



## **The Hungarian Chemical Society Chemistry Teachers' Division Annual Report to the EuChemS Division of Chemical Education for 2020-2021**

### **1. Abstract**

*The significant changes have continued in the educational systems of Hungary in both high school and elementary school in 2020-2021. This is the first academic year after September 1, 2020, the new National Basic Curriculum was implemented, ultimately meaning further reductions in classes in chemistry and other science subjects. Current consultations related to teachers' promotion and qualification as well as the general financing system of education that have been introduced in the educational system of Hungary in the last few years are underway. Several competitions for students have been successfully organized (as well as the usual annual competitions and other events) by the HCS.*

### **2. National educational policy**

The age distribution of chemistry teachers still shows a very high average of age, despite the Klebelsberg Fellowship (aimed at attracting young university students towards chemistry teacher training) launched by the Government. The reduction of severe shortage of chemistry teachers is further attempted by the obtaining of the Klebelsberg fellowship. The one year-round training of practice for those few who have remained has just concluded. Thanks to the Klebelsberg Scholarship the number of applicants to teacher specialty training at universities has increased.

Another serious problem, which still remains unresolved, is the introduction of complex sciences object in special polytechnics. Only a handful of specialties have retained chemistry as their complex sciences subject. Given these training conditions students are unlikely to choose chemistry as subject for continuation at universities if they had no proper chemistry subject to be taught in Classes 9 and 10. A new element for students at special polytechnics is the introduction of professional exam at matura exams. The new textbooks for the Comprehensive teaching curriculum are continuously produced; however, the textbook covering chemistry is missing. The so-called "digital" textbooks were developed by the Hungarian Institute for Educational Research and Development (OFI), with the assistance of teachers who have previously taught these subjects. These textbooks contain all the information

necessary of a ninth-grader student attending polytechnics in physics, chemistry, biology and geography.

The new curriculum that was introduced by the National Basic Curriculum in September 2020 can be found on the site of the Educational Bureau: ([https://kerettanterv.oh.gov.hu/03\\_melleklet\\_9-12/index\\_4\\_gimn.html](https://kerettanterv.oh.gov.hu/03_melleklet_9-12/index_4_gimn.html)).

As of 1<sup>st</sup> of September, 2020, every 1-12<sup>th</sup> grader student received their textbooks free of charge, thus relieving their parents from a substantial financial burden.

It is regrettable that fewer and fewer students chose chemistry as matura exam subject at middle level; however, the number of students taking advanced level chemistry has increased 15%, due the university entrance admission requirements including at least one advanced level exam.

The most formidable challenge for this academic year has been the tackling of problems arising due to the Covid-19 pandemic. As of November 11<sup>th</sup>, 2020, the education of secondary school was again transferred to online teaching. Elementary school was transferred to online teaching on the 8<sup>th</sup> of March 2021. Teaching with personal attendance began on the 10<sup>th</sup> of May 2021. The Bureau of Education expended their recommendations for digital teaching for the schools and organized online lectures for teachers free of charge. A major impact was the access to testing materials and software. Based on individual preferences the schools could choose which platform to use, the most popular ones were the Hungarian-developed Kréta (Chalk), Classroom and Teams. Students in need for hardware necessary for digital training were assisted by their school or government or foundations.

A complex program that was started earlier to meet the special needs of talented and gifted children is still continuing. Several more projects, programs, organizations and institutions (new and established earlier) serve this purpose in Hungary and a national network of the individual efforts keeps working too. There were several calls for proposals and the schools could apply for grants to help their various programs, competitions, camps, visits to science museums or university laboratories etc.

### 3. Events in chemical education

Together with the German Federal Ministry for Education and Research and the Hessian Ministry of Education and Religious Affairs they decided to cancel the **17th International Junior Science Olympiad** 2020 in December. This was a tough decision to make for all those responsible for the project, especially as our preparations were already far advanced. Despite intense efforts, it is simply not possible to hold an international event of the size of the IJSO under the current circumstances.

The **European Olympiad of Experimental Science** EOES (for the age groups of 15-16 years) The host of the competition is the University of Szeged. The competition was held in Hungary (Szeged) 9-14. may 2021. Since Hungary was the

organizing country, four teams were allowed to compete in the tournament. Two Hungarian teams were awarded with the gold, one team with the silver and one with the bronze medal.

For the **52<sup>th</sup> International Students Olympics in Chemistry (IChO)** the preparatory training was provided by the lecturers of the Eötvös Loránd University. The Hungarian student delegate returned from the online competition held between 23 -29<sup>th</sup> of July 2020 with one silver and three bronze medals.

The **55<sup>th</sup> International Mendeleev Olympiad „On-line”** was held between the 21-26<sup>th</sup> of April 2021. The Hungarian participants came home with altogether six medals - two silver and four bronze.

**4<sup>rd</sup> International Chemistry Tournament** would have taken place in 2020, however because of the corona virus pandemic it was postponed. This year the competition will be held in an online format in Faculty of Chemistry Jagiellonian University of Krakow (Poland) between the 20 – 25<sup>th</sup> of August.

Regional organizations of the Hungarian Chemical Society organized several competitions on chemistry and environmental sciences for students.

#### **4. Activities of the national chemistry society**

In this academic year the Hungarian Chemical Society also participated in organizing the following events:

HCS Chemistry Teachers Division jointly with the University of Debrecen organized the **53. Irinyi János Chemistry Competition** for secondary school students (that is the national Olympiad for age group of 15-16), but because of the pandemic the final round that was to be held on the 28<sup>th</sup> of April had to be cancelled. The competition of 2021 was finalized based on the results obtained during the second round of the tournament. Further details can be found on the following page: <https://www.irinyiverseny.mke.org.hu/>

HCS Chemistry Teachers Division jointly with the Eszterházy Károly University organized the **Hevesy György Chemistry Competition** for elementary school students in Eger, the final round was postponed until the end of August.

The **6<sup>th</sup> George Olah National Secondary School Chemistry Competition** was announced jointly with the Szent-Györgyi Albert College of the Budapest University of Technology and Economics. The oral round was held between the 26-27<sup>th</sup> of February 2021 in an online format, and the written round took place on the 7<sup>th</sup> of April.

The Hungarian Chemical Society continued to support the participation of young chemists at international scientific conferences which were mainly organized online.

The Society has maintained the website to help the chemistry teachers' work, see at the following link: <http://www.kemtan.mke.org.hu/> (in Hungarian). Its content is managed by the HCS Chemistry Teachers Division. The HCS member chemistry teachers also have a mailing list where we can discuss the most important subjects in that the teachers are interested in and send information about the various professional events. We improve the quality of the website regularly.

## 5. Publications

Five issues of the **Chemical Journal for Secondary School Students (KÖKÉL)** (see website in Hungarian: <https://www.kokel.mke.org.hu/index.php>) were published. In 2020 its 47<sup>th</sup> volume was published, which aims at serving the teaching of chemistry across the entire breadth of public education. With our topics we approached the primary schools. With an expanding spectrum of topics KÖKÉL was published five times for chemistry teachers and students interested in chemistry. 18 students have been awarded with certificates and prizes at the beginner and advanced level competitions in in problem solving and English/German language translation.

From time to time the Journal of Hungarian Chemists (see website in Hungarian: <http://www.mkl.mke.org.hu/>) publishes articles that are interesting for teachers and secondary school students too. Its special issue about the education in chemistry have been written and will be published in the following school year. The 75<sup>th</sup> volume of the Hungarian Chemists' Journal (Magyar Kémikusok Lapja) was published in 2020, the most recent articles are accessible on the recently updated website, at <https://mkl.mke.org.hu/>

## 6. Liaison with the chemical industry

For the 20<sup>th</sup> time, the most prestigious award presented to teachers the '**Teacher Rátz Life Achievement Award**' took place on the 16<sup>th</sup> of December 2020. The award recognizes the extraordinary work done by teachers of different fields of science. '**Teacher Rátz Life Achievement Award**' was received by two chemistry teachers. For this prize current or previous teachers of biology, mathematics, physics or chemistry for 5th-12th graders can be nominated. This year, the award's ceremony was held online.

'**For Hungarian Chemistry Education Prize**' founded by Richter Gedeon Pharmaceutical Ltd awarded five chemistry teachers again in the autumn 2020. On October 14, 2020, four chemistry teachers were awarded the "**Hungarian Chemistry Education Prize**" for their outstanding professional work. Recognition is awarded to secondary school and elementary school chemists who, with decades of dedicating work, have contributed greatly to high quality vocational training and pay particular attention to educate, and cultivate chemistry, and to empower talented students.

### **Programs popularizing chemistry**

Unfortunately, due to the pandemic, all events relating to chemistry and were cancelled this academic year.

### **7. International and European initiatives**

The head of the HCS Chemistry Teachers Division received an invitation to the **15<sup>th</sup> ECRICE** conference at the Weizmann Institute of Science, Israel, July 6-8, 2020. However, the conference had to be cancelled because of the COVID-19 pandemic. Our division was represented by Dr. Luca Szalay at the time of the online (Zoom) meeting of the EuCheMS DivCEd Council held on 6<sup>th</sup> July 2020.

### **8. Other events and activities**

Hungarian chemistry teachers and university professors continuously help the chemistry teachers in Hungarian communities living and working beyond the frontier (in Romania, Ukraine, Serbia and Slovakia) with training courses, teaching materials and staff exchanges).

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Andrea Petz PhD  
([apetz@gamma.ttk.pte.hu](mailto:apetz@gamma.ttk.pte.hu))