Turkish INSTEM National Workshop on the impact and dissemination of projects

INSTEM (Inquiry for Science, Technology, Engineering and Mathematics Education) project national workshop and National Advisory Board meeting for MASCIL (Mathematics and Science for Life) and have been held together at Hacettepe University, Ankara on October 22, 2013. Next INSTEM activity will be on February 21, 2014. A panel on PISA 2012 will be held at Hacettepe University. Here is the web site of this activity: http://bit.ly/LOoNE6

Participants

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10	Jale Cakiroglu	Middle East Technical University
11	Metin Bagdat	Director of Foreign Relations, Small and Medium Enterprises Development Organization
12	Mustafa Ali Turker	SEBIT, an FP6 project coordinator
13	Omer Faruk Ozdemir	Middle East Technical University
14	Sadi Tureli	Vice President of SEBIT
15	Savas Gungoren	Teacher
16	Sinan Erten	Hacettepe University
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Discussion points

• Although, the agenda for the meeting was set and the moderator tried to facilitate the discussion participants of the meeting had a tendency to talk and express their views on recent changes in science and mathematics education. In Turkey, the science and mathematics curricula were changed very recently in 2013. The curricula were developed by the Scientific and Technological Research Council of Turkey (TUBITAK) and Ministry of Education. They have just been implemented in Grade---5 and Grade---9. The most important features of the new curricula are that they aim to promote the use of inquiry based education and use of alternative assessment strategies. IBST is included in the curriculum framework of science and mathematics education to some extent. What this means in practice is not explicitly specified in the curricula. The curricula use alternative assessment tools, and also formative assessment along with other kinds of assessments. Nevertheless, as expressed by the participants, teachers are under pressure because parents ask teachers to use other kinds of assessment tools that are more aligned with the exams the student will take. Therefore teachers prefer to use summative assessment rather than other assessment tools. One of the shortcomings of the science and mathematics curricula is not having a teacher's guidebook. Teachers have not given enough resources how to implement the activities. Teachers are left alone or for some they give freedom to use their creativity while teaching science and mathematics.

• Another issue discussed by the participants was not having long---term cycle policies. One of the challenges that Turkey faces with is the unsustainable short---term cycle of policies in education. Over little more than a decade, the minister of education changed five times and each person in that role had different priorities, agendas and different kinds of science and mathematics education. Several participants claimed that there is not a strong coordination and collaboration between Ministry of Education and Higher Education Council of Turkey.

• Turkish Ministry of National Education, Department of teacher education and development, is mainly responsible for TPD programs. Inquiry or elements of inquiry are mentioned, to different degrees, in the primary and secondary mathematics and science curricula (physics, chemistry, and biology) in Turkey; however, implementing

these ideas into practice has been challenging for teachers. Mainly because of ineffective teacher professional development (TPD) programmes and requirement of assessment. TPD is seen not successful in Turkey. In Turkey, TPD programs are too short to make an impact; there are no long---term training programs. Moreover, most teachers do not value these programs enough to learn from them. Participant suggested that more effective TPD programs are needed especially for science and math teachers. It is stated by many researchers that there is a need to specify qualifications teachers should have and to train teachers based on these qualifications. However, the current models for TPD in Turkey are based on a deficit model: Teachers are not good enough so we have to make them better. TPD may also be based more on the assumption that teachers are professionals who should be offered possibilities to improve. Due to short periods of training without any reflection afterwards, no evidence is reported on the effectives of these training. However, with a series of TPD sessions over a time period would be more effective. Participants teachers expressed that although the curriculum has changed, they haven't had any TPD program on the new changes or on IBSL. Some good examples of TPD were expressed by the participants were as follows: "Öğretmen Mesleki Gelişim Eğitimi Projesi 2009 (ÖMGEP)" http://bit.ly/L3QyIt "Öğretmen Akademisi Vakfı Öğretmen Çalıştayları" http://www.orav.org.tr

• Participant teachers who joined other FP7 projects expressed that short term Professional Development programs were not so effective. They suggested continuous professional development instead.

• More WoW (World of Work) like activities can be used in science and maths teaching and assessment tools should be aligned with these activities. Open ended context---based questions can be used for assessment.

• A kind of database or industrial and school network can be established. This database can be used by teachers while they need to collaborate with an appropriate WoW. Besides, a database can be set to help teachers, researchers and policy makers to learn and make use of the outcomes of the national and EU projects.

• In Turkey, tablet PCs have been given to students and in coming years all students will get one. http://fatihprojesi.meb.gov.tr/tr/index.php However, teachers have not trained enough how to use them in teaching and lack of software and educational programs are one of the most challenges.

• Companies that develop and support teachers how to use IBL materials should be supported with the coordination of Ministry of Education and Higher Education Council. To encourage teachers to use IBSL activities, sample IBL activities can be translated into mother language and those can be shared with teachers. Participating and presenting at teacher conferences would help teachers to implement this kind of activities in their teaching.

• **Increasing the impact of EU and national projects**: There are not many EU funded IBSE project in Turkey. Just recently the number is increasing and these project effect teachers' perceptions of TPD training and they ask the Ministry of Education to have these kinds of TPD programs in their agenda.

• IBSE project recommendations are mainly linked into national policy developments. In the new science and mathematics curricula, inquiry or elements of inquiry are

mentioned, to different degree. Emphasis has been put on student centeredness, increased student activity, scientific literacy, and science process skills together with inquiry in the new curriculum. That would be seen as an impact of EU funded projects on IBSE.

• National and international projects that aim to promote IBSE offer best practices of TPD, however the numbers of these activities are limited.

• The voices of teachers are partly represented in EU Commission funded IBSE projects. Teachers want to see best practices of IBSE activities and continue support while implementing those at the classroom. In Turkey, the science and mathematics curricula were changed very recently in 2013. The curricula use alternative assessment tools, and also formative assessment along with other kinds of assessments. But the teachers are under pressure because parents ask teachers to use other kinds of assessment tools that are more aligned with the nationwide exams the student will take. Therefore teachers prefer to use summative assessment rather than other assessment tools.

• The Scientific and Technological Research Council of Turkey (TUBITAK) encourages and funding any initiative activities related to entrepreneurship and innovation education and enhancing public understanding of science. IBSE activities are set a basis for reaching such aims.

Pictures


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