**ENGINEERING OUTREACH: EXAMPLES, EVALUATION AND EVIDENCING**

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***Conference Key Areas****: The attractiveness of engineering education; Diversity, equity and inclusion in our universities and in our teaching.*

***Keywords****: attractiveness, outreach, pathways, recruitment; schools*

**ABSTRACT**

Outreach initiatives play a pivotal role in attracting the next generation of engineers. Many academic engineering education institutions, as well as employers, are involved in a variety of outreach activities which aim to show what engineering entails and to demonstrate the impact of engineering to young children and adolescents. Despite the significant time and resource invested into outreach, there is little work which thoroughly describes the design, implementation, and impact of such interventions, something which limits the sharing of good practice and raises questions regarding efficiency of such efforts. This workshop aims to highlight key examples of effective outreach within different contexts, some of which are related to results of an ongoing systematic literature review by members of the Attractiveness SIG, that investigates peer-reviewed articles reporting on the effectiveness of in- and out-of-school engineering outreach activities. Discussion will cover methods of evaluation as well considerations to be made when reporting outreach.

# MOTIVATION AND RATIONALE

The historical reported shortage of engineers has resulted in substantial investment in outreach activities which are designed to encourage children and adolescents to study or work within the engineering profession. Such interventions can have specific aims, take a variety of forms, be targeted at difference age groups, and take place in a variety of contexts (e.g., curricular, or non-curricular). Such variation in approaches can make it difficult to understand the factors which result in successful outreach and limits the transferability of good practice. At the same time, the detail provided in reporting of outreach can differ, and it can be difficult to understand exactly how to replicate activities or whether the reported outreach was successful.

This workshop looks to address gaps in our understanding of engineering outreach and builds upon an ongoing systematic literature review by members of the Attractiveness SIG that investigates peer-reviewed articles reporting on the effectiveness of in- and out-of-school engineering outreach activities.

# AIMS AND LEARNING OUTCOMES

This workshop is aims to:

* highlight examples from results of the ongoing systematic literature review;
* provide space for participants to share insights into impactful outreach;
* discuss good practices in evaluation and reporting of outreach activities.

The workshop welcomes participants who are interested in sharing their examples of outreach and perspectives on evaluation and reporting of outreach, or from learning from the views of others. It would be beneficial, but is not necessary, for participants to be aware of outreach initiatives within their own context.

By the end of the workshop participants will have increased:

* awareness of inspirational examples of engineering outreach;
* confidence in dissecting and evaluating outreach initiatives and in decoding the metrics of success through empirical, qualitative evaluation;
* ability to design evidence-based strategies for transformative change.

# STRUCTURE

## The room will be split into areas for small groups to sit together and informally discuss the topics raised. A participatory method with be used to share knowledge across contexts, build relationships, and discuss new ideas

## The 60-minute session will be structured as follows:

## Introduction to the workshop and activities involved (5 minutes)

## Round 1 group activity: Participants share and discuss impactful outreach within their own contexts (10 minutes)

## Groups report back (5 minutes)

## Round 2 group activity: Participants discuss evaluation methods and factors involved in reporting of outreach (10 minutes)

## Groups report back (5 minutes)

* Plenary:

## Presentation of initial findings from systematic literature review (5 minutes)

* + Good practice in outreach, evaluation and reporting (5 min)

## Wrap-up and next steps (5 minutes)

# TAKEWAYS

The success of the workshop will be evaluated using output from the group activity sessions and feedback of participants. Key discussion points will be summarised and made available to through the conference proceedings and via email if requested. Participants will be provided with an opportunity to develop networks with those who are interested in supporting engineering attractiveness. Output will thus support growth of the community and inform future work by the facilitators and the wider SEFI community.

**REFERENCES**

Sáinz, M., S. Fàbregues, M. José Romano, and B.-S. López. 2020. “Interventions to increase young people’s interest in STEM. A scoping review.” *Frontiers in Psychology*, *13*.

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