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## NEW EFFECTIVE AND INNOVATIVE TEACHING METHOD MAKES EXCELLENCE IN MATHEMATICS EDUCATION

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**Brief abstract:** *In this article is considered methodical questions and major factors of development of formation of information competence of the teachers increasing of qualification.*

**Key words:** *Discrimination information, information competence, major factors of information competence, technologies of training.*

**Аннотация:** *В данной статье рассмотрены методические вопросы и основные факторы развития формирования информационной компетентности преподавателей повышения квалификации.*

**Ключевые слова:** *Информация о дискриминации, информационная компетентность, основные факторы информационной компетентности, технологии обучения.*

**Аннотация:** *Ushbu maqolada o'qituvchilarning malakasini oshirishning axborot kompetentsiyasini shakllantirishning uslubiy masalalari va asosiy omillari ko'rib chiqiladi.*

*Калим сўзлар: Diskriminatsiya haqida ma'lumot, axborot vakolatlari, axborot kompetentsiyasining asosiy omillari, o'qitish texnologiyalari.*

## **Introduction**

*“Live as if you were to die tomorrow.*

*Learn as if you were to live forever”*

*- -Gandhi*

The Article 5 of the Law of the Republic of Uzbekistan “On Education” states that “...people with relevant education, professional training and high moral qualities have right to engage in pedagogical activity”.

The requirements of the Law, the National Program for Personnel Training and the requirements of the teacher are being expanded. In the 21st century, pedagogue required extensive knowledge, thorough practical training, high pedagogical skills, competence and creativity. The personal qualities influence the skills of teaching and training [1].

A teaching method is a way in which a teacher organizes and manages the teaching learning situation, presents clear explanations and vivid descriptions, assigns and checks if learning interacts effectively with learners through questions and probes, answers and reactions, and praise and criticism. According to Carl, a teaching method is a way of facilitating interaction between the teacher and learners in order to realize set goals. Learning that is motivating therefore should be:

- An active process in which the learner is maximally involved;
- Guided through the use of a variety of teaching methods, which in the end offer learners a variety of learning experiences, that will enable them later to generalize and discriminate information.

In order to motivate learners Scot posited that learner- centered teaching methods should be used to ensure that:

- There is a close link between the learning needs of the learner and the teacher’s teaching;
- Feedback is given in phases so that the learner feels that his/her hard work is being recognized and rewarded by the teacher;

- All learners are challenged and extended in their learning; and
- Whatever is being taught is directly linked to the learners' real life experiences.

Using debate on mathematical problems and ICT methodology for learning will lead to enlarge students' skills of mathematics and their abilities to solve practical and word problems. Students will be an active part of educational process using this new methodology. Students gained knowledge and skills in mathematics can be applied in other areas of science [2].

A project of this kind is an excellent opportunity for making arguments between minds, criticizing different opinions on some topic, all of it with one goal: achieving very good mathematical skills of the students. At the end, we expect bigger motivation for learning mathematics to be achieved and this will lead to excellence in mathematical education.

This project would be very beneficial for the schools, as it would help the teachers, in attempt to produce motivated and responsible learners, who relate positively to each other, to staff and to the surrounding community. By making mathematical learning more attractive and accessible, we make sure that the students are well-prepared for the exams they will take, which are essential for their future development. In addition, it would help young students to develop self-confidence and to successfully deal with significant life changes and challenges. Nonetheless, it would enable them to make a positive contribution to the society, by developing the expertise and experience needed to claim their rights and to understand their responsibilities, and by preparing them for the challenges and opportunities of working life.

Improving students' motivation to learn mathematics is crucial for many distinct reasons.

In the last ten years all the schools in many countries face with great difficulties to make students to like and learn mathematics. Although it is an essential subject for future career development of the students it is usually thought than mathematics is very difficult, not interested and not connected with other subject area. The knowledge of the students is decreasing every year.

When the students are in position to select their high school, because of the fear of studying Mathematics they usually choose their vocation without any Mathematics in it, like law school, language schools, medical schools, arts, etc. The technical and science study programs at Universities are not popular and have lack of students. For example, there is none unemployed math teacher in a state with very big percent of unemployment.

This motivated us to make research about new methodology and create innovative ways of teaching and learning Mathematics using modern technologies, and this also satisfies the European priority to “support the professional development of teachers as mediators of creativity and innovation; promote the incorporation of creativity and innovation at all levels of education and training”.

We want the teachers together with the Universities professors and volunteers in associations that work on this topic to share their experiences and thoughts and develop new methodology for learning math skills through democratic process of choosing teaching methodology. Using this method, they will learn more, they will be more motivated, they will use innovative technologies to study, and big percent of the students will like to continue with their education in the field of science and technology area. This is an approach focused on student centered and problem-based active learning, and fostering critical thinking skills [3, 4].

We believe that the implementation of the project will increase the under achievement in the basic skills of mathematics, science and literacy through this new effective and innovative teaching method and make excellence in mathematics education.

This project will be able to make a comparison with the topics, matter, and types of problems that students in different countries have and share the experience and knowledge with Math teachers from the selected countries. The societies that are involved in the project will give an insight into the practice of teaching and learning Mathematics in other countries and at the same time, they can contribute to the realization of this project with the enormous experience they have in European projects of this kind.

This collection of good practices is simply intended to serve as a base for math educators to share practices and methods that have produced positive results of one sort or another. It is a collection of materials that represent practitioners' perspectives based in part upon research, but mostly upon experience.

There has to be an expectation of what a pupil might be assumed to "know" when teaching a topic. The aim of the teachers is to build on and advance that knowledge, to ensure that it has been incorporated into the pupils' mental structures appropriately, including knowing about the limitations of use of that knowledge and providing opportunities for pupils to use and apply that knowledge in a variety of contexts.

From a constructivist position it would appear that "good practice" is in providing almost any situation, activity, game, web page activity whereby by some magic process pupils automatically develop the concepts they need. These processes need to be more carefully identified and carefully designed series of activities or even actual "tutoring/teaching/chalk and talk" where by the learner is helped to properly develop the cognitive structures. The good practice should enable the student for easier solving of practical problems. The teacher should be a guide to the students and should prepare them for successful individual persons. Therefore, he should teach them all the steps, which could be applied as strategies in the process of problems' solving [4].

The Analysis of teaching methodology is a first step of the process of developing a new methodology and creating innovative ways of teaching and learning Mathematics using modern technologies. This approach satisfies the European priority to "support the professional development of teachers as mediators of creativity and innovation; promote the incorporation of creativity and innovation at all levels of education and training".

The done analysis of good practices would help to the teachers to change the conditions in the classroom, the approach in teaching of the material from the curriculum. This analysis would be beneficial for the students too, because by using of these good practices the students would be able to choose the way on which their

teachers will teach some lesson. The using of ICT in the teaching process would be helpful for the teachers and the students for the increasing of the digital competences in the process of successful development for the persons – carrier of the economy in 21st century. The e-platform, which included the done analysis of good practices, will be available for all who want to try and use this new tool to increase the motivation for studying mathematics. In addition, will be listed the chosen teaching methods which are used in different countries in Europe and beyond. For all teaching methods, the main information, which were needed for the project, are included.

### **Conclusion**

Better competence of the teachers since they will look on the teaching process from the point view of the students and have better understanding for it, strengthening the teachers' digital and linguistic competences, the possibility of networking and exchange of good practices, competitiveness among teachers, comparability of the common European educational space, are our main priorities.

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