) are presented in Table 3.

*Table 3 **Educational Goals for Students with ASD** (M, SD)*

Objectives for the education of learners with ASD	Min	Max	Mean	SD
Develop social skills	2	5	4,59	0,815
Teach to behave adequately in various situations	2	5	4,54	0,721
Teach to communicate	3	5	4,49	0,702
Develop language comprehension skills	2	5	4,46	0,762
Ensuring consistent and individualized education to meet individual needs, opportunities, hobbies and interests in best way	3	5	4,41	0,696
Develop non-verbal skills	2	5	4,35	0,787
Develop cooperation skills	1	5	4,34	0,908
Develop thinking skills	2	5	4,32	0,781
Develop language skills	2	5	4,29	0,882
Create equal opportunities for active participation in joint learning activities	1	5	4,28	0,789
Teach to use alternative and augmentative communication	2	5	4,25	0,904
Develop functional skills	2	5	4,12	0,723
Combine the requirements of general curricula and individual needs of the student	1	5	4,06	0,991
Teach to learn	1	5	3,93	0,997
Provide subject knowledge	2	5	3,78	0,826

According to the special pedagogues who participated in the survey, the most important goals of educating students with ASD are: *develop social skills* (M = 4.59, SD = 0.815); *teach to behave adequately in various situations* (M = 4.54; SD = 0.721); *teach to communicate* (M = 4.49; SD = 0.702). These goals are related to the inherent social and communication skills, distancing oneself, lack of interest in the surrounding (American Psychiatric Association, 2018), and meet

the special educational needs of students with ASD. Respondents less supported for statements about developing *nonverbal* (M = 4.35, SD = 0.787) and *collaborative skills* (M = 4.34; SD = 0.908). Understandably, non-verbal skills development is not relevant for all students with ASD. The goals of developing collaborative skills are not a priority for the special pedagogues who participated in the research, perhaps because the goals of developing students' basic social skills are more important, especially - teaching communication. Many autism studies also emphasize academic relationship of achievement to the level of social skills (Fleury et al., 2014; Hallahan et al., 2014).

Examining the answers of the respondents, their orientation towards the individualization of students' education becomes clear (*Ensuring consistent and individualized education to meet individual needs, opportunities, hobbies and interests in best way* – M = 4.41; SD = 0.696); creation of opportunities for the student to actively participate in the educational process (*Create equal opportunities for active participation in joint learning activities* – M = 4.28; SD = 0.789). The lowest averages of respondents support were for statements about the development of academic competencies of these students (for example, *develop functional skills* – M = 4.12; SD = 0.723). According to special pedagogues, it is less important to *combine the requirements of general curricula and the individual needs of the student* (M = 4.06; SD = 0.991). However, significant standard deviations of the answers indicate the discrepancies of the respondents' opinions.

Each student with ASD has unique features and learning characteristics. When planning lessons, pedagogues are encouraged to provide opportunities to learn in ways that best meet the learning style and needs of students with ASD (CSESA, 2013; Fleury et al., 2014). We asked special pedagogues: what ways do you use to individualize the education of students with autism spectrum disorders in special lessons? Respondents marked the answers on a ranking scale (1 – *never*, 4 – *always*). Means of responses and standard deviations are shown in Table 4.

Table 4 ***Ways of Individualizing the Education of Students with ASD*** (M, SD)

Ways of individualizing the education students' with ASD	Min	Max	Mean	SD
Individual tasks are prepared for each student with ASD before the lesson	2	4	3,57	0,527
Tasks are selected so that the student can be successful	2	4	3,54	0,558
Each student is given a task of different complexity	2	4	3,49	0,586
More complex tasks are breaking into stages	2	4	3,47	0,559
An individual pace of teaching and learning is selected for each student with ASD	2	4	3,47	0,559
The task is additionally explained to the student	2	4	3,46	0,656
The same order of learning activities in the lesson is applied	2	4	3,43	0,654

Very specific practical tasks are presented	2	4	3,40	0,602
Advance warning of transition from one activity to another	2	4	3,40	0,626
Alternative and augmentative communication are used	1	4	3,35	0,686
During breaks students are allowed to engage in favorite activities	2	4	3,35	0,686
An individual place in the classroom is chosen	1	4	3,35	0,664
The order of each task is visualized	1	4	3,34	0,637
Additional breaks are possible	1	4	3,34	0,745
Additional sources of information (glossaries, etc.) are allowed	1	4	3,32	0,781
Intermediate settlement stages apply	2	4	3,31	0,697
Individual handouts are being prepared	2	4	3,31	0,697
Tasks are presented in descending order	2	4	3,26	0,589
Task visualization techniques are used	1	4	3,26	0,683
Tasks that involve joint activities are selected	2	4	3,25	0,655
A visualized lesson plan is provided	1	4	3,24	0,813
Verbal instructions are combined with alternative and complementary means of communication	1	4	3,22	0,730
Opportunity to learn individually, not in a group	1	4	3,21	0,659

The choice of an appropriate educational strategy depends on the individual learning needs and goals of students (Fleury et al., 2014). In the education of students with ASD it is important to harmonize the learning goals and methods with the students' cognitive abilities (Marder & deBettencourt, 2015) and their social and academic skills development needs. (Fleury et al., 2014) described effective strategies for educating students with ASD: pre-training before direct training – this creates preconditions for the student's participation in academic activities; (b) teaching of a learning strategy that supports / encourages students thinking when performing academic tasks; (c) strategies applied after mastering skills that facilitates the generalization of acquired skills in new situations and promotes student's independence. The analysis of the survey data revealed that in their professional practice special pedagogues apply some elements of the above-mentioned strategies – pre-training before direct training and learning activity planning; structuring learning - determining the sequence of learning tasks; a clear indication of the learning strategy etc.

Pre - training and learning action planning. Disclosure of tasks to students prior to classroom instruction has been found to be effective in helping students with ASD to understand what was expected from them and in better preparing them to participate in lessons (Fleury et al., 2014). According to the special pedagogues who participated in the research, *individual tasks are prepared before the lesson for each student with ASD* (M = 3.57; SD = 0.527). *Individual handout is prepared* (M = 3.31; SD = 0.697). Inherent resistance of students to changes in activities or the environment is bypassed by special educators by applying a

warning about changes (*Advance warning of transition from one activity to another*, M = 3.40; SD = 0.626).

Structuring learning, determining the sequence of learning tasks. According to (Fleury et al., 2014), breaking down tasks into manageable components and setting learning stages helps students with ASD to compensate for deficiencies in academic functionality. The special pedagogues who participated in our research use the following methods to promote learning functionality: *More complex tasks are breaking into stages* (M = 3.47; SD = 0.559); Intermediate settlement stages apply (M = 3.31; SD = 0.697).

Special pedagogues also apply *clear indication of learning strategy* in their lessons: *Very specific practical tasks are presented* (M = 3.40; SD = 0.602); *The order of each task is visualized* (M = 3.34; SD = 0.637); *A visualized plan of the lesson is presented* (M = 3.24; SD = 0.813). Structured educational environment, visualized activity schedules for students with ASD helps to understand the order of activities, teachers' expectations, reduces anxiety, inappropriate behavior and improves their participation in learning activities (Fleury et al., 2014). To promote learning motivation, special pedagogues create preconditions for students to succeed in completing tasks (*Tasks are selected so that the student can be successful*, M = 3.54; SD = 0.558).

Special pedagogues apply a strategy of personalized learning. Personalization is a learner-centered teaching strategy, when adapting the teaching content and process to the interests, strengths and needs of each learner; assisting the student by setting clear learning goals and expectations for outcomes; a system of flexible learning instructions, focusing on metacognitive practices, developing more independent learning skills (Patrick, Kennedy, & Powell, 2013; Bulger, 2016). The special pedagogues who participated in the research use personalized teaching methods: *Each student is given a task of different complexity* (M = 3.49; SD = 0.586*); An individual pace of teaching and learning is selected for each student with ASD* (M = 3.47; SD = 0.559); *Favorite activities are allowed during breaks* (M = 3.35; SD = 0.685); *Additional breaks are possible* (M = 3.34; SD = 0.745); *Verbal instructions are combined with alternative and augmentative communication* (M = 3.22; SD = 0.730); *Opportunity to learn individually, not in a group* (M = 3.21; SD = 0.659). Basham, Hall, Carter Jr., & Stahl (2016) found that personalized teaching can improve learning skills for students with disabilities.

Conclusions

According to scientific sources, children with autism spectrum disorders (ASD) have a wide variety of individual characteristics, strengths and special educational needs, so their education is based on a combination of different

educational strategies to suit each student's unique characteristics and activity contexts. The essential strategies for the education of these children are individualization, structuring of the educational environment and activities.

According to the respondents, the most important factors in the individualization of the education of students with special educational needs (SEN) are not only their developmental and learning characteristics, but also their individual differences. When preparing the individual education plan for students with ASD, special pedagogues take into account *the student's communication and social functioning skills; cultural peculiarities and expectations of the family; learning abilities and personal characteristics*. In their opinion, the most important thing is to *educate* student's with ASD *social skills; teach to behave adequately in various situations; teach to communicate*. In other words, special pedagogues consider the developmental characteristics typical of these students. The analysis of the educational goals indicated by the special pedagogues who participated in the research revealed an orientation towards the individualization of the educational process, active participation of the student in the educational process, development of social and partly - academic skills.

Examining the educational strategies applied by special pedagogues, their orientation to the students' individual learning peculiarities becomes clear. According to the respondents, the priority areas of individualized education are the adaptation of the learning environment and the choice of teaching strategies; there is also a strong focus on individualization of learning intensity and educational goals.

Special pedagogues apply various strategies of individualization of education and ways of organizing teaching. According to the majority of respondents, pre-training and learning action planning apply; structuring the learning environment and process, clear instruction on the sequence of learning tasks, visualization, etc. Students' learning motivation is maintained by applying personalized teaching strategies, which creates preconditions for the student to successfully participate in learning activities.

It has been established that special pedagogues, speech therapists, and teachers are the most important persons in planning the individualized education of a student with ASD. However, there is insufficient cooperation with the student's parents and the student himself in decision-making.

References

American Psychiatric Association. (2018). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, DC: American Psychiatric Association. Retrieved from https://www.psychiatry.org/patients-families/autism/what-is-autism-spectrum-disorder

Basham, J.D., Hall, T.E., Carter Jr., R.A., & Stahl, W.M. (2016). An operationalized understanding of personalized learning. *Journal of Special Education Technology, 31*(3), 126-136. DOI: https://doi.org/10.1177%2F0162643416660835

Buchanan, E.A. & Zimmer, M. (2021). Internet Research Ethics. In Edward N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy,* (Spring 2021 Edition), forthcoming. Retrieved from https://plato.stanford.edu/archives/spr2021/entries/ethics-internet-research/

Bulger, M. (2016). Personalized learning: The conversations we're not having. *Data and Society, 22*(1), 1-20. Retrieved from https://datasociety.net/pubs/ecl /Personalized Learning_primer_2016.pdf

CSESA. (2013). *Understanding autism: A guide for secondary school teachers*. USA: Center on Secondary Education for Students with Autism Spectrum Disorders (CSESA). Retrieved from https://csesa.fpg.unc.edu/sites/csesa.fpg.unc.edu/files/Understanding AutismSecondaryTeachersGuide.pdf

Denscombe, M. (2014). *The good research guide: For small-scale social research projects* (5th ed.). England: McGraw-Hill Education (UK) Open University Press.

Dykstra Steinbrenner, J.R., & Watson, L.R. (2015). Student engagement in the classroom: The impact of classroom, teacher, and student factors. *Journal of Autism and Developmental Disorders, 45*(8), 2392-2410. DOI: https://doi.org/10.1007/s10803-015-2406-9

Fleury, V.P., Hedges, S., Hume, K., Browder, D.M., Thompson, J.L., Fallin, K., . . . & Vaughn, S. (2014). Addressing the academic needs of adolescents with autism spectrum disorder in secondary education. *Remedial and Special Education, 35*(2), 68-79. DOI: https://doi.org/10.1177/0741932513518823

Ganaie, S.A., & Bashir, A. (2014). Global autism: Autism, autism etiology, perceptions, epistemology, prevalence and action. *International Journal of Clinical Therapeutics and Diagnosis, 2*(2), 39-47. Retrieved from https://ikefoundationforautism.org/e-library/Global_Autism_Autism_Autism_Etiology_Per.pdf

Gunn, K.C.M., & Delafield-Butt, J.T. (2016). Teaching children with autism spectrum disorder with restricted interests: A review of evidence for best practice. *Review of Educational Research, 86*(2), 408-430. DOI: https://doi.org/10.3102%2F0034654315604027

Hallahan, D.P., Kauffman, J.M., & Pullen, P.C. (2014). *Exceptional learners: An introduction to special education* (12th ed.). United States of America: Pearson Education Limited.

Hume, K. (2018). Structured teaching strategies for students with autism spectrum disorder. *Reading Rockets*. Retrieved from https://www.readingrockets.org/article/structured-teaching-strategies-students-autism-spectrum-disorder

Lindsay, S., Proulx, M., Scott, H., & Thomson, N. (2014). Exploring teachers' strategies for including children with autism spectrum disorder in mainstream clASDrooms. *International Journal of Inclusive Education, 18*(2), 101-122. DOI: https://doi.org/ 10.1080/13603116.2012.758320

Lindsay, S., Proulx, M., Thomson, N., & Scott, H. (2013). Pedagogues' challenges of including children with autism spectrum disorder in mainstream classrooms. *International Journal of Disability, Development and Education, 60*(4), 347-362. DOI: https://doi.org/ 10.1080/1034912X.2013.846470

MacLeod, K., Causton, J. N., Radel, M., & Radel, P. (2017). Rethinking the individualized education plan process: Voices from the other side of the table. *Disability & Society, 32*(3), 381-400. DOI: https://doi.org/10.1080/09687599.2017.1294048

Manti, E., Scholte, E. M., & Van Berckelaer-Onnes, I.A. (2013). Exploration of teaching strategies that stimulate the growth of academic skills of children with ASD in special

education school. *European Journal of Special Needs Education, 28*(1), 64-77. DOI: https://doi.org/10.1080/08856257.2012.743729

Marder, T., & deBettencourt, L.U. (2015). Teaching students with ASD using evidence-based practices: Why is training critical now? *Teacher Education and Special Education, 38*(1), 5-12. DOI: https://doi.org/10.1177%2F0888406414565838

Patrick, S., Kennedy, K., & Powell, A. (2013). *Mean what you say: Defining and integrating personalized, blended and competency education*. Vienna, VA: International Association for K–12 Online Learning. Retrieved from https://eric.ed.gov/?id=ED561301

Perfitt, R. (2016). Practical consideration when supporting transitions for pupils with speech, language and communication needs. *British Journal of Special Education, 40*(4), 189-196. DOI: https://doi.org/10.1111/1467-8578.12039

Schultz, T.R., Able, H., Sreckovic, M.A., & White, T. (2016). Parent-teacher collaboration: Teacher perceptions of what is needed to support students with ASD in the inclusive classroom. *Education and Training in Autism and Developmental Disabilities, 51*(4), 344-354. Retrieved from https://www.jstor.org/stable/26173862