

Education For The 21st Century Developing Mathematics Education

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ABSTRACT

In today's knowledge-based, globally-competitive economy, the types of skills for students need to succeed are far different when compared to past. Any educational system needs to develop a new set of 21st century skills for students. Without new efforts to help students to gain the competencies that prepare them to meet the demands of democracy, competitiveness and life; schools are increasingly irrelevant. These competencies include critical thinking, collaboration, communication and creativity skills. Other important skills include life skills, capacity for lifelong learning, technological and financial literacy, global awareness, and skills for effective civic engagement.

Every student in the 21st century needs to gain certain required skills such as critical thinking, problem solution, collaboration, communication, being innovative and technical literacy. Therefore, schools are supposed to set up these skills and capacities to allow them to figure things out on their own.

Creating an aligned 21st century education system that prepares Turkey to thrive is the central competitive challenge of the next decade. Addressing the challenge requires forceful and forward thinking leaderships from government policymakers.

Learning mathematics is a key fundamental in every education system that aims to prepare its citizens for a productive life 21st century. As a nation, the development of a highly-skilled and well- educated manpower is critical to support an innovation and technological-driven economy. A strong grounding in mathematics and a talent pool in mathematics are essential to support the wide range of value-added economic activities and innovations.

High competencies in Mathematics, Science and Technology (MST) are prerequisites in order to meet the great challenges of today and tomorrow. We need

sufficient numbers of people with insight in MST in order to understand our challenges and to act in an appropriate way. Many exciting opportunities exist; ready to be discovered by curious scientists.

In 21st century national mathematics curriculum reform brought major changes in philosophy of instruction, teaching styles, assessment, teacher and student roles, and curriculum organization based on a constructivist approach in terms of instructional studies that began in Turkey in 2004s. The standards for school mathematics describe the mathematical understanding, knowledge, and skills through grades 1-5, grades 6-8 and grades 9-12 in Ministry of Education; 2004, 2005, 2005a, 2011, 2013.

The standards for K-12 in school mathematics curriculum reform are based on five categories: standard for intellectual development, standard for content, standard for pedagogy, learning, teaching and assessment, problem solving: concepts, skills, processes, metacognition and attitudes.

The aim of this study is to give a brief overview of Turkish educational system while analyzing the school mathematics curriculum integration related to 21st century skills into the classroom application, connections and participation of mathematics curriculum reform programs in Turkey.

The analysis of the research is based on five critical components:

1. Mathematics curriculum programs,
2. Teaching and learning process,
3. Assessment,
4. Connection of cross curricular and courses,
5. Content, skills, readiness, anxiety and weaknesses.