

A New Cornerstone of Education of Authorship and Biomedical Project Design: International Research Interdisciplinary School, Slovakia, 2016

In today's world, the only way to realize innovative idea is to turn it into a project. This allows the ideas to exit the realm of thought and take the first step toward realization. It is possible to build a project out of a dream, an experience, a prejudice, a premonition, a routine observation, or an idea. Thus the planned work is supervised by other experts, is regulated, and matures. Moreover, this is the only way of attaining financial support for a project. On the other hand, it is unrealistic to create projects based on ideas that are not unique, have no widespread impact, and make no direct or indirect contribution to life or science (1). Ideas that are not built on solid foundations cannot be supported by society.

The persons and groups that discover innovative ideas are expected to explain the significance and realization of their point of view in an orderly manner. The projects must clearly define the hypothesis, primary outcomes, secondary outcomes, the methods and materials of experimentation, the persons taking part in the process, official and special permits, ethical approvals, and informed consent requirements. The study groups to be used in the realization of the project, the selection of such groups, the applicability, feasibility, and repeatability of methods, and the statistical evaluation of the outcomes should be described (1,2). Furthermore, the prospective benefactors of the project's outcomes and the new horizons brought by the study should be clearly expressed. All the aforementioned components of project design establish the main area of study for the event titled International Research Interdisciplinary School (IRIS) hosted by a civilian initiative comprising seven international journals.

Carried out in eastern and south-eastern European countries as well as Brazil and Kyrgyzstan for over ten years, IRIS aims to educate the young scientists in the region. The educational process includes problem-based and learning by doing methods. It is built upon the philosophy of research practicum of Duke University. Young researchers from various disciplines and cultures are interactively trained for four or five days. Organized once or several times a year, the event puts 20 people into groups of four or five where a project is designed based on a hypothesis. Formerly known as the International Scientific Summer School, the event con-

sists of four workshops (1,3). At the end of each workshop, the groups make a presentation where their arguments are evaluated and discussed by the faculty members and participants. The event is concluded with the final presentations and evaluation of the project as a whole.

This year's 17th IRIS event was held on May 22–27, 2016, in Velky Saris, Slovakia. Twenty-one participants from five countries (Slovakia, Ukraine, Romania, and the Czech Republic) took part in the event. Young scientists from different disciplines, having biophysics, physics, and medical backgrounds, were randomly organized into four groups. During four training days, the groups developed their scientific projects under the supervision of the faculty. The selected international faculty members were scientists, senior professors, and editors of scientific journals in the field. The training participants and their project proposals are presented in detail in Table 1. Moreover, Theresa Lillis, from the Open University, UK, gave a lecture about scientific English and writing skills.

Using the Duke University research practicum (1), two main aspects of research were trained during the event: cooperation and critical thinking. This was done starting with group forming: the aim is to create a multinational, interdisciplinary team where people have to work together in an organized fashion to achieve the goals set. To make things more interesting and authentic, all the conversations transpire in a non-native language (English), creating real life situations of misinterpretation and misunderstanding, where the transmitting of ideas takes precedence over grammatically flawless English. Furthermore, the time is always ticking and you have not only to concentrate on the task given, but schedule your team's activities effectively, identifying the primary objective and typically neglecting the secondary ones to be able to finish on time for the next workshop. Taking into consideration that each of the participants has a different academic background and type of personality, these social interactions mimic all the chemistry of a scientific workgroup (Figure 1–4).

The teaching of critical thinking (and research project creation) is done in an untraditional way. The roles of tutor and student are set only vaguely and other participants are encouraged to enter the conversations with their own ideas.

TABLE 1. IRIS 2016 participant groups, their project proposals' name/acronyms and the faculty members

Participants' names and project titles				
Group No.	I	II	III	IV
Participants' names	Nazarii Hryniv Natalia Masikova Lenka Koptasikova Lenka Vokalova	Denisa Richterova Janka Sopkova Nazarij Tomashchuk Michal Mestanik	Maryana Rosul Mykhailo Pavelko Pavol Mikolka Veronica Krkoskova	Anastasia Aker Andrei Racu Jana Lenartova Marko Bjelosevic Oksana Barabash
Participants' countries	Slovakia, Ukraine	Slovakia, Ukraine, Czech Republic	Slovakia, Ukraine	Slovakia, Ukraine, Romania
Projects' titles	Plasma extracellular DNA levels in chronic heart failure	The association between increased serum levels of polychlorinated biphenyls and arterial stiffness in young adults	Association of respiratory distress syndrome in full-term newborns and right heart function disorders at three-year follow-up	Efficacy and safety of propafenone and sotalol treatment in children with atrioventricular reentry tachycardia under one year of age
Projects' acronyms	ExHeart F	COLOURS of PCBs	INNOSENT	PROSO Study
Faculties and positions				
Faculty names and countries	Ljuba Bacharova, Slovakia	Mustafa İnan, Turkey	Mykhaylo Sorokivsky, Ukraine	Eric Eisenstein, USA
Faculty positions	Prof. Executive Editor, Journal of Electrocardiology	Prof. Associate Editor, Balkan Medical Journal	Dr. Editor, Ukrainian Journal of Cardiology	Prof. Duke University



FIG. 1. ExHeart F Team; Nazarii Hryniv, Natalia Masikova, Lenka Koptasikova, Lenka Vokalova
The beginning of Workshop 1.



FIG. 2. PROSO Study Team; Anastasia Aker, Andrei Racu, Jana Lenartova, Marko Bjelosevic Oksana Barabash
Preparation for daily discussion.

The education relies on the participants' own knowledge, experience, and problem solving abilities. Typical lectures are avoided, while the faculties predominantly use questions to guide the workshops and no straight answers are expected. An abundance of questions is used to challenge the ideas of the

participants, which frequently causes discomfort, annoyance, confusion, or even anger (Figure 5).

All this is part of training and must be overcome by the young scientists, who are forced to find the right answers and thereby advance in their work step by step. The final



FIG. 3. INNOSENT Team; Maryana Rosul, Mykhailo Pavelko, Pavol Mikolka, Veronica Krkoskova Analyzing the received remarks.



FIG. 4. COLOURS of PCBs Team Denisa Richterova, Janka Sopkova, Nazarij Tomashchuk, Michal Mestanik The interdisciplinary team during the workshop.

product is finally born out of effort, stamina, empathy, and knowledge.

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FIG. 5. The family photo

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Acknowledgement: The authors are sad to communicate that Galen Wagner passed away last month. He was an academician in cardiology at Duke University, US, and editor of the *Journal of Electrocardiology*, as well as an important figure, mentor, and scientist in the IRIS initiative. Words are not enough here. The participants in Velky Saris remember him with the phrase “Your English is very good”, which created an impression of a man who wanted to spend his time encouraging young scientists at the beginning of their journey. Rest in peace, Galen.

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