STEMLAB Story

Website: https://stemlab.org.mk/
Country: Republic of North Macedonia
Geographical focus: Republic of North Macedonia
Scientific field/Thematic focus: Cross-thematic/Interdisciplinary

What is the good practice about?

Center for Education and Innovative Learning - STEMLab is an NGO which has been established in 2018 after the poor results in PISA of the countries of the region, where students are characterized by low performance in STEM. The NGO is based in Skopje and involves professors and engineers from North Macedonia and Kosovo*.

The basic idea of STEMLab is the application of the best educational programs in the world for the education of primary and secondary school students of the above-mentioned states in STEM, and the promotion of STEM education as an important factor for a sustainable future, including parents, private and public institutions and society in general. With the establishment of STEMLab, STEM education became a well-known concept throughout North Macedonia and beyond, introducing in the STEM education process to the parents of participating students. Within 4 years the NGO realized more than 20 activities involving 100 students. Cooperation activities involved local authorities and institutions from the public and civil sector (IOM, American Corner Tetovo, firefighting unit in Tetovo, public schools, etc.). The NGO is the first institution accredited by stem.org, it reached the finals of 'Meet and Code' (Code for the Planet 2019) and the finals of 'Falling Walls Berlin - Science Engagement 2020'. Innovative aspects of the work included also the use of drones for education for the first time in North Macedonia.

The NGO also promotes the SDG to the students as important factor for a sustainable future, trains students for research within the project "Less Noise, More City" funded by the Ministry of Environment and realized the project called "Da Vinci" focusing on art inspired by science, supported by the Ministry of Culture.

Why is this initiative needed?

“Despite the major educational reforms, the system had undertaken in the past decade and the large investments entering North Macedonian education, the country still lacks focus on quality and sustainability” (Apostolova, M. FOMOSO. 05.10.2018 https://www.fomoso.org).

This situation of frequent and fruitless changes has deeply demotivated the new generations to follow the modern trend of education and as a result, countries in the region are at the bottom of the PISA list for performance in STEM profiles (https://factsmaps.com/pisa-2018-worldwide-ranking-average-score-of-mathematics-science-reading).

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 101006279

What are the main objectives?

⇒ Empowering new generations to achieve 21st-century skills through STEM education.
⇒ Apply and develop the most innovative learning models, including educational institutions, policy-makers, companies and the community.
⇒ Promoting STEM education as an essential mechanism for ensuring overall sustainability.

What are the main activities?

⇒ Extracurricular courses in STEM education, robotics, coding, drones and 3D printing for primary and secondary students.
⇒ Citizen Science Engagement – involving parents and families in different STEM public projects.
⇒ Networking, seminars and trainings for bachelor degree students, teachers and parents in STEM education.

Who is involved?

STEMLab consists of educators, primary and secondary school teachers, university professors, former higher education accreditation board members and teacher trainers from the Republic of North Macedonia and Kosovo*. They have experiences in working in different environments with cultural diversity (different countries), different age groups and different languages, people with different professions and life-long experience. They play various roles in STEMLab, starting as professional advisors, trainers, teachers, heads of departments, etc. Being active all the time, they have different roles in STEMLab, starting as professional advisors, trainers, teachers, heads of departments, etc. and in most cases, these obligations are performed voluntarily.
Beneficiaries of STEMLab services are primary and secondary school students, who attend STEM courses as extracurricular activities (regular weekly courses), who pay minimum fees for the provision of equipment, coverage of expenses for working space and payment of coaches who do not have a primary job. In order to promote STEM education, STEMLab offers free periodic training to parents of STEMLab students and bachelor students of STEM profiles.

Can this good practice be replicated?

The replication of this practice in the WB is challenging (but possible) due to the difficulty of perceiving and long-term design of the STEM concept by different levels of education, lack of STEM profile staff and high cost of equipment.
For the transferability of the STEMLab project, from experience the project promoters say that:

⇒ it is a "state of mind" and as such should be taken by the project stakeholders
⇒ suitable and well-equipped infrastructure (inclusive environment) is needed
⇒ the intensive communication with STEM international entities for new ideas, programs, equipment and approaches for the involvement of parents, institutions, companies, etc.

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More information about the necessary resources is available and contacts with the project promoters can be established in case of interest!

Further links:

- ⇒ https://www.linkedin.com/company/stemlab-te
- ⇒ https://www.facebook.com/STEMLabTE
- ⇒ https://www.meet-and-code.org/mt/en/award2019
- ⇒ https://metamorphosis.org.mk/en/aktivnosti_arhiva/stemlabs-amizon-event-among-the-finalists-of-meet-and-code-2019/
- ⇒ https://falling-walls.com/people/ramadan-aliti/
- ⇒ https://americancornersnmk.org/tetovo/event/178
- ⇒ https://www.instagram.com/stemlab_te/
- ⇒ https://www.youtube.com/watch?v=QPbHBKqDum4
- ⇒ https://www.stempd.net/committees/
- ⇒ https://www.youtube.com/watch?v=trp-JxULego
- ⇒ https://www.albmania.info/stemlab-u-priten-nga-ministri-mancevski/
- ⇒ http://bonzo.info/2021/03/22/ramadan-aliti-stemlab-eshte-institucioni-i-pare-ne-maqedoni-pjese-e-finales-se-falling-walls-berlin-te-vitit-2020/

Relevant RRI keys: Public Engagement (for R&I), Science Education

Type of practice: Promotional activities/events/campaigns, Promotion of partnering opportunities, Sending targeted alerts, Organisation of info days, workshops, seminars, etc., Organisation of training, webinars, Organisation of matchmaking and networking (tools, events, other support), Peer learning/mentoring, Support services (e.g., for internationalisation, innovation support, research support)

Target groups: youth (children, pupils), students (up to Master level), teachers, parents

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