

Report to UCAP from Borislav Bilash II

July 30, 2024

Executive Summary

The grant provided by UCAP was instrumental in supporting my recent professional development workshops for teachers in Ukraine. Over the course of two one-week sessions in Lviv and Mukachevo, we trained approximately 100 K-12 teachers in modern science education methods. This report outlines the activities undertaken, the outcomes achieved, the financial expenditures, and the overall impact of the project.

Introduction

My name is Borislav Bilash II, and I have been a dedicated science educator for 38 years, specializing in professional development for science teachers in the United States. In 2017, I was invited to create a five-day professional development program tailored for high school science teachers in Ukraine. This initiative became part of the Summer Institute offered by the Institute for Professional Development of Teachers (IPDT), a program sponsored by the International Educational Coordinating Council (IECC) of the Ukrainian World Congress (UWC).

Since its founding in 1993, the IPDT has been delivering professional development programs across various Ukrainian cities, hosting around 300 teachers annually during its one-week sessions, with most years featuring two sessions. Beginning in 2023, I have led two distinct programs within this framework: one for primary grade science teachers and another for secondary science teachers, each with 20-25 participants. All presentations are conducted in Ukrainian, a language in which I am fluent and familiar with science education terminology.

I am proud to work with a team of eight Ukrainian teachers as co-instructors, four of whom are graduates of my program. Like all lead instructors from the diaspora, our Ukrainian co-instructors volunteer their time and cover their own expenses, except for lodging and transportation when the program is held outside Lviv.

My mission is to advance science education in Ukraine by equipping teachers with the essential skills and knowledge they need. This mission is especially crucial as Ukraine continues to modernize its educational system since declaring independence in 1991. The significance of our work is heightened by the ongoing conflict in Ukraine, underscoring the need to maintain and enhance the quality of education for future generations.

Project Activities

The workshops were held from July 5-8, 2024, in Lviv and July 15-19 in Mukachevo. The sessions covered a range of topics, including modern teaching methods, curriculum development, and practical laboratory skills. A total of 100 teachers participated, gaining valuable insights and hands-on experience. Each teacher was provided with access to a digital copy of a 183-page textbook I developed for the programs. A detailed schedule of activities is included in Appendix A.

Outcomes and Impact

The workshops resulted in the professional development of 100 teachers, who are now better equipped to teach science. Participant feedback was overwhelmingly positive, emphasizing the relevance and applicability of the training. One teacher shared, “The practical experience, expert guidance, and innovative techniques from this institute have broadened my teaching perspective. I am eager to implement new strategies this September to enrich my students' learning experiences and enhance the quality of science education.”

Although the textbook is still in development, it has generated significant interest from the Lviv Department of Education. They have proposed collaborating to transform the textbook into professional development manuals for publication.

Challenges and Learnings

One significant challenge was dealing with the impact of Ukraine's damaged infrastructure, which has been severely affected by targeted attacks. Both Lviv and Mukachevo experienced electrical outages, with Mukachevo facing additional difficulties due to the shutdown of water and sewer services. On average, outages totaled 12-14 hours per day. These issues were compounded by a heatwave during my two weeks of teaching.

Air raid alarms also presented a challenge and were unsettling at times. On July 8th, during our opening ceremonies, a missile struck the Ohmadyt Children's Hospital in Kyiv. For two hours, all 300 participants in Lviv sheltered in the school's basement while monitoring missile reports via Telegram. Over the course of my visit, I encountered about 15 air raid alarms, though fortunately, none resulted in incidents where I was working.

Despite these difficulties, I felt secure thanks to the effective leadership of our hosts, who guided us through these wartime challenges. A key lesson from this experience was the importance of flexibility and adaptability in planning and executing such projects.

Photographs and Visual Documentation



Teachers in Mukachevo exploring the use of “Cooperative Games” to enhance instructional methods.



Secondary teachers in Lviv examining a photograph of a rock formation in Utah's minor rift valley during a “phenomena-based” teaching activity in science.



Kateryna Kuz, a former student and now co-instructor, presenting the “Flipped Classroom” technique to primary grade teachers in Lviv.



Secondary school teachers in Mukachevo engaged in an assignment to provide an evidence-based explanation for the ideal shape of a honeycomb cell.



A teacher in Lviv demonstrating the interaction of soap and fat molecules in milk during a “Science Teacher Sharathon.” This activity aims to encourage year-round professional networking among teachers.



Primary school teachers in Mukachevo learning how to incorporate an “American-style hot dog roast” as a culminating activity for field trips to an ecological center.



Teachers in Mukachevo and Lviv participate in the “Circus of Experiments” – six 5-minute experiments where students gather observations and provide evidence-based explanations to presented questions.



Teachers designing and building a model “Pavilion for a Penguin Exhibit at the Lviv Zoo,” using an ice cube as a model penguin. The pavilion’s effectiveness was tested by placing it under infrared light for 120 seconds to assess its protection capabilities.



Institute of Professional Development of Teachers (IPDT), sponsored by the International Educational Coordinating Council (IECC) of the Ukrainian World Congress (UWC), Lviv, Ukraine, July 8-9, 2024.



Institute of Professional Development of Teachers (IPDT), a program sponsored by the **Institute of Professional Development of Teachers (IPDT)**, sponsored by the International Educational Coordinating Council (IECC) of the Ukrainian World Congress (UWC), Mukachevo, Ukraine, July 15-18, 2024.



Participants of the Institute in Lviv, July 8-12, 2024. Primary group on the left, secondary group on the right.



Participants of the Institute in Mukachevo, July 15-19, 2024. Primary group on the left, secondary group on the right.



My team of co-instructors:

- **Primary Grade Teachers:** Lida Andrusko, Iryna Skolska, Olha Rozpytna, and Oksana Rosypska.
- **Lead Instructor:** Borislav Bilash II.
- **Secondary Grade Teachers:** Kateryna Kuz, Myroslava Pariy, Svitlana Romaniv, and Volodymyr Tsyfra.

Future Plans

I plan to continue this work next summer, building on the success of this year's program. My co-instructors and I have already discussed potential changes and additions, including encouraging participants to form informal professional associations modeled after those I have participated in within the United States. These associations will foster continuous professional development and collaboration among educators.

Throughout the year, my co-instructors and I will refine our curriculum materials, including further expanding our textbook. We aim to secure funding to publish the book in paper form next year, a practice we had before the war but have found challenging to fund since.

The organizers of the overall program are exploring the possibility of holding the institute in other areas of Ukraine, depending on the evolving war situation. Sustaining and enhancing the impact of our work requires ongoing support and collaboration with educational organizations and funders. We are committed to seeking and securing the necessary resources to ensure the continued success and growth of our initiatives.

Acknowledgements

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Appendices

- Appendix A: Schedule of Activities
- Appendix B: Receipts and Financial Documentation