

## THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN SCIENCE EDUCATION

*Dear Readers!*

The use of information and communication technologies (ICT) in science education has become widespread and been developed increasingly by many science educators in our digital time. Students' and teachers' use of new technologies both in the classrooms and out of school have enhanced science learning more meaningful and permanent. In recent years, new technologies such as scientific visualizations, statistical modeling, real time data collection, dynamic modeling software, and collaborative group work environments has been used widely in science education. However, many researches have showed that the success and effect of these technologies use in the classroom highly depend on teachers' knowledge, skills and experiences in this area. It is apparent that, in the innovative classroom environments that are designed with ICT tools, the expenditures will be in vain if science teachers have no enough knowledge, skills and experiences in these technologies.

Another important dimension of this discussion is how to guide students to use digital learning environments enhanced with simulations, virtual experiments, and online chatting among their classmates and teachers. These are intended to follow after school time for the sustained understanding of science concepts. In specific, the development of Web 2.0 technologies or social networking technologies provides students with their self driven science learning. These technologies also support to share the visual materials such as photograph, videos, graphics and simulations for a clear understanding of issues that the students may concern. Today's science teachers on the social networking environments do not only discuss with their students science-related issues, but also build and develop social communication skills of their students.

As a result, it should not be thought that ICT tools alone can resolve all the problems of science education. It also should not be assumed that the ICT tools are versatile remedies for students who suffer from understanding of school science. No doubt that a science teacher's eye contact and social interaction have positive impact on students' achievement and attitudes in science more than the many technologies developed so far. In the light, science teachers' pedagogical content knowledge to use ICT tools in their science curriculum and the suitable methods to use these tools in classroom atmosphere should be researched in more advanced levels.

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