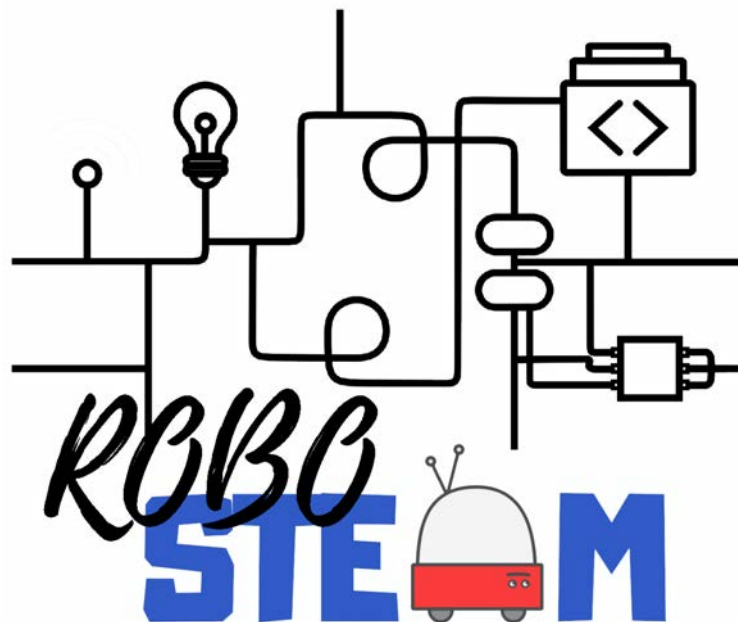

RoboSTEAM Dissemination Report

M29



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1. INTRODUCTION

This report revises the communication and dissemination activities during the whole of the RoboSTEAM project [1-8]. The report focuses on progress with KPIs (Key Performance Indicator), as well as collecting together media presence of the project.

General issues in communication and dissemination after the intermediate dissemination report:

- Project website was improved and promoted.
- Project social media channels were used to promote the project activities.
- Project has been public in various events.
- The project produced multiple scientific articles covering different aspects of the project.
- The project encountered sudden changes due to global COVID-19 pandemic [9-21], and many activities were needed to convert into online format. This had an impact on dissemination too.

2. PROJECT PUBLICITY

The project appearances in public media have been collected to a Wiki platform in the project working platform (<http://robosteampoint.eu/moodle/>). The following list covers the listed items of publicity.

- Kick-off meeting of the ROBOSTEAM ERASMUS+ project (http://cedri.ipb.pt/communication_news.html)
- CEDRI research group Facebook (<https://goo.gl/DJGsJd>)
- IES Eras de Renueva project website (http://ieserasderenueva.centros.educa.jcyl.es/sitio/index.cgi?wid_seccion=23&wid_item=218)
- Press news 1 (<https://www.ileon.com/actualidad/094764/ies-eras-de-renueva-participa-en-un-proyecto-erasmus-para-potenciar-el-steam>)
- Press news 2 (<https://www.ileon.com/actualidad/101817/educacion-steam-en-el-instituto-eras-de-renueva-a-traves-del-proyecto-erasmus-robosteam>)
- Press news 3 (<https://www.diariodeleon.es/articulo/actualidad/erasmus-robosteam/201910150202341947884.html>)
- Agrupamento Escolas Emídio Garcia (<http://www.aeemidiogarcia.pt/index.php/projetos/prs>)
- KIT website (<http://www.ibap.kit.edu/1536.php>)
- Media Arts Education blog (<http://daniela-reimann.de/media-arts-education/?p=739>)
- GRIAL website (<https://grial.usal.es/robosteam>).
- Grupo de Robotica website (<https://robotica.unileon.es/>)

Project public document repository at Zenodo. The repository has altogether more than 72 items published, including conference and journal articles and related datasets, presentations during the project meetings and other public events, as well as administrative documents: <https://zenodo.org/communities/robosteam>.

Project consortium produced a comprehensive set of academic articles that were published in the selected conferences and journals. These publications cover project activities from many different perspectives and are an important part of sustainability of the project results – it can be considered that the best way to disseminate project

results to academia is through academic, internationally refereed publications. The complete list of publication produced from the project activities appears in the Annex 1. Some of these publications have been presented in international events (TEEM Conference, HCCI International Conference, EDUCON, etc.) and the project also has been presented in local (e.g.: eMadrid, SiITE) and international events (e.g: Conversatorio sobre I+D+i en educación – Perú, Central-South University - Changsha, Hunan, China).

2.1. Web pages and Social media channels

The project is accessible through the websites and social media channels. Internal communication is organized through emails, Moodle platform, and Telegram instant messaging tool.

- Facebook: Robosteam Project: <https://www.facebook.com/Robosteam-Project-236478083958339/>
- Twitter: https://twitter.com/RoboSTEAM_EU
- Project website: <http://www.robosteamproject.eu>

Especially the social media channels were left behind from the target KPIs. This was much due to distributed nature of actions that was forced by COVID-19 restrictions.

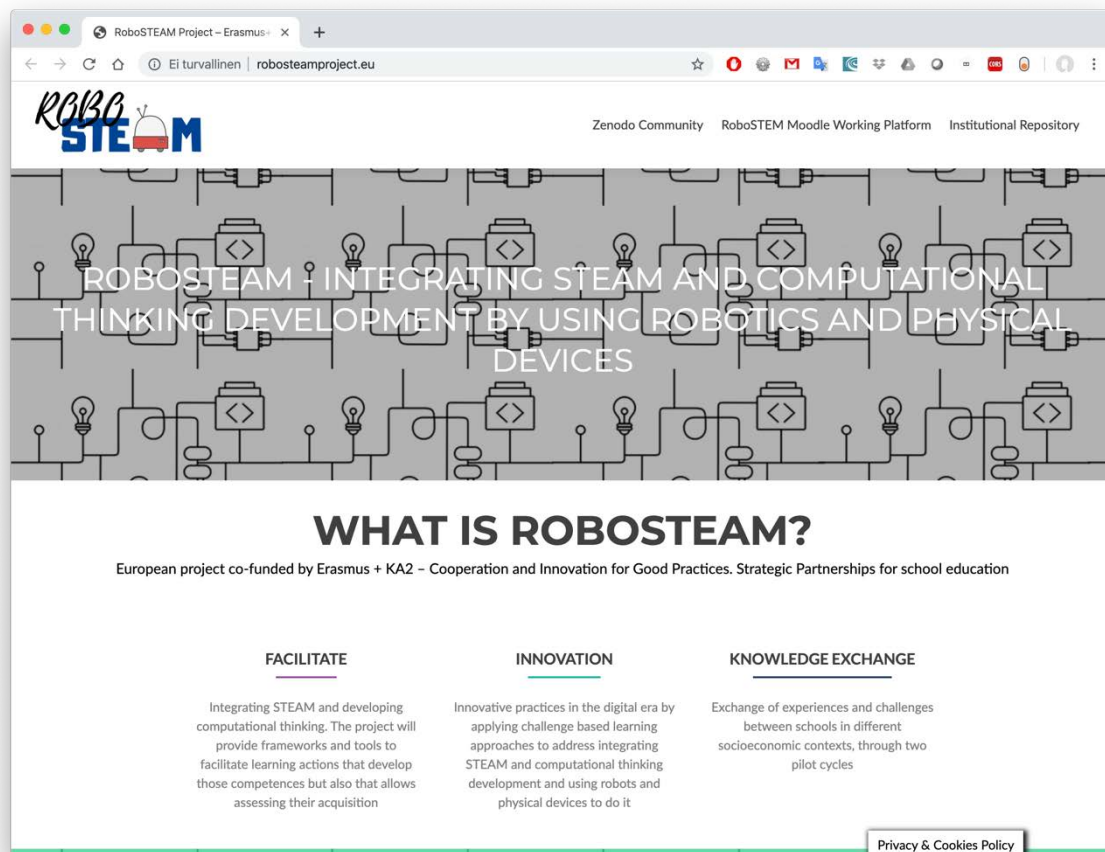


Figure 1: Project website

3. KEY PERFORMANCE INDICATORS

The key performance indicators show that the project was left behind in some of the dissemination activities, when comparing to the minimum quantities of communication. This was expected as the main face-to-face activities (pilots and exchanges) were affected heavily by the COVID-19 pandemic and related restrictions on teaching and gatherings. The first and the second part of the project saw similar trends in dissemination activities (i.e., social media presence doubled during the second half of the project).

Table 1: Key Performance Indicators

Dissemination item		Description	Current	Minimum	Target
Project Website		No. of Website Visits	6286	8000	20,000
Social Media	Twitter	No. of Followers	25	100	250
		No. of Tweets	20	100	200
	Facebook	No. of Likes	65	100	300
		No. of Posts	6	150	250
		No. of Shares	10	30	80
	Youtube/ Instagram (if applicable)	No. of Visits/ Downloads	NA	250	400
Publications/Papers/Reports/Proceedings		No. of Publications	9	4	6
Project presentations / Attendees at events		No. of Project Presentations at Events	11	4	8
		No. of Attendees at the Presentations (total)		300	>800
Media Presence		No. of Media Mentions (including Blogs)	3	10	30

Appendix 1. List of publications

1. Conde, MÁ, Rodríguez-Sedano, FJ, Fernández-Llamas, C, Gonçalves, J, Lima, J, García-Peñalvo, FJ. Fostering STEAM through challenge-based learning, robotics, and physical devices: A systematic mapping literature review. *Comput Appl Eng Educ.* 2021; 29: 46– 65. <https://doi.org/10.1002/cae.22354>
2. Conde, M. Á., Rodríguez-Sedano, F. J., Fernández-Llamas, C., Ramos, M. J., Jesus, M. D., Celis, S., Gonçalves, J., Lima, J., Reimann, D., Jormanainen, I., Paavilainen, J., & García-Peñalvo, F. J. (2021). RoboSTEAM Project: Integrating STEAM and Computational Thinking Development by Using Robotics and Physical Devices. In García-Peñalvo, F. J. (Ed.), *Information Technology Trends*

- for a Global and Interdisciplinary Research Community* (pp. 157-174). IGI Global. Doi: 10.4018/978-1-7998-4156-2.ch008
3. Conde, M. Á., Rodríguez-Sedano, F. J., Fernández, C., Ramos, M-J., Alves, J. F., Celis-Tena, S., Gonçalves, J., Lima, J., Reimann, D., Jormanainen, I., & García-Peñalvo, F. J. (2020). Adaptation of RoboSTEAM Project to the Pandemic Situation. In *Eighth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'20)*, October 21–23, 2020, Salamanca, Spain. ACM, New York, NY, USA. Doi: 10.1145/3434780.3436620
 4. Conde, M. Á., Lera, F. J. R., Fernández-González, D., Rodríguez-Sedano, F. J., Guerrero-Higueras, Á. M., & Fernández, C. (2020). SUFFER – SimUlation Framework for Education in Robotics. In *Eighth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'20)*, October 21–23, 2020, Salamanca, Spain. ACM, New York, NY, USA. Doi: 10.1145/3434780.3436702
 5. Camargo, C., Brancalião, L., Gonçalves, J., Lima, J., Ramos, M., Fernandes, L., Trovisco, M., & Conde, M. (2020, 27-30 April 2020). Emídio Garcia School Pilot description: A Robosteam Erasmus+ Project Activity based on a Challenge based Learning Approach. In 2020 IEEE Global Engineering Education Conference (EDUCON), doi: 10.1109/EDUCON45650.2020.9125231
 6. Conde, M. Á., Sedano, F. J., Fernández-Llamas, C., Gonçalves, J., Lima J. & García-Peñalvo F.J (2020). RoboSTEAM Project Systematic Mapping: Challenge Based Learning and Robotics. In *2020 IEEE Global Engineering Education Conference (EDUCON)*, 2020, pp. 214-221, doi: 10.1109/EDUCON45650.2020.9125103.
 7. Conde, M. Á., Rodríguez-Sedano, F. J., Fernández-Llamas, C., Jesus, M., Ramos, M-J., Celis-Tena, S., Gonçalves, J., Jormanainen, I., & García-Peñalvo, F. J. (2020). Exchanging Challenge Based Learning Experiences in the Context of RoboSTEAM Erasmus+ Project. In Zaphiris P., Ioannou A. (eds.) *Learning and Collaboration Technologies. Designing, Developing and Deploying Learning Experiences. HCII 2020* (pp. 442-455). Lecture Notes in Computer Science, vol 12205. Springer, Cham.

8. Conde, M. Á, Fernández, C., Alves, J., Ramos, M., Celis-Tena, S., Gonçalves, J., Lima, J., Reimann, D., Jormanainen, I., & García-Peñalvo, F. J. (2019). RoboSTEAM - A Challenge Based Learning Approach for integrating STEAM and develop Computational Thinking. In *Proceedings of the Seventh International Conference Technological Ecosystems for Enhancing Multiculturality (TEEM '19)* (pp. 24-30). ACM, New York, NY, USA. Doi: <https://doi.org/10.1145/3362789.3362893>
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