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Thinking for the students with mathematical anxiety

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Abstract
"Education for all", appears to be, on the one hand, a new educational philosophy aimed at creating an educational environment conducive to all special learning needs of students in elementary education but, on the other hand, in its implementation, it is also an innovative educational strategy with many consequences and implications for the existing education structure at all educational levels. All students regardless of their personal characteristics, backgrounds, or physical challenges, must have the opportunities to participate in the least restrictive environment so that they receive the support to learn quality education. Mathematics anxiety affects students across all abilities and levels. Teachers must learn how to effectively alleviate these problems using the most current research and best practices. This paper focuses on the causes for mathematical anxiety and explores the ways it can be handled at school level. National and international journals, government documents, doctoral theses, and research articles have been used as secondary source of information. Factors related to both students math abilities at the start of the elementary school and students social environment (in the classroom, at home and in the society in general) likely play a role in the development of math anxiety. Math anxiety robs people of working memory which is important for solving problem. When students struggle, teachers should acknowledge that the work is challenging but they can do it. There are many strategies and models that school systems are using to ensure students having math anxiety participating within the mainstream classroom setting; and it seems to prove to be the most beneficial in the areas of academic achievement and social interaction. Real-life mathematics can contribute significantly towards preventing maths anxiety It is found that math anxiety can be treated with direct interventions such as relaxation therapy, or indirectly, with teaching style and cooperative learning.

Keywords: Math anxiety, Math Myths, Scaffold Instruction, Mathematics education, Elementary education, Quality mathematics education

Introduction
Mathematics gives students the language through which they can interpret, analyse, describe, make predictions, and solve problems in everyday life. It allows them to participate in a wide range of mathematical experiences and relationships both in school and in daily living.
Mathematics, according to National Education Policy 1986, should be visualised as the vehicle to train a child to think, reason, analyse and articulate logically. Apart from being a specific subject, it should be treated as a concomitant to any subject involving analysis and reasoning. As per the Right of Children to Free and Compulsory Education (RTE) Act, 2009, it is imperative to give good quality elementary education to all children in the age group of 6 to 14 years. According to NCF 2005, the main goal of mathematics education in schools is the mathematization of the child's thought processes. There are two aims of school mathematics – the narrow aim and higher aim. The narrow aim of school mathematics is to develop 'useful' capabilities, particularly those relating to numeracy-numbers, number operations, measurements, decimal and percentage. The higher aim is to develop the child's resources to think and reason mathematically, to pursue assumptions to their logical conclusions and to handle abstractions. These aims could be achieved through the use of innovative Mathematics teaching strategies instead of the conventional approach. Human beings social and, so in some way or other we need help and guidance of others. Mother, father, grand parents, and teachers and other elders, home, school and society guide youngsters for successful living. Due to explosion of knowledge, industrialization and changes in socio-economic set up the need of professional guidance is felt in the present day society.

Background of the Study

The Quality Dimension of mathematics at school level

According to some Indian academic the central challenge of Indian education is dealing with the metaphorical triangle of *quantity, quality* and *equality*. The state sector in education is plagued by major shortage and uneven spread of resources, as witnessed by the large percentage of single classroom schools. Such extreme shortage of resources presents a tremendous quality constraint. Much worse, and especially relevant to mathematics education, is lack of qualified and committed teachers. No system can rise above the quality of its teachers, and content knowledge of mathematics is vital for mathematics education. Indian society is division-riven and this provides a great challenge for quality and equality in education. Mathematics being a compulsory subject of study, access to quality mathematics education is every child's right. On the other hand, there is considerable research to suggest that teacher preconceptions, bias and behaviour, causes discrimination against children from the groups with low socio-economic status, the so-called "Scheduled Castes" (SC) and "Scheduled Tribes" (ST). Also the girls who do come to school are subject to social discrimination as well. In rural areas preconceptions such as mathematics being "unnecessary" for girls can be observed even among teachers. Despite the better performance of girls in Board examinations than boys in recent years, the stereotype that boys are better at mathematics than girls is seen to persist. The social context of Indian education is reflected in the sharp disparities between different social and economic groups, which are seen in school enrolment and completion rates. Thus, girls belonging to SC and ST communities among the rural and urban poor and the disadvantaged sections of religious and other ethnic minorities are educationally most vulnerable, and data confirms this. Quality in education is inherently dependent on the following six aspects: (*i*) curriculum and learning objectives, (*ii*) learning materials, (*iii*) pedagogic processes, (*iv*) classroom assessment frameworks, (*v*) teacher support in the classrooms, and (*vi*) school leadership and management development. During the Twelfth Plan, however, there will be a system-wide focus on holistic development of children by improving learning outcomes and other non-scholastic areas. Does our mathematics teaching in schools comply with these expectations? Students' dismal performance was seen in mathematics examination conducted by NCERT through the National Learning Achievement in mathematics. In the year 2014 in the National Achievement Survey (NAS) for class VIII in mathematics conducted by NCERT the average score of 33 states/ UTs was 245 out of 500 with SE of 0.6. Also the mean value of result (out of 100) in mathematics found by them in the year 2012 for class VIII is 39.17.

Behind this dismal position of achievement in mathematics, mathematics anxiety plays a major role in our education system. "Today, mathematics education faces two major challenges: raising the floor by expanding achievement for all, and lifting the ceiling of achievement to better prepare future leaders in mathematics, as well as in science, engineering, and technology. At first glance, these appear to be mutually exclusive" (Research Points, 2006, p.1). The national spotlight is on math education in our country, and a great deal is riding on the math achievement of our students, as measured by standardized tests. Giving our students more homework, raising the stakes, threatening school closures, and adopting new and better curriculum is not going to necessarily fix the problem of math achievement in our country if at the root of the problem is math anxiety. Low math achievement is potentially a symptom of a deeper problem, and math anxiety needs to be recognized and treated as a valid problem in our math students.

Rationale

"Do not worry about your difficulties in mathematics; I assure you that mine are greater."

- Albert Einstein

All students need higher level math and reasoning skills to be successful in today's technological society Mathematics anxiety has a negative relationship with mathematics performance and achievement, though it has also been found that a degree of cognitive anxiety (worry or concern) may motivate student to try harder. It is when this worry or concern becomes too strong that it may interfere with performance. The assumption that all students who perform poorly in math classes are incapable of understanding math needs to be challenged; there may be something else at play. Math anxiety needs to be given its due attention and strategies for overcoming math anxiety need to be taught to students. Math anxiety is a problem in classrooms all across America and in many countries around the world, threatening both achievement and participation. A major negative consequence of mathematics anxiety is mathematics avoidance. Students with math anxiety take fewer elective math classes and avoid college majors and career paths that depend heavily on quantitative skills or mathematics. This avoidance of math leads to a limiting of career choices, eroding our country's resource base in science and technology.

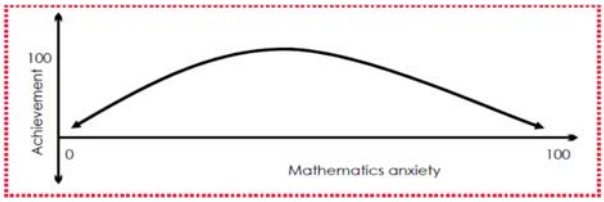

Fig 1: Graph illustrating degree of mathematics anxiety in relation to achievement *(Ref. www.up.ac.za/juniortukkie)*

Objectives

This paper focuses on the multi-dimensions of math anxiety, how this anxiety manifests itself in the classroom and to draw a comprehensive picture of what is necessary to teach mathematics to students having mathematical anxiety to engage and inspire all students to innovate, achieve, and succeed in a safe and supportive environment by ensuring high quality instruction in every classroom, every day.

Methodology

Secondary source e.g. books, journals, internet access are used.

Result / Findings

What is Math Anxiety?

One definition of math anxiety is "the panic, helplessness, paralysis, and mental disorganization that arises among

some people when they are required to solve a mathematical problem".

Math anxiety is a serious and pervasive problem, especially in the community-college setting.

Students may experience math anxiety in many forms and degrees, from "freezing up" during a math exam, to attempting to avoid anything having to do with numbers. Symptoms may be physical or psychological and may include (but not be limited to) any of the following:

- **Physical:** Nausea, shortness-of-breath, sweating, heart palpitations, increased blood pressure.
- **Psychological:** Memory loss, paralysis of thought, loss of self-confidence, negative self-talk, math avoidance, isolation (thinking you are the only one who feels this way). These symptoms and other negative math experiences may lead to a "vicious cycle" in which fear of math interferes with learning math which leads to more negative math experiences.

Mark H. Ashcraft defines math anxiety as "a feeling of tension, apprehension, or fear that interferes with math performance" (2002, p. 1).

Mathematics anxiety can be defined as feelings of tension and anxiety that interfere with the manipulation of numbers and the solving of mathematical problems in a wide variety of ordinary and academic situations.

Characteristics of learners having math anxiety

This anxiety can come in many forms: worry, fear, high negative emotions, self-deprecatory thoughts, sweaty palms, or a racing heart, which indirectly shows the following characteristics.

1. Scores consistently low on achievement tests.
2. Works well with "hands-on" material (i.e. Labs, manipulative, activities.)
3. Has a poor self-image.

Causes for mathematics anxiety

There is no doubt that mathematics makes most students anxious. This problem can begin as early as elementary school and might be prompted both by genuine concerns – the student perceives that his or her math skill need work and by social cues that subtly convey the message that math should be feared. Mathematics anxiety depresses math performance because it eats up memory space.

There is also evidence of more general link between teachers behaviour and students performance. Of course, there are many sources from which negativity about maths could develop – ranging from parents to the media. In our society there are few myths about mathematics like:

Myth One – You have to born with a mathematical brain

People who are successful in mathematics aren't usually born that way. Learning math, like learning in general, takes knowledgeable teachers, willing students, and, most importantly, a great deal of time and practice. Learning math is, in fact, much like learning a language. The symbols and notation make up the rules of grammar and the terminology is the vocabulary. Doing math homework is like practicing the conversation of math. Becoming fluent (and staying fluent) in math requires years of practice and continuous use.

Myth Two – You can't be creative and be good at math

Can you be an artist, writer, or musician and be good at math too? Yes! Math is found throughout literature, art, music, film, philosophy, and is essential to many "creative" fields. Leonardo DaVinci, Mozart, M.C. Escher, and Lewis Carroll are just a few of the artists who used math extensively in their works. Here are a few interesting quotes about math in the arts:

> *"Man should be learned in several sciences, and should have a reasonable, philosophical and in some measure a mathematical head, to be a complete and excellent poet".*
>
> – John Dryden (poet)
>
> *"Geometry is the right foundation of all painting."* – Albrecht Dürer (artist)
>
> *"I am interested in mathematics only as a creative art."* – Godfrey Harold Hardy (mathematician)

Bertrand Russell, one of the greatest mathematician and Philosopher describe the beauty of Mathematics as "Mathematics rightly viewed, possesses not only truth, but supreme beauty – a beauty cold and austere, like that of a sculpture, without appeal to any part of our weaker nature, without gorgeous trappings of paintings or music, yet sublimely pure, and capable of a stern perfection such as only the greatest art can show. The true spirit of delight, the exaltation, the sense of being more than Man, which is a touch stone of the highest excellence, is to be found in Mathematics as purely as poetry."

Myth Three – Women are not as good at math as men

This myth still keeps women out of the field of mathematics. Even today, very young girls may not be encouraged to investigate the world in the same way that boys are. Boys are given blocks, science kits, and construction tools and are encouraged to explore their world in a more mathematical way than are girls. If more girls were given the same support and opportunities that boys have to excel at mathematics perhaps there would be many more high-achieving girls and women in mathematics. (Authors Note: In the research by me findings explored the superiority of girls of active delta area over boy of matured delta areas in few areas of mathematics.)

How can an intervention in early elementary school stop math anxiety from manifesting in students? What preventative measures can be taken so that students never develop low math self-efficacy? These questions are important to the educational community and to the study of math anxiety. If students could be prevented from ever developing math anxiety, there would be no need for treatments when they reach the high school level. In the following some of the causes of mathematical anxiety are discussed:

Physical causes

There may be some physical cause, such as poor eye-sight, defect in the hearing organ, stomach trouble, headache or any others physical ailment, which does not allow the child to concentrate on his studies. Mathematics needs special concentration. The remedy of almost all these causes lies with the doctor or physician, but some sort of physical exercise may also help the child. The teacher has to refer the child to the doctor, some other medical expert or the PTI

according to the nature of the case. He has to try to make available all the possible remedies. If it is a case of serious physical deficiency the teacher should try to persuade the parents to get their ward admitted to a special institution for the physically handicapped children of that type.

Mental causes
The backwardness may be due to some mental causes. These causes may be almost inborn and/or environmental. The child may have low I.Q., some mental ailment, mental dissatisfaction, domestic problem, mental conflict, sense of insecurity, inferiority complex, lack of interest in mathematics or a dominant interest in something else. A case of some simple mental problem can be tackled with some chances of success by the teacher. But complicated cases will have to be passed on to a psychologist or a psychoanalyst for thorough diagnosis and treatment. An attitude of love and sympathy and preparedness to help the children on the part of the teacher will always be helpful in the treatment of such cases.

Distaste for the subject
A distaste of the subject can be another cause. This distaste may either be natural or acquired. If it is inborn, the teacher's may be efforts may go waste. But if it is an acquired one, it may be mostly the teacher's fault. If he fails to develop a feeling of attachment between the child and himself, the only outcome is the child's distaste for the subject. Heaviness of the syllabus, toughness of the subject and difficulty of its problems tend to produce this distaste. A genuine taste for the subject will be developed through the teacher's patience and persistence. He should never be in a hurry to pronounce a case as hopeless and backward. He should never allow the idea 'once backward always backward' to enter his mind'

Doubts about fundamentals
Sometimes the child develops some doubts about the fundamental of the subject, and these doubts hinder his progress throughout. The teacher should be very careful while teaching these fundamentals. He should not hesitate to explain them over and over again if required. Only clear understandings of these fundamentals can build a sound foundation for mathematical learning.

Wrong influence of home
Influence of the home may also create distaste and backwardness. Some parents unintentionally provide negative suggestion to their children. Some of them are in the habit of saying that they never liked mathematics or they never wanted to study it, or were never be able to pass in it or that failure in mathematics has been the tradition in their family. Even the educated parents commit the same mistakes. These pronouncements are likely to have an adverse effect on the child's attainment in the subject. Parents must be made conscious of this adverse effect and their duty in this manner.

Teacher's behaviour
The teacher's unbalanced behaviour may also be one of the causes. If he is very lenient, some of the clever and mischievous students may get undue advantage of it and may become backward due to continuous inattention and non- seriousness. If he is very strict and gives heavy punishments unsparingly, some of the feeble minded students may get disheartened and discouraged. They may start disliking the teacher and consequently the subject. The teacher should never forget that is behaviour is very important.

Midsession changes: The change of school or even the change of teacher may not suit some of the students. Whenever the change of school is unavoidable, the parents and the teachers have to remain on guard till the child's complete adjustment with the change. Changing the teacher in the middle of a session should be avoided as far as possible.

Teacher's reputation
The subject teacher's bad reputation in the school and neighbourhood may also affect some of the students adversely. The teacher must earn respect and reputation. He should be a source of inspiration for his students in every respect. He should carefully maintain his scholarship and character.

Apathy towards method
Apart of the student's apathy towards the teacher's most favourite method of teaching may result in their anxiousness. The teacher should not always stick to the same method. Students like 'newness and novelty'. The teacher should always be prepared to adjust his method to the learner's like. He may have to devote extra time and attention to the student who is lagging behind. Slow learner deserves the teacher's individual attention and help. The teacher should so conduct himself that the slow learners never feel that they are being disowned or being left behind.

Defective handwriting
Defective hand at writing and geometrical constructions may be the cause of unsatisfactory performance in certain cases. Their weakness does not therefore pertain to mathematics. The cooperation of language teacher may be sought in their case. The teacher should make it a point to insist on neatness of hand and constructions in such cases.

Lack of practice
Of these students, some may need more practice and drill than others. The teacher should not overlook their need. The intelligent one may pick up an idea after solving only one problem, whereas the slow learner may need solving two or three problems to grasp it. The teacher has to adopt a via-media.

Neglect of home work
When the child does not get sufficient time at his home for home work, he is likely to lag behind. Regularity in home work should be ensured. The parents should provide full cooperation to the teacher in this regard.

Irregular attendance
If the child remains unavoidable irregular or absent for a long time, there is chances of his failing a prey of anxiousness. The facility of extra-coaching for sometime should be provided to such students so that they can fill up their gaps and catch up with the other class-fellows. Such temporarily retarded students should not be left to themselves. The provision of extra-classes made in most of

the schools near the examination, enables many backward students to get through.

Ways to Reduce Math Anxiety

An important first step is to understand why children fear maths and do not enjoy it, and to take things from there. Real-life mathematics can contribute significantly towards preventing maths anxiety. Consider the following: Rather than try to explain to a primary school learner that ¼ + ½ = ¾, you should say, 'I jogged for half an hour and then walked for another quarter of an hour. For what fraction of an hour did I exercise?'

National Council of Teachers of Mathematics (NCTM) (1989, 1995b) suggestions for teachers seeking to prevent math anxiety include:

- Accommodating for different learning styles.
- Creating a variety of testing environments.
- Designing positive experiences in math classes.
- Refraining from tying self-esteem to success with math.
- Emphasizing that everyone makes mistakes in mathematics.
- Making math relevant.
- Letting students have some input into their own evaluations.
- Allowing for different social approaches to learning mathematics.
- Emphasizing the importance of original, quality thinking rather than rote manipulation of formulas.

Hackworth (1992) [4] suggests that the following activities can help in reducing and mitigating mathematical anxiety:

- Discuss and write about math feelings;
- Become acquainted with good math instruction, as well as study techniques;
- Recognize what type of information needs to be learned;
- Be an active learner, and create problem-solving techniques;
- Evaluate your own learning;
- Develop calming/positive ways to deal with fear of math, including visualization, positive messages, relaxation techniques, frustration breaks;
- Use gradual, repeated success to build math confidence in students

Researchers have found that teacher practices influence the math anxiety and self-efficacy of students in a significant way. Students can benefit from cooperative group work and a focus on problem solving. Researchers disagree on whether the use of manipulative can lesson math anxiety for some found an increase in the anxiety of those for whom manipulative were a novelty.

What are effective strategies for treating math anxiety? Much of the research focused on teacher practice and pedagogy as the solution to the math anxiety problem in students, rather than treating math anxious students directly. Teachers are not the source of the problem, per se, but rather that what teachers have control of in their classrooms is how they teach, not how students think. Teachers cannot make students lower their math anxiety; they can simply let the research influence teaching practice in a way that could help students access to mathematical learning and achievement.

Study has great implications for how to create a classroom environment where students gain confidence in their math abilities, lower their math anxiety, increase their math self-efficacy and participate in a healthy learning community. Many of the characteristics of a supportive teacher are found in the treatment methods of other studies in this paper: cooperative learning, positive mood, and teacher expectation that students would succeed. The fact that these themes are arising and that each of these characteristics has been shown to decrease math anxiety strengthens the results of each of these studies.

Classroom Implications

Teachers who created a supportive and encouraging classroom environment in the first days of school had the greatest amount of success in creating productive, non-math avoidant, and high-achieving students. Furthermore, teachers who were positive and supportive most of the time but not consistent with this persona were not successful with their students. Teachers need to be consistent and gain the trust of their students early in the year.

A way for teachers to make abstract math concepts more concrete is to use manipulative in the classroom. The move from the procedural to the conceptual can be supported with hands-on activities and physical representations that can be manipulated and explored by students. Although some students may experience an increase in anxiety at first due to the novelty of using manipulative, the end result is that students can find relief from their anxiety when they reach a deeper understanding of the math they are learning.

Technology

Technology is an integral part of modern education and could be used in ways that help to support learning and alleviate math anxiety. The use of Black Board, a web based classroom environment, has been shown to decrease math anxiety in students through the use of an online community where students can communicate about the assignments and support each other in class work. Technology as a tool for communication among students and between the students and teacher can be beneficial and should be used in the classroom. Many schools currently employ the use of online grading systems, classroom websites, emailing as a communication tool and online interactive calendars. Taking the use of technology one step further and creating a classroom blog for student and parent use can increase the amount of communication between school and home, serve to remind students of the work they are doing during class, provide a message board for students to collaborate on assignments and provide students with a larger support system. This online community as a communication hub has the potential to alleviate math anxiety and increase math self efficacy.

Method of Instruction

A course on how to teach math concepts seems to be more effective in addressing math anxiety among pre- service teachers than a course on math concepts themselves.

Examples of Scaffold Instruction

Mathematics Problem-Solving

Teachers might use a "think aloud" approach while working with a student or group of student s in mathematics. Using a "think aloud" approach, teachers share their internal thinking as they:

- clarify the task to be completed (model and explicitly share thinking processes involved in the task);
- identify each step required for the problem-solving process (begin by asking, "Does anyone have a suggestion as to how we might begin to answer this question?");
- select the information needed to complete each step (this step could include self-talk about rejecting information that is not necessary);
- identify the proper sequence and work through the steps to complete the task (providing self-talk and inviting students to share their thinking); and
- "talk aloud" as they carry out the computations required to solve the problem and complete a self-check. This "think aloud" approach provides a model for students. With repeated practice, students will internalize the language the teacher uses during the "think aloud." Students will then use this internalized language to guide them through the problem-solving steps when they are required to solve similar problems independently.

In reality, the following strategies really are just best practice for the teaching of mathematics in general.

- Teach vocabulary using demonstration
- Relate math problems and vocabulary to prior knowledge and background.
- Apply problems to daily life situations.
- Use manipulative to make problems concrete
- Encourage drawings to translate and visualize word problems.
- Have specially educated students pair with typical students for computer/cooperative activities.
- Encourage children to think aloud when solving word problems, and have students give oral explanations of their thinking, leading to solutions.
- Have students write original word problems to exchange with classmates.
- Explain directions clearly, and repeat key terms.
- Encourage students to follow the four-step problem-solving process.
- Realize that not all math notations are necessarily universal.
- Group students heterogeneously during cooperative learning.
- Make interdisciplinary connections to what students are learning in math.
- Make cultural connections for students when teaching mathematics.
- Rewrite word problems in simple terms.
- Concretize math concepts with Total Physical Response.
- Create word bank charts and hang them in the classroom for viewing.
- Take Internet field trips and use mathematics software.
- Use children's literature to teach mathematics and develop the language.
- Using auditory, visual, and kinaesthetic teaching approaches for different learning styles enables teachers to reach more students than the traditional direct-instruction or paper and pencil drill and practice forms of instruction

Recommendations

1. Promote student engagement and a classroom environment conducive to learning.
2. Implement screening, diagnostic testing, and progress monitoring.
3. Use explicit instruction by knowledgeable teachers to teach new numeracy skills and grade‐appropriate mathematics concepts.
4. Provide an environment that supports teachers, promotes educational leadership, and fosters high‐quality mathematic instruction and numeracy.

Conclusion

These suggestions are by no means exhaustive. With this grab bag of strategies, teachers can creatively design their lesson activities to meet students' individual needs. We have offered strategies and techniques that will match the learning styles of all students—reaching all students using teaching styles that adapt to students' multiple intelligences. In summary, math anxiety is a complex issue that can manifest itself in a wide variety of ways, and therefore teachers should not adopt just one method for treating it. The more methods a teacher is able to employ, the more likely that they will be successful with the highest percentage of students.

References

1. Alexander AH. Effective Teaching Strategies For Alleviating Math Anxiety And Increasing Self-Efficacy In Secondary Students, A Project Submitted to the Faculty of The Evergreen State College In Partial Fulfillment of the Requirements for the degree Master in Teaching, 2010.
2. Bohrod NBC, VS. (n.d.). How to Overcome Math Anxiety Anoka-Ramsey Community College Math Faculty.
3. Francis O. Teaching Mathematics To Students With Learning Disabilities: A Review Of Literature, 2008.
4. Hackworth RD. Moth anxiety reduction. *Clearwater,* 1992.
5. Hui FH, Ed D. Teaching Strategies for Students with Learning Disabilities in Mathematics Nova Southeastern University Cicely Scott, Palm Beach County Schools, 2006.
6. Joseph CG, Paula M. Preparing Students with Disabilities for Algebra Teaching Exceptional Children. 2001; 34(1):8-15.
7. Joseph MF, Noorchaya, Y, Mary LD. Teach Mathematics: Strategies to Reach All Students Intervention in School and Clinic. 2005; *41*(1):16-23.
8. KM. Problem solving in mathematics, 2017. Retrieved from University of Pretoria: www.up.ac.za/juniortukkie
9. Mathematical anxiety, 2017. Retrieved from Wikipedia, the free encyclopedia: https://en.wikipedia.org/wiki/Mathematical_anxiety 7/10
10. SL B, DT W. Math Anxiety: Can Teachers Help Students Reduce It, 2014?
11. Services SS, School A1. Specialized Instruction for Students with Disabilities Literacy and Mathematics, 2013.
12. Wilson M, Leone P, Mulcahy C. Making it Count: Strategies for Improving Mathematics Instruction for Students in Short-Term Facilities, 2010.