Different Approaches to the Mathematics Education

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Trying to teach mathematics science with learn-by–rote education system causes people going away from mathematics. However, mathematics is the language of the science and selfsame of the life. To be able to make the student comprehend mathematics and the logic will gain them behaving rational skill against the plenty of problems including even the problems they will meet in their lifetime and during the decision making processes. Ultimate target must be to adopt student that mathematics is an instrument which is used by people on purpose or unawares for the lifetime instead of a lesson that is to pass.

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Chronicle Mistakes made in Mathematics Teaching

A great majority of the student (including the students who study in Faculty of Engineering and the student who can take the most complicated derivatives of the functions) cannot describe the derivative and they do not know derivative, partial derivative and the usage areas of these.

$d$ : derivative and $\partial$ : partial derivative signs and the difference of these are ignored even some mathematics books.

Mathematics symbols are tried to teach without considering the meanings they have.

"Strict rote-learning consideration style" which starts with in primary education such as in the solution “Deduct the surplus, divide in 2 and then you can find the small number” which belongs to the question "The sum of two numbers is 120. The big number is 20 more than the small number. Find the small number" brings along the systematical mistakes by being continuous during the education period and this situation draws away the community from rational-critical thinking system.

“Testing method examinations” and the solution methods in the private teaching institutions which are called ‘practice’ that the students are sentenced actually make an accelerator effect for students by drawing away from the theoretical structure, mathematical logic and rational thinking system. Besides, at the private teaching institutions, the way marking the correct answer in minimum time at the test examinations is shown to the students and unscientific methods are tried for this.

Students tend to take the ready information and their taking note habit is killed. Because, at the schools that surrender to the university entrance exam, a structure which buffets the rote-learning, ability, intelligence and creativity exists.

Student number which express himself/herself in the correct way, readable, solve the four operations faultless and solve the questions with the correct way by using the mathematical symbols decrease every passing year.

Nowadays, there are students who are difficulty in literacy, and there are students who don’t know the multiplication table and the decimal numbers.

Applied test exam system blunt the mathematics education at the primary and the secondary education and this blunt shows itself in the higher education life.

Due to the test exam system, the thoughts focus on these kind of exam results. For example; when the occupations are
evaluated, entrance base points of departments are taken into consideration. Student number which chose the science and the mathematics departments of universities tend to decrease in our country as well as world-wide.

**Methods to be performed and things to do**

People are curious by birth and the first step in science duration is curiosity. During the individuals’ education period, their curiosity mustn’t be rasped. Student mustn’t be given up from asking question. Talented, leader, searching out and remedial teachers must be educated. Teacher must instill student the proof method. Induction and deduction methods must be used.

As from the primary education, teaching words and sentences needs to be expressed with mathematical symbols and equations. The usage of cryptography which is a field of mathematics and the connection between them must be mentioned. Thanks to the codifying techniques developed with crytology, students must know that credit cards, sim cards and security systems came up. Concrete reflections of mathematics to the life must be shown to the students.

The usage areas of basic topics derivatives and integral must be taught to students by giving projects and making presentations with this projects in the classrooms; student personally must be adopted that mathematics is used in any areas of life. Furthermore, by this means, student will gain the ability of expressing himself/herself in the community. Therefore, student will be active.

In mathematics teaching, it needs to be careful about the subject ranking and the student existence who doesn’t know the subject is to be taken into consideration. Before beginning to the education, it needs to be made mathematics and physics placement tests and then the students need to be placed in classrooms in homogeneous structure. Student need to be gained critical mentality. Teachers must be supported with regards of personal and professional way. Platforms must be established which teachers can share their thoughts and methods with each other. When teaching mathematics, the connection between the subjects and the continuity must be taken into consideration. For instance; in a function problem, identities of factorization and specialties of exponential numbers should be used.

Education of school inspector have also importance. Each inspector must be responsible from 50 teachers and each teacher must be evaluated in terms of performance at the end of every academic year. Teachers who show superfine success must be shown as a model by awarding. Every teacher can teach from the book he/she desired by using unique methods. Teachers must have the privilege of making his/her own decision. “En face” and “vertical” teaching techniques (explanation and performing of the scientific realities by teacher) need to be given up. Student must be enabled to discover some realities on their own.

A decrease for scientist and engineer numbers is at stake around the world. Therefore, “La main a la pate” project which target to dynamize science and mathematics education is supported by French Science Academy. The public and the private sector support this project as well. In our country, science and mathematics education are focused on and special education standards must be provided in relation to that.

In the methods which are used “integrity” and “diversity” (Project, questionnaire, interview, measurement-test, learning sets…) must be at the forefront.
Mathematical terms and symbols must assimilated with the meanings to the students.
Writing and taking note habit must be gained to the students.
Lectures must be organized and mathematics feature must remain fresh with television programs and quiz shows.
Critical thinking system must be instilled to the student. By this means, growing up as an adult of students and developing of the interrogation and problem solving abilities will be possible.
Studies which teachers make in the classrooms must be supported by universities and municipalities.
Teacher must always prioritize the performance of the student within the period.
Concerning to the Inquiry-Based Education, pilot education areas are founded European-wide. Similar studies must be carried out in all regions of our country.
Thanks to the graphic and designs which will be prepared via computer programs, visuality can be gained especially in derivative and integral issues.
With an education system which is based on just curriculum and the topics that are defined before, nothing can be achieved. Because this situation makes student pacification. The teaching with how and why is important.
Mathematics is a period which is deterministic, long-running and has lots of sub-branches. It presents infinity. A discipline which the student combines the subjects and the information he/ she learned before with the new subjects and the information he/ she learns uncompromising.
In our country, thinking associations are not active enough. On the contrary in developed countries, these kind of associations are dominating for the strategies and the policies of their countries.

Long-lasting, rationalist and innovative policies must be formed, the method and the philosophy of university entrance exam must be questioned.

Conclusion

The most important advantage of Turkey is to have a young population. Therefore, Turkey’s primary target must be to present “quality education” into the young population it has. Actions to be taken for this are to increase the education system and teacher quality, to provide the curriculum resources and the updating and to improve substructure.

Being able to growing up a qualified and equipped individual is one of the most important targets of modern-day and many methods have been tried concerning to this issue. And the prominent method is "Inquiry-Based Science Education: IBSE".

In accordance with this purpose, behavioral education must be given up and constructivist learning understanding must be adopted. By this means, technology is produced within the country. And to produce technology, science is required.

For this reason, mathematics which is the language of science mustn’t be perceived as an obligatory lesson to be passed, instead of this, it must be instilled as a necessity at every stage of life which is performed in nature and all universe and has symbols. It must be underlined that mathematical codes were invented within a long process and codes have reflection in nature and must be focused that they are seen in every aspect of life as well. Mathematics is an instrument which is not scared but to respect.

Students who have prejudices against mathematics that is to be tried to be shown abstractly and the students who have a monotone education process due to the reduction of mathematics with just formulas, should be invited to see the relation of mathematics with all other scientific fields and its concrete reflections.
by providing for them making researches via term projects.

And the strategy in the books which is the most important argument that will grow up the students as an individual is to support theoretical expression with expositional and solved question and give place for each step of the solution and explain these steps to the students in the form of “verbal lecture in the classroom”. The main target while writing the mathematics books is to grow up individuals who will use the mathematics discipline for taking consistent decisions and using rational thinking in their life.

The best learning process can come true if the teacher brings the creativity and the sense of wonder of the students into the forefront and prepares this environment and contributes his/ her learning by made and performed by the student.