How to Engage Parents in STEM


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Parents and STEM

Though parents are the most essential Gatekeers to STEM for their children, they are marginalized in respective projects and activities.

Often, they lack confidence or knowledge to take over the role of a coach or role model, often they are not aware of their essential role.
E-MINT Project

What do parents need in order to successfully take over their role as STEM gatekeepers for their children?
Science Capital
(Louise Archer et al., 2015)

What you know (Knowledge) | How you think (Attitudes) | Who you know (Network) | What you do (Making)
Methods

Literature | Focus groups with parents | Expert interviews
Key Findings

Gender stereotypes play a decisive role in the exclusion of girls from the STEM core subjects.

Parents often only have very limited ideas about current and future STEM professions.

It is crucial to awaken parents' enthusiasm for STEM.

The makerspace should be "broad" in terms of what is offered.

Networking is appreciated.

The E-MINT products need to have a clear benefit for parents and the content should be connected to everyday life.
Parents are encouraged to explore their own knowledge about STEM professions, gender stereotypes, career choices, educational pathways and future technologies.

The knowledge areas are presented in the app in the form of cards with interactive, activating navigation.
Attitudes

Parents are shown different situations from everyday life. After each of these stories, they are asked how they would act in this situation – without giving them a clear “Right” or “Wrong”. In addition, expert tips on the topic are presented.
Realisation: E-MINT App and Makerspace

Network

Based on a guided network analysis parents are encouraged to use their own personal social network to improve their competences as STEM gatekeepers for their children. Further, they are provided with relevant national and regional resources.
Realisation: E-MINT App and Makerspace

Making
Implementation of Virtual Makerspace
Making

Implementation of “Virtual Makerspaces”

Parents sign up for the virtual Makerspace programme

Topics
- 3D-printing
- Environmental technology (air quality, particulate matter)
- Upcycling (use and enhancement of existing materials)
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Access via the E-MINT app to step-by-step guidance & online live-sessions
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After 4 weeks parents can decide if they want to send the equipment back or keep it
Realisation: Online Workshop
Conclusion

The Science Capital approach is well suited for dealing with such a broad topic as STEM in a structured way.

It was possible to map the multiple facets derived from literature, expert interviews and focus groups with the parents.
Further Steps

The next steps of the E-MINT project are now to comprehensively evaluate the prototype of the app.

Initial feedback from parents already shows a very positive response. Further details will be made available in a subsequent publication.
Thank you

MOVES Center für Gender and Diversity

Sabine Zauchner
saza@moves.cc

www.e-mint.at