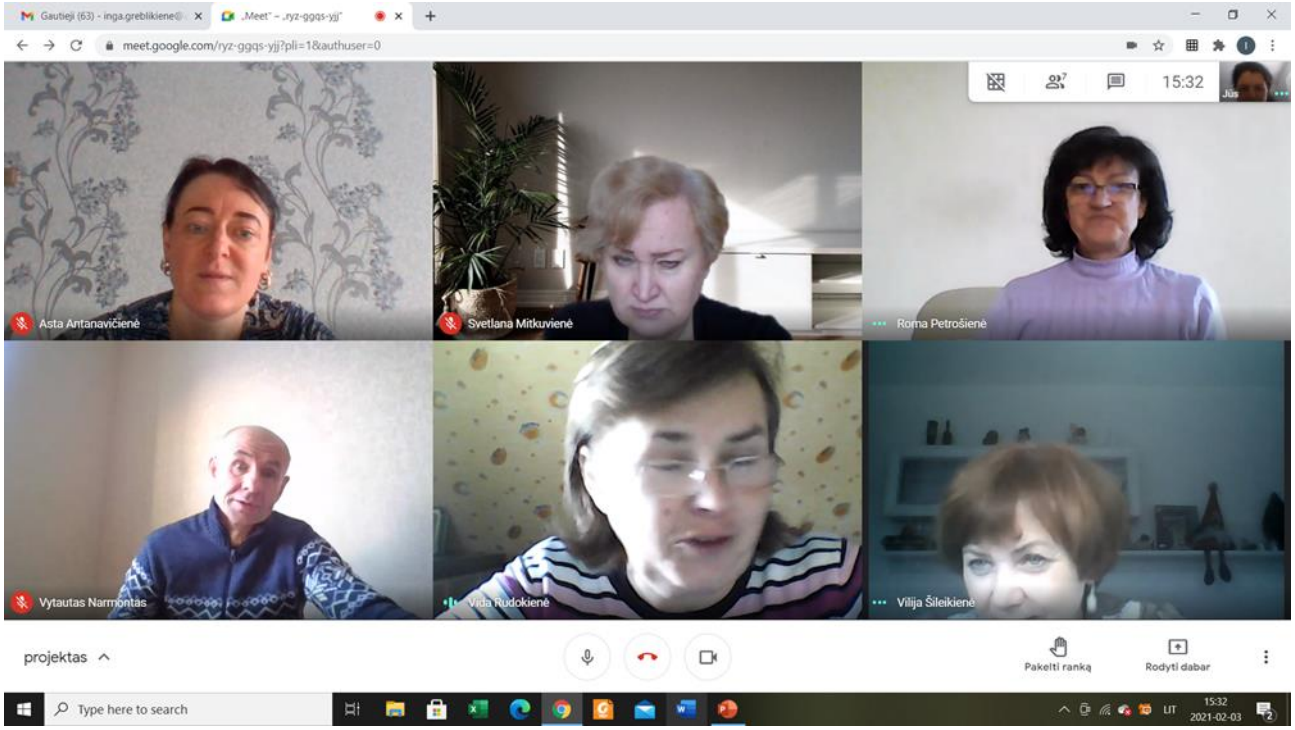
RESULTS OF THE ROUND TABLE TALK WITH EXPERTS

Date: 2021 February 3

Place: Klaipėda, Lithuania
Project Partner: Klaipėda "Ąžuolynas" gymnasium
Total number of participants: 9

<u>Basic information about the participants.</u>

6 mathematics teachers, the project coordinator, the psychologist, the social educator participated in the discussion.



<u>Questions for discussion</u>.

1. How do you understand the concept of "mathematical dyscalculia" and “mathematical anxiety” and how does it differ from other types of learning difficulties (or laziness)?
2. Briefly define the difference between ‘mathematical dyscalculia" and “mathematical anxiety”.

3. How were the pupils/students with mathematical dyscalculia/ anxiety identified ? Who is it determined by? How was it done? Was that done at all?
4. Do you think teachers are sufficiently prepared to work with students with dyscalculia/ anxiety?
5. What methodological support is available to them now? Do they have any additional resources/ support?
6. In your opinion, what help should be provided to a child with mathematical dyscalculia/ anxiety? Who should provide it?
7. What help would teachers need to be able to work with students with dyscalculia / anxiety? Who should provide it?
8. What support would parents need? Who should provide it?

Summary of the answers given from each of the questions.

1. How do you understand the concept of "mathematical dyscalculia" and "mathematical anxiety" and how does it differ from other types of learning difficulties (or laziness)?

Dyscalculia is a partial impairment of mathematical ability caused by functional and organic brain damage. In that case the performance of arithmetic operations is disturbed which includes recognition of mathematic symbols, phasing of problem solving, consistency and etc. Dyscalculia is usually diagnosed when a child starts school.
However, mathematics anxiety is mostly related to peculiarities of pupils'/students' emotions. Repeated failures determine low self-esteem and cause emotional passivity while learning mathematics. Supposedly, this state originates from the fear of failure, low self-esteem, pressure of parents or high expectations towards pupils/students, which causes tension. Emotional discomfort can also be related to the issues of learning motivation. Experienced failure in the past and fear of it in the future reduces pupils'/students' self-confidence and ability to perform on their own. Consequently, those children do not take up activities under their own initiative, neither they look for solutions of problems, which results in being more and more dependent on teacher's supervision. Those pupils/students sometimes demonstrate "learned helplessness". It appears that mathematics anxiety can occur because of school change, absent support of family, problems with peers, high expectations from parents and interaction between the teacher and the pupil/student.

2. Briefly define the difference between 'mathematical dyscalculia" and "mathematical anxiety

Mathematical learning disorder is called dyscalculia (from Latin dys - disorder, calculo - numerical). The disorder manifests itself in the inability to perform basic computational operations such as addition, subtraction, multiplication, division.
*Difficulties in basic math skills: difficulty counting items, memorizing a sequence of mathematical operations, or a multiplication table;
*Linguistic (language comprehension) difficulties: title and comprehension of mathematical terms or concepts, transcription of oral mathematical tasks in numbers;
*Visual or spatial difficulties: recognition or perception of numbers, mathematical signs or numerical symbols, sorting objects into groups, counting numbers in columns, using a straight line of numbers;
*Difficulties in gaining attention: copying numbers or figures correctly, adding numbers stored in memory, being careful when using action signs;
*Writing problems: the ability to write numbers clearly and write them in a straight line or column;

*Memory of the problem of auditory (verbal) memory, facts, sequence of actions and solutions needed to solve the task;
*Problems of shifting attention, transition from one task to another.
Mathematical stress, according to psychologists, is a negative emotional reaction of an individual in situations that require an understanding and application of mathematical actions in solving problems.
Why is math anxiety?
When fear is so common, it means that there must be situations or ways of thinking that provoke it.
In the case of Mathematical Anxiety, some factors include:
Fear of facing problems and their inability to solve them
Lack of motivation
Problems of basic learning

3. How were the pupils/students with mathematical dyscalculia/ anxiety identified ? Who is it determined by? How was it done? Was that done at all?
The teacher is the key person who provides assistance to the pupil/student in accordance with the procedure agreed at school. In a case when that is not enough and the academic achievements of a pupil/student are lower than those of the peers, the teacher applies to the school's Child Welfare Committee which seeks to identify the cause of learning difficulties. The school's Child Welfare Committee after having assessed the case, can recommend parents to contact the Pedagogical Psychological Service (further PPS). First of all, the staff of the PPS conducts assessment of the child. The assessment results are usually discussed with the child‘s parents and the educating teacher. If there is a need, the PPS may provide special education or other assistance: recommends the adaptation of programmes, special training and/or technical assistance tools, the adaptation of the educational environment, the assessment of academic achievements, the organization of examinations and maturity examinations as well and also ways of applying assessment instructions.
After having assessed the pupil's/student‘s special educational needs, the PPS can recommend to the child‘s parents a school that fits best his/her needs, has a team of required professionals and provides the adapted learning environment.
Matehmatics anxiety is often observed by teachers, school professionals or parents. Mathematics anxiety is diagnosed only after having assessed pupil‘s/student‘s mathematics achievements, behaviour, emotions.

4. Do you think teachers are sufficiently prepared to work with students with dyscalculia/ anxiety?
It must be stated that not all teachers are ready to teach pupils/students with dyscalculia or mathematics anxiety.
Teachers do not possess the required kowledge and skills to be able to work with children with special educational needs, to properly assess their achievements. Schools experience a lack of teaching assistants, special educators, speech therapists, psychologists and social educators.
In order to individualize teaching, to apply best teaching methods, there is a necessity to become familiar with a pupil/student as good as possible, by knowing the strengths and weaknesses of a certain child. A huge number of pupils/students in the classes (up to 30) lowers the chance of identifying those children and providing them with the assistance they need.
As the are heavy teachers' workloads, there is not enough time and force for identification and assistance of those children.

5. What methodological support is available to them now? Do they have any additional resources/ support?

Usually children with diagnosed dyscalculia and mathematics anxiety learn according to individualized programmes which were developed by educating teachers regarding every child's needs. The result of it are following tools such as teaching books and exercise books. Mostly teachers themselves prepare such tools.

There is no teaching material exceptionally designed for children with dyscalculia and matehamtics anxiety. Teachers create themselves individualized and differentiated tasks as they strive to apply various teaching methods, perform consulting and cooperate with school professionals: psychologists and social educators.

6. In your opinion, what help should be provided to a child with mathematical dyscalculia/ anxiety? Who should provide it?

Children with dyscalculia and mathematics anxiety shoud be provided with psychological, special pedagogical and special assistance. There also should be less pupils/students in the classes. Consequently, teachers would be able to identify those children and assist them. While working on this disorder, the school, parents and the child should be equal partners. It involves constant cooperation between parents and teachers and also maintaining an emotionally warm relationship between the teacher and the child.

7. What help would teachers need to be able to work with students with dyscalculia / anxiety? Who should provide it?

Assistance for a teacher working with pupils/students with dyscalculia/mathematics anxiety:

1. Smaller classes.
2. Seminars providing training about dyscalculia, mathematics anxiety and children‘s fears.
3. Exchange of useful experience while teaching children with dyscalculia/mathematics anxiety.
4. A teaching assistant is necessary while working with children with dyscalculia/mathematics anxiety.
5. Various teaching tools (tasks, descriptions of lessons, games, situation modeling).
6. General discussions, events, round table talks with pupils/students and parents to solve the problems.

8. What support would parents need? Who should provide it?

Some parents tend to hide the problems their children face. They try to neglect them and avoid cooperation with school. Parents react differently to the learning difficulties of their children. Some do not agree with the fact that their child has to be treated differently. It is obvious that there is a big gap of information and knowledge among parents regarding the issue about dyscalculia/mathematics anxiety and how to deal with it. Some working parents find it difficult to get involved into activities organized by school (events, talks and etc.). The main reasons for that are tiredness and shortage of time.

But there is nothing else as a tight cooperation among parents, teachers and school professionals that can help pupils/students overcome learning difficulties. Following measures could provide the necessary help, for example, education of parents, joint events, joint activities, meetings with school professionals.

<u>Conclusions of the focus group</u>.

1. The disorder of dyscalculia and mathematics anxiety is a current problem at modern school.
2. We do not have children with dyscalculia at our school. Some part of the students experiences fear and anxiety about mathematics, but that is nothing extraordinary.
3. There is a system of tools to identify dyscalculia as well as other disorders of a child.
4. Such children are taught according to the individualized programmes sometimes being accompanied by teaching assistants.
5. Mathematics anxiety is often observed by teachers, school professionals, parents.
6. Parents sometimes tend to conceal child‘s problems and they avoid seeking professional advice.
7. A very important factor while dealing with this issue is an intensive and sincere cooperation among school, parents and a child. There could be other effective means to deal with this disorder such as smaller classes, seminars, special training tools and methods, additional classes and consulting.