Project title:

Science Clubs - Let's Advocate and Volunteer for Communities of Self-Education!

Project Category:

Advocacy, Civil Society, Volunteerism and Community Service

Project Description:

Science and in particular science education is on the decline in Hungary, in Europe and in general in the Western Hemisphere.

In order to inspire and involve a new generation of science students, we advocate Science Clubs or Circles of Knowledge as a new model of science education. This model is based on volunteerism and advocates our individual responsibility for cultivating our own minds, while also inspires the creation of communities and civil, non-governmental organizations to be able to do so in an effective manner.

The first version of this project was organized for the FY 2011 Alumni Engagement Innovation Fund. Despite lack of actual funding, the project team stayed together and realized a scaled down version of the original project because we felt that the problem is urgent and we have no time to wait for others to act: our children are growing up and they need good education, now. Thus the core of the AEIF 2011 project team volunteered, to our best effort and knowledge, to try to perform a downscaled version of the original proposal. Eventually, we succeeded to have a rich program and to run science clubs at 5 different locations in Hungary in the 2011/12 academic year, entirely based on volunteering and in-kind contributions. However, we failed to properly archive several outstanding talks and the created teaching materials, as this part of the project suffered the most from the shortage of funds. Nevertheless, our joint success has been recognized by a Honorary Mention for the State Alumni 2012 Februray Member of the Month feature:

http://www.fulbright.hu/tamas-csorgo/ .

The goal of our new proposal is to professionally organize this Science Club movement and to transform it to a more advanced vehicle of open science learning and community creation model, to archive its results and to propagate the model to more schools in Hungary, and to perform the first international tests.

Who is involved in this project?*

48 IMPLEMENTERS:

24 State Alumni individuals, including:

11 professors, Doctors of Hung. Acad. Sci.:

Cs. Bagyinka, (biophysics)

A. Csótó (physics),

T. Csörgő (physics, team leader)

Á. Gali (solid state physics)

P. Gyarmati (mathematics, informatics)

D. Karátson (volcanology)

K. Nagy (dentristry)

L. Nánai (physics)

P. G. Szalay (chemistry)

A. Váradi (ensimology)

Á. Zsigmond (chemistry)

+12 State Alumni Researchers with Ph.D.:

A. Bittsánszky (plant sciences),

F. Borondics (chemistry, currently in Canada)

M. Csanád (physics)

I. Fórizs (isotope geochemistry)

Gy. Jordán (geology)

E. Kirs (international law)

Gy. Kovács (intellectual proterty law)

J. Kubassek (geography)

J. Laczkó (mathematics, biology)

G. Röst (mathematics)

R. Vértesi (physics)

M. Zétényi (physics)

+1 State Alumni with M.A.:

J. Vida (teacher)

See next part for details on Alumni stats!

24 additional (non-state-alumni) implementers include:

2 professors, or Doctors of Hungarian Academy of Sciences

G. Horváth (biophysics)

I. Scheuring (biology)

+6 researchers with PhD.

Gy. Kalcsó (linguistics)

G. Kusper (artificial intelligence)

Zs. Lavicza (mathematics, education)

T. Novák (physics)

A. Ősi (paleontology)

P. Ván (thermodynamics)

+2 students with M.Sc./B.Sc.:

M. Vargyas (physics)

P. Vizy (space science)

+1 B.Sc student

J. Csörgő (math/chemistry)

+ 8 teachers

T. Ádám (informatics/geography)

E. Császár, Kissné (math/physics)

G. Endresz (biology/chemistry)

L. Kiss (history/geography)

M. Kiss (math/physics/informatics)

A. Kormos, Nézőné (math/physics)

I. Pálinkás (English)

I. Szittyai (math/physics)

+ 2 web administrators and computing specialists:

K. Szalay (web)

J. Vámos (database)

+ 2 math educationalists

I. Juhos (math)

B. Koren (math)

+1 NGO:

Halász Csilla (Romkert Debrecen)

3000+ AUDIENCE:

An estimated 3000 students (sum of the list of participants at Science Clubs during 2012/13).

50+ scientists, based on their availability, each 1-3 times (sum of the list of guest speakers).

3+ Scientistis several (10+) times (one patron scientist per Science Club is expected).

6+ Patron Teachers, each at least 14 times.

6+ Middle or High Schools (in the academic year of 2012/13).

We will archive the best talks and the slides of the presentations in a freely downloadable manner and will measure the number of views/downloads to determine how many persons accessed our new teaching materials. In this sense, the results will be globally disseminated.

20+ PARTNERS:

Research Institutes:

Geological Institute of Hungary

Research Institutions of the Hungarian Academy of Sciences:

ATOMKI, Debrecen

Biological Research Center, Szeged

Inst. for Geochemical Research, Budapest

Plant Protection Institute, Gödöllő

Wigner Research Centre for Physics,

Institute for Solid State Physics and Optics

Institute for Particle and Nuclear Physics, Budapest

Universities, Colleges:

Budapest Technical University, Budapest

Dept. Education, University of Cambridge, Cambridge, UK

ELTE University, Budapest

Pázmány Catholic University, Budapest

University of Debrecen

University of Miskolc

University of Szeged

Eszterházy College, Eger

Károly College, Gyöngyös

Museums:

Museum of Geography

Museum of Natural History

Supporting NGO-s:

Hungarian Association for Innovation

Hungarian Fulbright Alumni Association

Circles of Knowledge Club

GeoGebra Institutes: http://www.geogebra.org/cms/institutes

Where, more specifically, will this project take place? Location?

The model of the Hungarian Science Club Movement (Magyar TÖK Mozgalom) was re-organized by T. Csörgő in 2006/7. Four new Science Clubs started operation in the academic year of 2011/12, as the participants of the Alumni Engagement Innovation Fund project decided to volunteer to realize the project even in the lack of funding. About 5 x 14 lectures, meetings were organized in FY 2011/12, that effected more than 2000 students and teachers in Hungary.
Although he seed of this project started locally in Gyöngyös, Hungary, now our goal with the proposal is to make it succesful on the countrywide range and to test the regional/international dissemination phase too. Currently Hungary and England are involved but we forsee spreading the ideas through the international and global networks of GeoGebra Institutions, as given in
http://www.geogebra.org/cms/institutes .

Supporting Middle and High Schools (secondary education institutions, students in the age group of 14-18 years), where a Science Club is already operational or is being organized now:

Bibó Middle and High School, Kiskunhalas (from 2012/13)
Berze Middle and High School, Gyöngyös (from 2006/7)
https://sites.google.com/site/berzetok/home
Dobó Middle and High School, Eger (from 2011/12)
Németh László Middle and High School, Hódmezővásárhely (from 2011/12)
https://sites.google.com/site/nemethlaszlotok/home
Szent László Middle and High School, Budapest, (from 2011/12)
https://sites.google.com/site/laszlotok/PROGRAMOK
Szilády Protestant Middle and High School, Kiskunhalas (from 2011/12)

Other schools and NGO-s may join, on their own expenses, the as the project.

A national summer camp is planned near Hódmezővásárhely, Hungary in 2012 or 2013.

Let us document here also the **location and date of the State Department fellowships** of our 24 State Alumni implementers:

Cs. Bagyinka, Dr. Sci, Fulbright, 1999-2000, Massachusetts State U.
A. Bittsanszky, Ph. D, Fulbright, 2006/7 U. of South Carolina
F. Borondics, Ph.D, Fulbright, 2004/5, U. of Riverside
M. Csanád, Ph.D, Fulbright, 2005/6, State U. of New York at Stony Brook
A. Csótó, Dr. Sci, Fulbright, 1993/4 Caltech, Pasadena

T. Csörgő, Dr. Sci., Fulbright, 1996/7, Columbia U, & Fulbright Alumni Initiatives Award, 2001/2, BNL, & HAESF, 2008/9, Case Western Reserve U. and Harvard U.
I. Fórizs, Ph.D, Fulbright, 1995/6, Case Western Reserve U.
Á. Gali, Dr. Sci, HAESF, 2008/9, Harvard U.
P. Gyarmati, Dr. Sci, Fulbright, 1976, U. of Hawaii
J. Laczkó, Ph.D, Fulbright, 2003/4, New York U.
Gy. Jordán, Ph.D, Fulbright, 2006/7, Geological Survey, Denver
D. Karátson, Dr. Sci, Fulbright, 2004/5, Northern Arizona U.
Eszter Kirs, Ph.D, Fulbright, 2009/10, Columbia U.
Gy. Kovács, LL. M., Fulbright, 2005/6, Boston U.
J. Kubassek, Ph.D, Fulbright, 2005/6, Smithsonian Inst. and Library of Congress
Katalin Nagy, Dr. Sci, Fulbright, 2011/12, Sloan Kettering Cancer Center
L. Nánai, Dr. Sci, Fulbright, 2001/2, U. of Wisconsin
G. Röst, Ph.D, Fulbright 2010/11, Arizona State U.
P.G. Szalay, Dr. Sci., Fulbright, 2003/4, U. of Texas, Austin & HAEFS, 2010/11, U. of Florida, Gainesville.
A. Váradi, Dr. Sci, Fulbright, 2007/8, Thomas Jefferson U.
R. Vértesi, Ph. D, Fulbright, 2005/6, BNL
Julia Vida, M.A, HAESF 2007/8, Great City Schools, Washington, DC
M. Zétényi, Ph. D, Fulbright 2005/6, NSCL, Michigan State University
Ágnes Zsigmond, Dr. Sci, Fulbright 2008/9, Seton Hall University, South Orange, NJ

Why is this innovative?

The Hungarian National Science Club movement was initiated after one innovation in the Science Club of the Berze Secondary/Middle School got international coverage in the US, at Brookhaven National Laboratory, Upton, NY as well as at CERN, the European Research Institute for Particle and Nuclear Physics, as well as in the R&D Magazin:

http://www.bnl.gov/today/story.asp?ITEM_NO=2175

http://cdsweb.cern.ch/record/1331526

http://rdmag.com/News/2011/01/General-Science-Physics-Quark-Gluon-Plasma-Card-Game-Developed/

To enhance the direct connection between innovation and education in the secondary and middle schools, we contacted a team that develops

- new kind of presentation tools (Prezi) http://www.prezi.org/

- a 3d computer based visualization tools (Leonar3do) http://leonar3do.com/

- and innovative and free software to teach mathematics (GeoGebra)
http://www.geogebra.org/cms/

We think that presenting these innovative methods and their open questions to the secondary/middle school community through the also innovative Science Club movement in Hungary may induce further innovative ideas in the minds of students, teachers and researchers. Adding established innovators to a community of researchers, teachers and students may generate additional flashes of brilliance that may lead to further novel ideas and innovations.

In order to organize and control this project better, we involved the Hungarian Association for Innovation, based on our excellent relation that started with the opening talk of the Meet the Scientist program

http://meetthescientist.org/

by the team leader. This successfull, but apparently already outgoing "Meet the Scientist" program was a joint effort by the US Embassy to Hungary, by the Hungarian Association for Innovation and the Hungarian Fulbright Association and currently efforts are made to find sponsors for its continuation. We also try to build upon the merits of this program, in particular on its excellent lecturers and web-based archive material,but we also emphasize that the Science Club movement is quite different given that it is like the Meet the Sciences lecture series, given at the same location to a dedicated community. The model Science Club started in the Hungarian countryside independently, and before the "Meet the Scientist" program. Apparently, it is easier to sustain a Science Club in case when the resources are very limited, and this Science Club documentedly lead to award winning and internationally well recognized innovation. So we hope that it will be worthwhile to advocate it on the national and on the international level, too.

The partner organizations will help us in inspiring innovation in Hungarian secondary education and also to help harvesting the innovative ideas of our students and mentoring them through the various steps needed for IP valuation, protection, marketing and commercialization.

After testing the Science Club model on the Hungarian national and with the GeoGebra.org partially on regional and international level, we plan to filter out the key concepts that will be subjected to a more detailed and hopefully regional or on truly international, global level.

Due to this region we kindly request that interested State Alumni contact the team leader by e-mail regarding how to start a Science Club in his or her region or domain. Your experience and ideas are also welcomed and we hope to be truly successfull - together with you!

Explain basic cost breakdown of project:

Partial support for Science Clubs for the 2012/13 academic year,

to cover local transportation of invited speakers, support the time of teachers for preparation and local organization:

2000 USD/Club x 6 Science Clubs 12 000 USD

Partial support for Summer Camps for the Science Clubs, 1500 USD/Camp/Club x 6 Science Clubs, partial contribution to

in-country travel, housing and registration fees: 8 000 USD

Partial support for the cost of archivation, for talks, photos and videos of the presentations 2 500 USD

Accounting and controlling costs 2 500 USD

Other in-kind contributions, estimated 35 000 USD

We thus plan to keep voluntary action and in-kind contributions as the main resources of the project so that we could realize some of our dreams even in case of funding difficulties.

Total cost of the project, estimated 60 000 USD

Total funding request 25 000 USD