

The 21st century skills in education conference – a forum for sharing visions and good practices on functional literacy

(An illustrated report by Jenn-Y-Sen from a *Scientix* perspective)

The *21st century skills in education* conference was organized jointly by *Zaedno-v-chas* (*Teach for Bulgaria*) Foundation, the *Education Bulgaria 2030* initiative and the *Inter-faculty UNESCO chair ICT in library studies, education and cultural heritage*. It took place on 20 February, 2016, in the *Innovation forum John Atanasoff* of Sofia Tech Park (<http://21stcenturyskills.info>). The participants (about 150 people) embraced representatives of the Ministry of Education and Science (MES), regional inspectorates in education, universities, research institutes, business, NGO, school principals, teachers and students. The focus of the conference was on how the Bulgarian educational system can prepare successful people in the 21st century and reflect on each stakeholder's role in this process. A special guest lecturer was **Prof. Joke Voogt**, expert on ICT and Curriculum at the University of Amsterdam's (UvA) Faculty of Social and Behavioural Sciences.

Evgenia Peeva, CEO of *Zaedno-v-chas*, greeted the audience and passed the floor to **Meglena Kuneva**, Deputy Prime Minister for European Policies Coordination and Institutional Affairs, and Minister of Education and Science. **Minister Kuneva** talked about the New Law of Education, about the connection between the education and business as well as the key role of the vocational schools in the dialogue between the state on one hand, and the educational institutions and the industry, on the other. She emphasized on the freedom of choice of the teacher as a leader of the students in building their competences for 21st century and the efforts the Ministry would involve in the professional development of the teachers.



Neli Koleva, Head of the *Public Partnership* unit of *Zaedno-v-chas*, described the frame of the conference and emphasized on the special presentations of students in a panel and a workshop.



Prof. Joke Voogt's invited talk was on the challenges for teachers and students in the context of the 21st century's skills. She approached various stakeholders with presenting the most crucial problems of education from an international perspective. Prof. Voogt quoted representatives of the 21st century learners who had made clear that they would like to work in an environment independent from time and place, with room for taking responsibility and entrepreneurship. At the end of her presentation, she talked about the further steps needed to be taken: to create **awareness** by stimulating public debate among various stakeholders; to encourage **collaboration and networking** ; to establish stronger connections between **formal and informal learning**; to create **ownership** among teachers and provide them with **professional development** opportunities, and to build on already existing (good) practices.



In her capacity of one of the founders of the International Summit on ICT in Education (EDUsumIT) **Prof. Voogt** announced that its next issue - EDUsumIT'17 - would be held on September 18-19, 2017, Bulgaria.



Then there was a panel discussion in which **Joke Voogt**, **Adelina Kostova** and **Nikolay Angov** presented their views on *How the educational system could meet the requirements of 21st century*. Ms Kostova invited students to be IT mentors of her colleagues in Nestle, and Mr Angov emphasized on the importance of building practical skills in IT, science and mathematics so as to solve the problem of the deficit of IT specialists in the industry.



Toni Chehlarova, a representative of IMI-BAS, answered a question from the audience with regard to the need of a new type of assessment of the mathematical and digital competences. She referred to *Scientix* resources developed by IMI-BAS in the context of *VivaCognita* project (<http://vivacognita.org/>), viz. the “Theme of the month” (http://vivacognita.org/_/viva-math/monthly-problem/) and “Mathematics with a computer” (http://vivacognita.org/_/viva-math) contests in which students are supported by dynamic software files and the answers are evaluated with a precision appropriate from real-life perspective.

During the coffee break she and **Evgenia Sendova** (Scientific project coordinator on behalf of IMI-BAS) presented good practices for developing key competences via STEM education by means of the *Scientix* platform at a specially prepared stand.

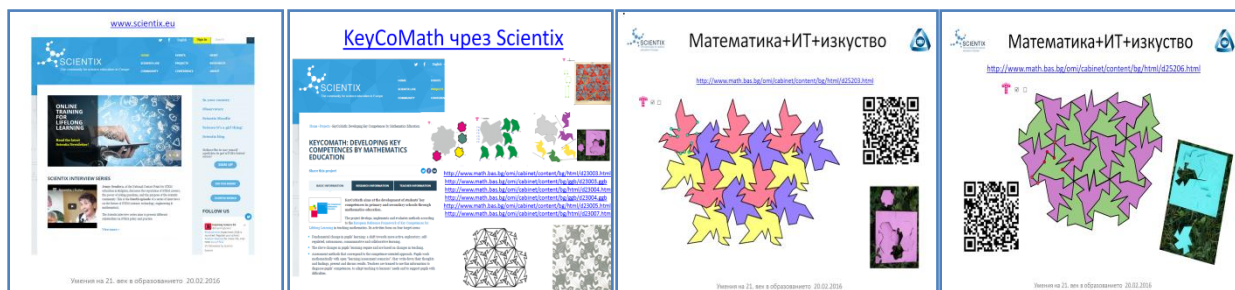


The use of digital *Scientix* resources, related to the Escher's works, were demonstrated with the aim of contributing to the development of key competences such as: *digital and mathematical competences, sense of initiative and self-expression*.

Furthermore, the integration of digital resources with mathematical manipulatives were discussed and demonstrated to different stakeholders – pre-school children, parents, 4th graders, teachers, school principals, researchers, policy makers. Some good practices and achievements of teachers and students IMI-BAS has been working with within the context of this topic were demonstrated and shared.

Below some fragments from the presentation are shown.





The dynamic files allowing for a relatively easy *escherization* (drawing in the style of M. C. Escher) were combined with solving mathematical puzzles for tessellating the plane. The young participants were able to solve and even to pose new types of problems dealing with fractions, this time the fractions being irregular tiles and compositions of such tiles rather than pieces of chocolate or pizza.



The discussions with young children, parents, teachers and researchers in education were equally engaging. A number of teachers working in pre-school and primary school setting saw the activities demonstrated as an immediate enrichment of their own classes.



In a nut shell, it was inspiring to see the rich variety of stake holders getting familiar with *Scientifix* resources enriching the users' potential for cultivating and developing key competences for the citizens of 21st century. Talks with representatives of NGOs (e.g. *Educational opportunities and achievements*), Universities, Parents' associations, regional experts, school principals, teachers and students gave rise to ideas for further joint activities making use of a larger spectrum of the *Scientifix* platform.



Having warmed up their mathematical skills at the *Scientifix* stand the 4-graders from "Lyuben Karavelov" school, Koprivshtitsa, taught and examined the audience about *reading literacy*.



It was time for reflections and Prof. Voogt participated enthusiastically in the follow up discussions about the challenges for implementing the 21st century skills in the educational system with the team of the *Inter-faculty UNESCO chair ICT in library studies, education and cultural heritage* and with the participants in the workshop on reading literacy.

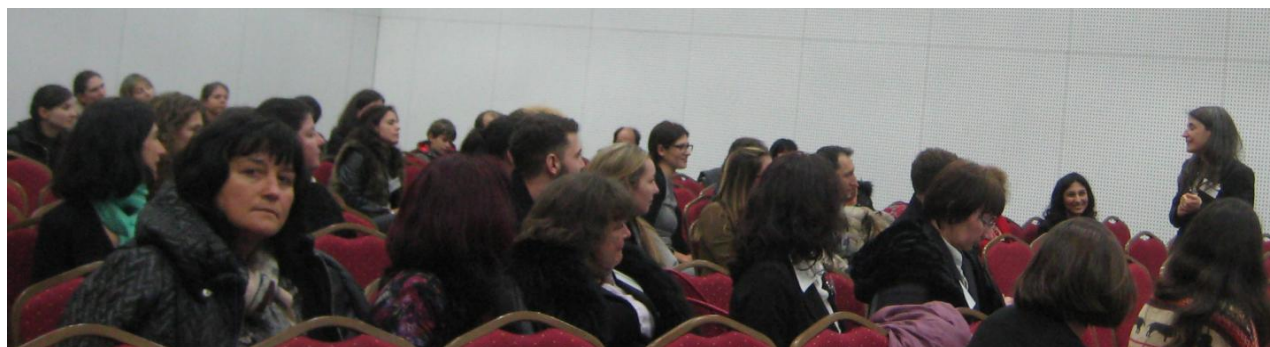


Another interesting workshop, moderated by **Eugenia Kovatcheva** (Scientific secretary of the *UNESCO Chair*), was dedicated to a *long-term vision for a quality education in Bulgaria towards a specific action plan*. The problems considered included: the responsibilities at the different levels; the ways of tracking the connection between the school and the business; the methods assessing the progress. Prof. **Petar Kenderov**, President of the Union of Bulgarian Mathematicians, talked about the importance of providing an on-going support of learning professional communities and emphasized the role of the Union's infrastructure, on one hand, and the involvement of teachers in projects such as *Scientix* and *Mascil*, on the other. *Much more should be done to make this support on-going and we should join our efforts in this direction...*

The recommendations of the workshop participants were: to initiate a general debate concerning the new Law of Education so as to avoid ambiguous interpretation; each school to build its own vision about the upcoming school year; tracking of the progress and personal development.

The representatives of *Zaedno-v-chas*, *UNESCO Chair*, and *IMI-BAS* discussed also the further join activities in the context of preparing two upcoming events in Sofia – *Children's conference* (June 11, 2016) and *QED'16: Technology Advanced Quality Learning for ALL* (June 13-15).

In her closing words **Maria Sendova** (Impact Assessment & Knowledge Development specialist at *Zaedno-v-chas*) invited the participants to take a copy of the handbook by teachers for teachers: “How to develop skills of 21st century in class”.



As a presenter at the *Scientix* stand I was not able to attend all the interesting sessions of the Conference but a statement of one of the youngest participants (a 4th grader from Koprivshitsa) is still staying in my memory. At the end of the workshop a teacher from the audience asked him:

– *What skill have you gained thanks to getting ready for your workshop presentation?*

The boy answered with apparent self-confidence:

– *Now I am able to attend conferences, before that I was not!*