ABSTRACT

MAK(H)ERSPACE is an initiative designed to address gender inequality in STEAM (Science, Technology, Engineering, Arts and Mathematics) education and professions by creating inclusive and supportive spaces for young women. Despite making up nearly half of the world's population, women remain significantly underrepresented in these fields, often hindered by societal stereotypes and systemic barriers. By fostering an environment where creativity and technical knowledge intersect, this project aims to empower women from diverse ethnic and social backgrounds, encouraging them to explore and pursue careers in STEAM disciplines. The primary objective of MAK(H)ERSPACE is to provide hands-on, creative learning experiences that enable young women to overcome the challenges of gender bias in STEAM. The project will establish four specialized makerspaces, each dedicated to a core STEM discipline, while integrating artistic elements to enhance learning. These spaces will serve as hubs for innovation, collaboration and skill development, ensuring that participants gain both technical expertise and confidence in their abilities. Fully funded by the European Union, the project also guarantees accessibility to those from disadvantaged backgrounds, removing financial barriers that might otherwise limit their participation.

This initiative aligns with European priorities, particularly the EU's commitment to gender equality and inclusive education as outlined in the 2030 Agenda for Sustainable Development. While national efforts have made strides in addressing gender disparities, a coordinated, international approach is necessary to create lasting change. MAK(H)ERSPACE aims to bridge the gender gap in STEAM by adopting a cultural and creative framework that challenges traditional biases and promotes equal opportunities. Structured in seven work packages over a three year period, the project will begin with an initial setup phase, including needs assessment, partner engagement and infrastructure development. Subsequent phases will focus on designing and implementing the makerspaces, scaling the initiative to reach a wider audience and evaluating its long-term impact. With a budget of three million euros, the project will collaborate with universities, NGOs, research centers, and technology companies across European member states to ensure its success.

The expected outcomes of MAK(H)ERSPACE include increased participation of young women in STEAM fields, a measurable reduction in gender disparities in STEAM education and the development of a sustainable model for gender-sensitive learning. Through a comprehensive transfer-of-results strategy, the project will provide open-access educational resources, online platforms for networking and mentorship and training sessions for educators to integrate inclusive teaching methodologies into their curricula. Public events, exhibitions and social media campaigns will further amplify its impact, ensuring that the project's influence extends beyond its initial scope. In the long run, MAK(H)ERSPACE aspires to reshape societal perceptions of women's roles in STEAM, fostering a future where gender does not determine one's ability to succeed in these fields. By empowering young women with the skills, confidence and opportunities to thrive, the project will contribute to a more innovative, diverse and equitable society.

METODOLOGY

Mak(h)erspace is a European project designed to tackle gender inequality in education and especially in STEAM careers which stands for science technology engineering arts and mathematics our main goal is to create inclusive creative and sustainable learning environments for girls aged 12 to 18 giving them equal access and opportunities in fields that are still largely dominated by men we're working directly with 200 girls from 10 different secondary schools across Europe but we've also left space for others to join along the way so the impact can grow beyond the core group

The heart of the project is the creation of makerspaces these are collaborative labs where students can experiment create and learn by doing they blend science technology and engineering with creativity and the arts making it easier for girls to feel confident and engaged in subjects they may have previously found intimidating these spaces are not designed in isolation they are co-created with teachers mentors local organizations and cultural professionals so that they reflect the real needs of the communities they're in

One of the things that makes this project unique is the network we are building we bring together a wide range of people from different sectors including educators cultural experts students parents policy makers and local institutions we meet regularly to share progress talk about challenges and stay aligned on our goals the idea is to create a strong ecosystem that supports long term change not just a one time project

Another important part of Mak(h)erspace is policy making we want to make a real impact on how STEAM education is delivered across Europe so we're doing deep research into current policies and collecting data about what works and what doesn't we're running surveys organizing workshops and most importantly involving girls themselves in the conversation their voices are essential and help us make practical and realistic recommendations that can shape more inclusive education systems

One of the key highlights of the project is the EU STEAM Week for Future Women Innovators it's a hybrid event happening both online and in person at the NEMO Science Museum in Amsterdam and it brings together over four thousand participants from all across Europe for five days each day focuses on a different theme like science technology engineering or math but always includes the arts to keep the approach creative and inspiring we invite women role models from STEAM fields to lead workshops and share their journeys and we include a wide range of activities from exhibitions to hands-on labs to public conferences

To make sure the project has real and measurable impact we're tracking participation feedback and engagement throughout we want to understand how girls respond to the program and how it affects their interest in STEAM and their sense of belonging in those fields we're also developing new training for teachers including inclusive teaching methods and new tools to assess student progress in ways that recognize different learning styles and backgrounds we believe learning should be hands-on flexible and connected to the real world

We are also focusing on communication and outreach we're creating a digital platform to share everything we do including tools guides and success stories and we'll host a final

public event to present the results and celebrate the achievements of all the participants all of our materials will be open access so that others can keep using and adapting them even after the project ends we're already working on partnerships to make sure that the makerspaces and networks we build will keep growing beyond the life of the project

In the end Mak(h)erspace is not just about teaching science or coding it's about helping girls discover their potential it's about showing them that they belong in labs and studios and tech companies and classrooms that they can be engineers artists inventors or whatever they want it's about building a future where education is inclusive where creativity and science go hand in hand and where all young people no matter their background can participate equally and meaningfully in shaping our society