Researchers, educators team to improve science curricula

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NCBJ experts jointly with teachers and students of some Mazovia region technical high schools are running the "School with a Big Future" project. A new curricula for some nuclear-industry-related vocational programmes that are to attract more young people towards the sciences will be worked out during interactive classes held in schools and NCBJ labs in Świerk, where MARIA, the sole in Poland nuclear reactor, is operated.

Educational experts, teachers, prospective employers and students as well are unanimous – present-day high school curricula for the sciences (mathematics, physics, chemistry) should be improved. Jointly with some NCBJ experts they are seeking solutions that would increase efficacy of the knowledge transfer process, attract young people towards the sciences, and more efficiently prepare them to their future careers. One of the objectives of the "School with a Big Future" project (currently under accomplishment) is to help introduce indispensable reforms to the sciences curricula realized in high schools.

The first stage of the project: some research

The first stage of the "School with a Big Future" project consisted in research on quality of teaching of the sciences in technical high schools in the Mazovia region, from which 10% out of the total number of 80 thousand technical graduates in Poland each year come from. Three groups of respondents have been inquired: teachers, prospective

employers, students.

"The conducted research confirmed other observations concerning some unfortunate shortcomings in current teaching of the sciences" – said Professor Ludwik Dobrzy?ski, Director of the NCBJ Training & Education Division, originator of the "School with a Big Future" project idea – "Therefore to meet the expectations we made a decision to invite both students and teachers to participate in a common discussion focussed on looking for better solutions that might improve quality of education and that way help both communities".

According to students' prevailing opinions the curriculum currently realized in technical high schools is not particularly encouraging to the sciences. The single most important reason indicated by majority of the respondents is lack of any interesting presentations and/or visits to real labs, even in case of nuclear technologies However, in spite of that regrettable situation, nearly half of Mazovia region technical high school graduates decide to continue their education in colleges.

The opinion that the curriculum currently realized in technical high school is not particularly encouraging to the sciences is shared by teachers. As much as 83% of respondents from that group suggested that more classes in the sciences are needed, including classes in nuclear technologies. Lack of suitably equipped student labs has been identified as a significant obstacle to organizing interesting lessons at their schools. Therefore should some extra hours devoted to the sciences be introduced, they would rather organize some excursions/visits to specialized external labs, attend conferences etc.

Efficiency of any education system is constantly verified by labour market. More than half of prospective employers inquired within the conducted research has evaluated the quality of education in Mazovia region technical high schools as poor or very poor. They indicate poor

know-how of the graduates, which is one of the most important requirement in majority of recruitment procedures. Demand for technical graduates will be rising since the market is still overpopulated by graduates of various humanities while in short of technical university graduates.

Within the "School with a Big Future" project framework NCBJ has assigned the task to conduct market research on vocational education system current conditions and on demand for technical graduates to the MillwardBrown SMG/KRC company. The company auditors inquired three groups of respondents: high school students, teachers, and prospective employers from the Mazovia region. Teachers were interviewed using individual paper questionnaires, students filled up audience questionnaires, while prospective employers opinions were collected using the CAPI quantitative technique. The research was conducted in October 2012.

"Apart the conducted market research, two sessions of meetings with teachers of the sciences have been organized within the 'School with a Big Future' project framework. During the meetings we discussed various solutions that might help to increase interest of students in the sciences" – said Marcin Sadowski, MSc, Head of the 'School with a Big Future' project – "We are now entering the second project phase in which we are going to test the developed educational programme. We will be also inviting students to – hopefully – attractive lessons in our Institute labs".

The 'School with a Big Future' project budget is nearly 1 million PLN. The project is co-financed by European Union within the Human Capital Operational Programme (priority IX Development of education and competencies in the regions, measure 9.2Improvement of attractiveness and quality of vocational education). The project is among wide range of comprehensive educational projects realized in NCBJ with the aim to

improve awareness of Polish society in the field of nuclear power industry. NCBJ cooperates with other research institutions in Poland and abroad to work out programmes of specialized training courses and post-graduate studies, as well as to organize various educational events. Knowledge of our experts is utilized by students and high-school pupils during dedicated lessons organized in our labs in ?wierk. Highly professional lecturers and unique research apparatus available in NCBJ ?wierk attract each year over 7,000 visitors from all over the country.

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