

RESULTS OF THE ROUND TABLE WITH EXPERTS

Date: 18/02/2021

Place: İzmit / Turkey

Project Partner: Mehmet Sinan Dereli Ortaokulu / Turkey

Total number of participants: 10

- **Basic information about the participants.**

1) *Senem Karademir Tehnel – Psychologist / Special Education Expert. She works with dyscalculic students. She owns a special education centre.*

2) *Nurçin Kuşku – Counsellor*

3) *Gülsün Arslan – Teacher*

4) *Caner Öz – Maths Teacher*

5) *Çiğdem Tuncer – Maths Teacher*

6) *Umut Barış Çelebioğlu – Maths Teacher*

7) *Nurcan Aras – Maths Teacher*

8) *Şükran Karakan – Maths Teacher*

9) *Zeynep Tunçer – Maths Teacher*

10) *Gonca Kurt Özkan – Teacher*





- **Questions for discussion.**

- *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)?*

Mathematical anxiety is generally seen after 3rd grade. These students have got the capacity for learning maths but they believe that they cannot achieve maths subjects because of their anxious personality. They express this verbally.

Students who have dyscalculia are also smart persons. Their IQ is on average or over average range. They are successful in lessons except maths. They cannot learn maths. They have difficulties on basic arithmetical concepts and operations. They cannot do mental arithmetical operations, always do calculations by using their fingers. These students also have a very high level maths anxiety. They have difficulties on telling and understanding time and ways. However, dyscalculia shows different symptoms for each dyscalculic person.

Dyscalculia, which is maths learning difficulty, is congenital and permanent problem. Dyscalculic person can be successful on any subject but not maths. Dyscalculic persons have average or over average IQ so they must be separated from other cognitive learning difficulties. In addition, each person who fails maths must not be defined as dyscalculic.

- *Briefly define the difference between "mathematical dyscalculia" and "mathematical anxiety".*

It is very difficult to differ mathematical anxiety from dyscalculia.

Mathematical anxiety is about student's personality. Student believes that he/she cannot learn and achieve maths and this prevents his/her maths success. Mathematical anxiety is more general problem. By the help of suitable psychological support, students can overcome this problem.

Dyscalculic students also have a very high mathematical anxiety. However, this problem is permanent. Basic learning can be achieved by special education support. In spite of this, he / she will never be at the same level with peers.

- *How is it found that a pupil / student has mathematical dyscalculia/ anxiety? By whom it is determined? How is it done? Is this done at all?*

If the student is seriously unsuccessful on maths lesson, doesn't want to study or doesn't love maths in spite of his/her average or over average IQ level and success on other lessons we can think about dyscalculia. Common symptoms of dyscalculia are;

- Having difficulty recognizing numbers
- Difficulty understanding or remembering mathematical concepts
- Trouble explaining math processes
- Being delayed on learning to count
- Difficulty reconciling verbal or written cues and their math symbols (two – 2)
- Losing track when counting
- Difficulty recognizing patterns and placing things in order
- Using visual aids and fingers to help count

To determine dyscalculia, observation of parents is very important but they generally do not want to accept a disorder and they ignore it. So, teachers must be very careful and determine such students.

When the teacher observes a student and thinks that this student has a kind of problem, first the councillor at school talks to the student and parents. Then, they are directed to psychiatrist. As a result of some tests and interviews, dyscalculia is diagnosed. However, determining dyscalculia is really hard. Unfortunately, many incorrect dyscalculia diagnosis can be seen.

After diagnosis, treatment by psychologist or special education teacher starts. In this period, teacher, parent and expert cooperation is very important.

- *Do you think teachers are sufficiently prepared to work with students with dyscalculia/ anxiety?*

Generally, teachers and parents know about dyslexia or specific learning disability but they do not have enough information about dyscalculia or mathematical anxiety. And this makes determining dyscalculia correctly and on time becomes impossible. Having lack of information about dyscalculia doesn't mean that teachers do not want to learn about this problem. All the maths teachers at meeting explained that they are willing to learn how to spot dyscalculia and how to help dyscalculic students.

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

Today, there are some methodological support is available. If the teachers are interested in getting informed about dyscalculia, he/she can reach printed or online materials.

Special education teachers or psychologists must use concrete materials for dyscalculic students. Training must start from concrete then continue with half-concrete then finishes with abstract.

In addition to these concrete materials and games, there are computer programmes designed for dyscalculic students. But dyscalculic students must not use these computer programmes alone, that doesn't make any sense. All these materials must be used by guidance of special education teacher or psychologist.

The methodology that needs to be used for dyscalculic students includes;

- Repeated practice of basic math concepts such as counting and addition
 - Segmenting subject material into smaller units to make it easier to digest information
 - Use of small groups of children for math instruction
 - Repeated review of basic math concepts in hands-on, tangible demonstrations
- *How do you think what help should be given to a child with mathematical dyscalculia/anxiety? Who should provide it?*

It is very important to determine dyscalculia early. Dyscalculia is not an illness so there is no cure. The support to these students is given only by special education teachers/experts and psychologists. However, dyscalculic students need to review very often so teacher and parent cooperation is necessary.

Each dyscalculic person is different from others. So training and materials are different for each person. Concrete materials must be used. Because of that dyscalculia is not a problem which has cure, only basic mathematic abilities can be given.

The most important point is finding out strengths of dyscalculic students and rising their self-confidence. Because they can be successful in any area except mathematics.

- *What help would teachers need to work with students with dyscalculia / anxiety? Who should provide it?*

If teachers would like to learn about dyscalculia or mathematical anxiety, they can reach many printed or online materials easily.

There are some NGOs which give education especially about dyscalculia in Turkey. Teachers can join these trainings. But they are not free.

In addition, these NGOs organise some webinars and live programmes on social media free. Teachers and parents can join them.

But unfortunately, Turkish government doesn't provide such a training for all teachers.

- *What support would parents need? Who should provide it?*

Parents need to be patient and supportive if they have dyscalculic child. They must accept this problem and support their child. This is not an easy period so they may need some psychological support. When they need some support, they can get it from a psychologist but they must pay for that.

3. Conclusions of the focus group.

Dyscalculia is a learning difficulty that affects mathematical skills. It is congenital problem that is because of a disorder in brain anatomy. This is not an illness and it has no cure. It is very important to determine dyscalculic students at school because they are smart ones. By the help of correct support they can not only learn basic mathematics but also improve their self confidence. Their training is not easy, they forget mathematics soon so they have to review very often.

Dyscalculia is not only a problem that affects student's school life at maths classes but also a lifelong problem. These children have trouble remembering numbers such as phone numbers, postcodes or game scores. They struggle with money matters, have difficulty judging the length of distance, struggle to remember directions, struggle to telling time. The impact of dyscalculia does not end when school ends, its affect goes on after school.

Mathematical anxiety is an emotional issue. These students believe that they cannot achieve maths so this feeling creates failure. If it is determined on time, it can be healed by psychological support.

For these two problems, teachers' role is very essential. They must observe their students very well. If dyscalculia or mathematical anxiety are diagnosed early, these students improve their self confidence and they can be successful at school and after school.