**[Research Programme for Public Education Development of the Hungarian Academy of Sciences](https://mta.hu/kozoktatas-fejlesztesi-kutatasi-program/research-programme-for-public-education-development-of-the-hungarian-academy-of-sciences-111934)**

[**MTA-ELTE Research Group on Inquiry-Based Chemistry Education**](https://mta.hu/kozoktatas-fejlesztesi-kutatasi-program/scientific-foundations-of-education-research-program-of-the-hungarian-academy-of-sciences-111618)

[**Inquiry-Based Chemistry Education and Systems Thinking project**](https://ttomc.elte.hu/publications/95)

**News & dissemination events**

**Events of the first and second year (1st September 2021 – 31st August 2023)**

* The project plan and the preliminary results have been presented at two international conferences. [The slides of Luca Szalay's presentation at ECRICE 2022 conference](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBa2tNIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--5c648f515e605c0522800000494c8c205a234941/2022_07_12_ECRICE_Israel_Luca_Szalay.pptx?disposition=attachment) can be downloaded from the project website. [The slides of Luca Szalay's presentation at the 10th EUROVARIETY conference](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbFFPIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--ad12829a0735b6518088803e6ce4c1ca3cb36812/2023_06_28_30_EUROVARIETY_Luca_Szalay.pptx?disposition=attachment) could also be found on the research group’s website.
* Dissemination in Hungary happened partly in the form of talks at two workshops: at the Hungarian Academy of Sciences (see its slides as [Szalay Luca előadásának diasora az Academia Europea workshop-ján, 2021. 10. 21.](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbFVNIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--2555848d4370b2be09a3bd82bee41e0b02087698/Szalay_Luca_2021_10_21_MTA_Kutatasalapu_kemiatanitas.pdf?disposition=attachment)) and at another one organised by the Gedeon Richter Plc. for awarded chemistry teachers (see its slides as [Szalay Luca előadásának diasora a Richter-díjas kémiatanárok találkozóján, 2022. 09. 02.](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbFFNIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--22a885578c236de2231c63c341be2e49f83860f0/Szalay_Luca_2022_09_02_MTA_Kutatasalapu_kemiatanitas.pptx?disposition=attachment)).
* The project and its first results were presented orally at the [22nd National Conference on Education](https://konferencia.pte.hu/sites/konferencia.pte.hu/files/ONK_2022_Programfuzet.pdf) (17.11.2022.) by Zoltán Tóth and at an online meeting of the [Didactic Subcommittee of the Pedagogical Committee of the Hungarian Academy of Sciences](https://nevelestudomany.hu/albizottsagok/didaktikai-albizottsag/) (28.10.2022.) by Luca Szalay.
* A poster titled “[Teaching experimental design skills to 7th graders](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBdjRQIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--4704ae77bb568bb1e59c84936743bd1394e4ebf3/2023_05_11_Poster_KissE_SzalayL2023_05_01.pub?disposition=attachment)”, (authors: Szalay Luca, Kiss Edina) was presented at the Scientific Day of the Eötvös Loránd University, Faculty of Science, Institute of Chemistry on 11th May, 2023.
* Each student sheet has been applied in the training of pre-service chemistry teachers at the Eötvös Loránd University. Mentors and tutors of pre-service chemistry teachers have also been informed at a Teams meeting on 26th September 2023 that was recorded for the ones who could not participate.
* Visitors to ELTE's Institute of Chemistry can also try out the most interesting worksheets in the interactive lab activities organised during the events of the [Researchers' Night](https://www.kutatokejszakaja.hu/).
* Hundreds of in-service and pre-service chemistry teachers have received an e-mail containing the summary of the first results of the project and the availability of the student sheets via mailing lists maintained by the Eötvös Loránd University, Institute of Chemistry and the Hungarian Chemical Society for chemistry teachers.
* Photographs taken about the students doing the experiments could be seen in the [galleries](https://ttomc.elte.hu/galleries) (numbered according to the numbers of the student sheets) belonging to the Centre for Educational Methodology of the Eötvös Lorand University Faculty of Science.

**Events of the third year (1st September 2023 – 31st August 2024)**

* István Füzesi and Luca Szalay participated at the HIGHER EDUCATION-PEDAGOGICAL CONFERENCE organised by the Pedagogical and Psychological Faculty of Eötvös Loránd University on 25th Oktober 2023 in Budapest. [István Füzesi presented the results of the teachers' and students' opinions on the worksheets for designing chemistry experiments developed in the present project](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbmdPIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--240f45c47d618107a7b8315c28ede293d1a58bbc/FuzesiI_Felsookt_ped_i_Konf_2023_10_25_vegso.pdf?disposition=attachment).
* [Luca Szalay gave an oral presentation titled “EXPERIMENTAL DESIGN AND SYSTEMS THINKING IN CHEMISTRY LESSONS “](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbHdQIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--fae48415d7d7ad4b813c59dd6f9fc597d43574e0/Szalay_Luca_2023_10_28_MTA_Kutatasalapu_kemiatanitas.pptx?disposition=attachment) at the [23rd National Conference on Education](https://onk2023.ppk.elte.hu/) organised by the Pedagogical and Psychological Faculty of Eötvös Loránd University on 28th October 2023 in Budapest.
* Our research group was represented by Réka Borbás, István Füzesi, Edina Kiss and Luca Szalay at the [Master and Student National Conference on Teacher Education](https://tkk.elte.hu/content/mester-es-tanitvany-orszagos-tanarkepzesi-konferencia-2023-november-11.t.36734), organised by the Teacher Training Centre of Eötvös Loránd University on 11th November 2023 in Budapest. [Réka Borbás talked about her experiences about correcting the students’ tests in the present project](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbmtPIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--914d78eef48a7dec73a2bc9c6ac6a7cd33827d83/Borbas_Reka_2023_11_11_Tapasztalatok_dolgozatokbol.pdf?disposition=attachment) for two years. [Luca Szalay summarised the results of the research group's six years work.](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbHNQIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--99a3e51cb9878638147b6fdd45a526bcd2b16422/Szalay_Luca_2023_11_11_MTA_Hat_ev_tapasztalatai_kutatasalapu_kemiatanitas.pptx?disposition=attachment)
* A poster titled „[Progress in developing experiment design skills in primary schools](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbDRQIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--a494cb4c59936b63375deeba4126cf5de8c3e26e/2024_05_16_Poster_SzalayL_KissE_TothZ_2024_04_22.pdf?disposition=attachment)” (authors: Szalay Luca, Kiss Edina, Tóth Zoltán) was presented at the Scientific Day of the Eötvös Loránd University, Faculty of Science, Institute of Chemistry on 16th May, 2024.
* In her presentation at the 1st hybrid seminar (titled: "*Health and medicine in the new era*") of the ERASMUS+ project named "*Trans-national STEM teacher education focusing on transversal competence and sustainability education*" (Grant Agreement - GAP-101104631), abbreviated as acaSTEMy, Luca Szalay presented which of the [student worksheets produced in the present project funded by the Hungarian Academy of Sciences](https://ttomc.elte.hu/publications/95) can be used as part of the teaching materials for the pre-service and in-service teacher training modules to be developed in the above mentioned [ERASMUS+ project](http://www.acastemy.eu/news/).

**Events of the fourth year (1st September 2024 – )**

* Luca Szalay gave an oral presentation titled "[New results in improving experimental design skills](https://ttomc.elte.hu/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBaFlRIiwiZXhwIjpudWxsLCJwdXIiOiJibG9iX2lkIn19--f42c3072866e3754b0845531988c55b4691fbd06/2024_09_06_ECRICE_Lisbon_Luca_Szalay_2024_09_03.pptx?disposition=attachment)" on 6 September 2024 at a session of the [16th European Conference on Research in Chemical Education](https://ecrice2024.events.chemistry.pt/) in Lisbon.
* Zoltán Tóth gave an oral presentation titled [Kísérlettervező képesség fejlesztése kémiaórán](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14106/2024_10_23_ONK2024_PPT_TothZ.pdf), in a section of [XXIV. Országos Neveléstudományi Konferencia](https://www.bing.com/ck/a?!&&p=25b2bf107b73207aeeae5087d98b27aa8560c491c7286b05a7b7a78c71bfac6cJmltdHM9MTc1NTEyOTYwMA&ptn=3&ver=2&hsh=4&fclid=303145dc-5829-680c-1755-561859f069b8&psq=XXIV.+ONK&u=a1aHR0cHM6Ly93d3cub25rMjAyNC5odS8&ntb=1) on 24th October, 2024.
* Luca Szalay gave an oral presentation titled[: Exploration of effective ways to develop experimental design skills](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14442/2024_11_29_BICE_Budapest_Luca_Szalay.pptx), in a section of [Budapest International Conference on Education](https://bice.mpt.bme.hu/) on 29th November, 2024.
* István Füzesi gave an oral presentation titled [Kémiai kísérlettervező feladatlapok alkalmazhatósága](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14445/2024_11_16_Tanarkepzesi_konferencia_FI.pptx) – Tanárok és hallgatók tapasztalatai a második év eredményei alapján, in a section of [IV. Tudós tanárok – tanár tudósok tanárképzési konferencia](https://tkk.elte.hu/content/iv-tudos-tanarok-tanar-tudosok-tanarkepzesi-konferencia.e.5657) (Scholar teachers – teacher scholars teacher training conference), on 16th November, 2024.
* Luca Szalay gave an oral presentation titled [A kísérlettervezés tanítása a kémiatanári képzésben,](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14446/Szalay_Luca_2024_11_16_Kiserlettervezes_kemiatanarkepzesben.pptx) in a section of [IV. Tudós tanárok – tanár tudósok tanárképzési konferencia](https://tkk.elte.hu/content/iv-tudos-tanarok-tanar-tudosok-tanarkepzesi-konferencia.e.5657) (Scholar teachers – teacher scholars teacher training conference), on 16th November, 2024.
* Edina Kiss gave an oral presentation and a workshop titled [Így kísérletezzünk a diákokkal!,](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14107/Kiss_Edina_2025_02_27_Szolnok_szakmai%20nap_KAPI.pptx) at KAPI Szakmai Nap, in Szolnok, Hungary, on 27th February, 2025.
* Luca Szalay gave an oral presentation titled [Egy évtized tapasztalatai a kutatásalapú kémiatanítás terén](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14447/Szalay_Luca_2025_04_11_Oveges_Egy_evtized_kiserlettervezes.pptx), at a conference titled „Színesen a szürkeállományról”, organised by the, Öveges József Tanáregylet, in the Katolikus Pedagógiai Intézet, Budapest (Conference entitled “Colourfully about grey matter”, József Öveges Teachers’ Association, Catholic Pedagogical Institute), Budapest)
* A report conference of the methodological research groups of Eötvös Loránd University, Faculty of Science, supported by the Hungarian Academy of Sciences was organised on 9th May, 2025, where Réka Borbás gave a presentation titled [Válaszok, hibák, javítások, érvelések – a kísérlettervezés fejlesztése közben](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14448/ValaszokHibakJavitasokErveles_MTA_kutcsop_eloadas_BorbasReka.pptx) and Luca Szalay gave a presentation titled [Tíz év tapasztalatai a tanulók kísérlettervezési képességének fejlesztése terén](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14449/Szalay_Luca_2025_05_09_MTA_ELTE_Kiserlettervezes.pptx).
* Luca Szalay and Edina Kiss presented a poster titled [The newest results in developing experiment design skills at chemistry lessons](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14444/2025_05_23_Poster_SzalayL_KissE_TothZ_2025_04_25.pub), poster presentation at the Scientific Day of the Eötvös Loránd University, Faculty of Science, [Institute of Chemistry](https://chemistry.elte.hu/intezet) on 23rd May, 2025.
* Luca Szalay gave an oral presentation titled [Teaching teachers to teach inquiry](https://kemiaszakmodszertan.ttk.elte.hu/dstore/document/14443/2025_07_03_Szalay_Luca_INQUIRY_KRAKKOW.pptx) in a section of the 11th EUROVARIETY conference, Jagiellonian University, Kraków, Poland on 3rd July, 2025.
* Luca Szalay gave a plenary lecture titled „Kutatásalapú kémiatanulás” at the „[Kémiatanárok Nyári Országos Továbbképzése](https://mke.org.hu/fooldal/54-hirek/hirek-aktualitasok/1404-kemiatanarok-nyari-orszagos-tovabbkepzese-eger-2025-augusztus-21-24.html)”, (“National Summer Training Course for Chemistry Teachers”), organised at the Eszterházy Károly Katolikus Egyetem, in Eger, Hungary on 23rd August, 2025.
* Edina Kiss lead a workshop titled „Kutatásalapú kémiatanulás kísérletek” at the „[Kémiatanárok Nyári Országos Továbbképzése](https://mke.org.hu/fooldal/54-hirek/hirek-aktualitasok/1404-kemiatanarok-nyari-orszagos-tovabbkepzese-eger-2025-augusztus-21-24.html)”, (“National Summer Training Course for Chemistry Teachers”), organised at the Eszterházy Károly Katolikus Egyetem, in Eger, Hungary on 23rd August, 2025.