

Title: “Empowering Women in STEM: Lessons from the STEFORA Project in Kosovo and Albania”

1. Executive Summary

This case study examines the impact of the Erasmus+ Project, STEM for ALL STEFORA, an initiative designed to promote gender equality and enhance opportunities for women in STEM education and careers in Kosovo and Albania. Through the collaboration of partner universities, the project aims to address systemic challenges women face in STEM, foster inclusive learning environments, and create new pathways for professional development. The study highlights elements of the STEFORA project, such as series of workshops designed to build capacity for both students and faculties, the establishment of the WiSTEM club, mentorship programs, and staff exchanges. It explores how these activities have helped break down gender stereotypes, strengthen international STEM networks, and provide valuable career guidance and mentorship opportunities.

Main Findings: The project has successfully cultivated a supportive community, implemented targeted initiatives, and promoted collaborative learning experiences that empower women in STEM programs in the partner universities involved.

Conclusion: The STEFORA Project has demonstrated that fostering an inclusive and supportive environment, coupled with mentorship and community engagement, is essential for empowering women in STEM fields in Kosovo and Albania while addressing persistent societal barriers and promoting gender equality.

This case study serves as an important reflection on the lessons learned through STEFORA and aims to inspire further efforts to empower women in STEM education and careers across the region.

2. Introduction: The challenges women face in STEM in Albania and Kosovo

Women in Albania and Kosovo face a range of challenges in pursuing careers in STEM (Science, Technology, Engineering, and Mathematics), rooted in deep-seated cultural, social, and institutional factors. One of the primary obstacles is the persistence of traditional gender norms and stereotypes, which often cast STEM fields as male-dominated and discourage girls from showing interest in these areas from a young age (Guo, Marsh, Parker, & Hu, 2024). In primary and secondary education, there is often a lack of encouragement for girls to engage with science and technology subjects, resulting in fewer women pursuing STEM degrees in higher education. Later, when women enter STEM programs, they frequently encounter environments that are not conducive to their success. Academic and professional settings in STEM are often male dominated, making it difficult for women to feel included or represented. Implicit gender biases can manifest in various ways, from a lack of recognition of their achievements to limited access to leadership positions and decision-making roles (Xhindi & Gjika, 2022). Furthermore, mentorship opportunities for women in STEM, both in Albania and Kosovo, are often scarce (Ferati, Demukaj, Kurti, & Mörtberg, 2022). The absence of female role models and mentors to guide and inspire younger women adds to the difficulty of navigating academic and professional pathways in these fields.

Networking opportunities, which are critical for career advancement, tend to be less accessible for women in STEM, particularly in Kosovo and Albania, where professional networks may be more male-centered. This lack of inclusion in key professional circles can limit access to job opportunities, collaborations, and career growth (Greider, et al., 2019). Additionally, structural barriers, such as societal expectations surrounding women's roles in family and work-life balance, create further challenges. Women often face greater pressure to juggle family responsibilities alongside their careers, with limited institutional support such as flexible working arrangements or childcare services. Another significant barrier is the disparity in access to resources and funding opportunities for women in STEM. Research grants, scholarships, and professional development programs tailored to support women are not always readily available, exacerbating the inequalities they face in advancing their education or career. In both Albania and Kosovo, initiatives to promote STEM engagement among women are still developing, but they are crucial in addressing these systemic challenges (European Commission, 2020).

However, without comprehensive efforts to dismantle cultural biases, provide institutional support, and create inclusive professional environments, women in these regions will continue to face significant hurdles in their STEM careers.

3. Background *information: How the STEFORA project addresses gender stereotypes*

The STEFORA project takes a comprehensive and proactive approach to addressing gender stereotypes in STEM education across Kosovo and Albania. Recognizing that societal norms significantly influence women's interest and persistence in these fields, STEFORA developed educational modules that promote critical thinking and challenge existing stereotypes from an early stage. These modules offer resources and pedagogical tools for STEM teachers in Higher Education Institutions to create gender inclusive environments for STEM programs. The results from project activities identify the importance of the integration of female role models and mentors into educational initiatives, showcasing the achievements of women in various STEM disciplines. Therefore, through establishment of the STEM Expert Network (<https://steforaproject.com/stem-expert-network/>) and by organizing workshops and seminars featuring successful women, STEFORA inspires young girls and demonstrates that they can excel in these fields. These events also encourage dialogue among participants about the importance of diversity in STEM, thereby fostering an inclusive culture that values contributions from all genders. To further dismantle stereotypes, the feedback from the project activities emphasizes the importance of development of partnerships between higher education institutions and secondary schools. This collaboration facilitates training for STEM teachers on gender-sensitive pedagogy, ensuring they create an environment that encourages all students, particularly girls, to engage with STEM subjects confidently. Additionally, STEFORA supports the implementation of mentorship programs where current female STEM students guide and support younger peers, enhancing their sense of belonging and reinforcing the notion that women can thrive in these areas.

It remains of critical importance to emphasize that STEFORA project has significantly contributed to sustainable inclusivity in STEM education by developing a series of specialized educational modules, advanced training programs, institutional STEM strategies and Standard Operating Procedures (SOPs). These education modules were meticulously designed to infuse gender sensitivity into STEM curricula, promoting critical thinking and inclusivity across student demographics (RIT Kosovo , 2024). On the other hand, the advanced training sessions equipped faculty with essential skills in inclusive pedagogy and universal design, emphasizing gender-balanced instruction methods (National University of Ireland, Maynooth (NUIM), 2024). Moreover, each partner university developed a tailored institutional STEM strategy, creating a structured foundation for embedding diversity within academic policies (RIT Kosovo, 2024). These strategies ensured that principles of inclusivity were consistently upheld across STEM programs. Such a comprehensive approach has laid a foundation for a more supportive, diverse academic environment within STEM fields, creating lasting impacts on both policy and practice.

It's also important to note that the project's retention strategies play a critical role, focusing on ongoing support for female students in STEM programs. These strategies include establishing peer mentoring systems, organizing networking events, and offering internships that connect students with industry leaders. By fostering a supportive and recognized community, STEFORA aims to reduce attrition rates among female STEM students.

Through these multifaceted initiatives, the STEFORA project challenges and works to transform gender stereotypes that limit women's participation in STEM, ultimately promoting a more inclusive and equitable educational environment.

4. Methodology

The methodology for this case study employed a qualitative research approach, focusing on six in-depth interviews with participants actively involved in the STEFORA project. The participants, purposefully selected to ensure a diverse representation, included four STEM faculty members and two STEM students who directly benefited from the project activities. All of them were drawn from the partner universities in Albania and Kosovo to provide a well-rounded perspective of the project's impact across the two countries.

The semi-structured interviews were designed to explore multiple aspects of the project, with particular emphasis on its role in promoting gender inclusivity and combating stereotypes within STEM fields. Interview questions centered on the effectiveness of the project's education modules, the impact of advanced faculty training, mentorship programs, the role of the WiSTEM club, and networking opportunities. The questions also aimed to uncover insights into the challenges participants faced and how the project contributed to overcoming them (The interview questions are provided in the Annexes section).

Each interview lasted 30 to 40 minutes and was conducted over a four-week period. The flexible interview format allowed participants to share their experiences in their own words, providing rich, nuanced data on how the STEFORA project influenced their personal and professional trajectories. A thematic analysis approach was used to analyze the interview transcripts, identifying recurring themes such as empowerment, mentorship, the importance of role models, and the challenges that still exist for women in STEM.

The findings from the interviews highlighted that STEFORA successfully fostered a supportive community and encouraged professional growth for both staff and students.



The STEFORA has successfully cultivated a supportive community, implemented targeted initiatives, and promoted collaborative learning experiences that empower women in STEM fields. Through a series of targeted initiatives, the project has supported academic and administrative staff as well as students in their professional and personal growth within STEM disciplines.

The project's focus on social change has resonated deeply with participants. Both staff and students have emphasized their commitment to advocating for women's rights and enhancing youth engagement in STEM. Many participants share a passion for fields like computing and information technologies, viewing them as areas ripe for innovation and problem-solving. This commitment reflects the broader belief that STEM disciplines can drive transformative solutions to some of the world's most pressing challenges, such as sustainability, technological advancement, and social equity. Participants have also reported feeling motivated to use their engagement with STEM as a way to contribute to societal improvements. For instance, students involved in the STEFORA project workshops expressed their desire to tackle gender-based inequities and advocate for STEM as a powerful tool for achieving long-term social change.

In addition, the establishment of the WiSTEM club has been one of the project's most influential initiatives. Created by students in partnership with staff, this club addresses the gender imbalance in STEM at RIT Kosovo. The WiSTEM club has become a platform where women can connect, mentor each other, and advocate for a more balanced and inclusive STEM environment. The club not only fosters a sense of community but also provides a formal structure for mentorship and advocacy efforts. This has been vital in creating a safe space where women feel their voices are heard and their contributions valued. Moreover, the club has sparked collaborations that transcend academic boundaries, enabling participants to engage in cross-disciplinary STEM projects that promote diversity and inclusion.

According to students, along with the establishment of the WiStem Club, during the lifetime of the project, there have been held several events which have been instrumental in promoting networking and collaboration among students and professionals in STEM. These gatherings featured prominent role models, including female leaders in STEM fields, who shared their journeys and challenges. These role models provided inspiration and helped participants visualize potential career pathways in science and technology. Participants frequently mentioned the importance of these events in not only providing guidance but also facilitating meaningful connections. Networking at these events allowed students to explore mentorship opportunities, engage with professionals in their fields of interest, and find support from peers facing similar challenges. Furthermore, hands-on activities, such as workshops and science experiments, helped demystify STEM subjects and made them more accessible to young girls, cultivating early interest and engagement in these fields.

Mentorship emerged as a cornerstone of the STEFORA initiative, and its importance cannot be overstated. Both staff and students emphasized the vital role that mentorship plays in building confidence, particularly for women navigating traditionally male-dominated STEM environments.

Faculty mentors within the project provided personalized guidance that helped students and junior faculty overcome both academic and professional challenges. This supportive environment has encouraged women to pursue leadership roles, both within the WiSTEM club and in other STEM-related initiatives. Staff members' commitment to fostering an open and inclusive atmosphere has significantly bolstered participants' confidence, motivating them to take active roles in shaping their academic and career trajectories.

Despite the many successes of the STEFORA project, significant challenges remain for women pursuing STEM careers in Kosovo and Albania. Cultural stereotypes and societal expectations about gender roles continue to discourage many young women from entering STEM fields. The lack of encouragement from parents and educators, combined with limited exposure to female role models, creates additional obstacles for aspiring female scientists and technologists. Participants have also identified structural barriers in the academic and professional STEM environments, including limited access to resources, exclusion from professional networks, and the scarcity of mentorship opportunities. These challenges underscore the need for continued efforts to raise awareness, change mindsets, and provide sustained support to women as they pursue STEM education and careers.

Looking to the future, participants expressed their aspirations to leverage their STEM expertise to advocate for social change and human rights. The inclusive and collaborative learning model promoted by STEFORA provides a strong foundation for this advocacy. By engaging both men and women in discussions about gender equality in STEM, the project has fostered a shared sense of responsibility for dismantling barriers to women's success in these fields.

One of the key lessons from STEFORA is that creating an inclusive environment benefit not only women but the entire STEM community. Inclusivity enriches the field by promoting diverse perspectives and fostering creativity, ultimately leading to more innovative solutions to complex problems. As the project continues to evolve, its ongoing commitment to these values will ensure that women in Kosovo and Albania have the support they need to thrive in STEM careers.

6. Discussion and ways forward

The findings from the STEFORA project illuminate the multifaceted approach necessary to foster gender equality in STEM fields within Kosovo and Albania. Participants highlighted the critical role of community-driven initiatives, such as the WiSTEM club, which serves as a vital platform for support and networking. This environment empowers girls and women to share their experiences, cultivate their skills, and build confidence as they pursue careers in science and technology. Mentorship emerged as a cornerstone of this empowerment, with both students and staff emphasizing how guidance from experienced professionals has helped them navigate the complexities of STEM pathways. This emphasis on mentorship aligns with previous findings within the STEFORA project that underscore its value in supporting women in male-dominated fields. Faculty mentors have provided personalized guidance to help participants, particularly students, build confidence and achieve their goals. The significant impact of mentorship further supports the notion that personalized, hands-on guidance is essential in driving success in STEM disciplines, especially for women.

Despite these advances, substantial challenges remain, particularly related to societal stereotypes and cultural expectations. As reported in previous project publications, these persistent barriers continue to dissuade many young women from pursuing STEM careers, especially in contexts where traditional gender roles dominate. In addition, some project's events, such as the "Inspiring Women's Path to Success," were instrumental in addressing these challenges. These gatherings, which highlighted the stories of female role models, not only served as powerful sources of inspiration but also provided concrete examples of what can be achieved. The exposure to successful women in STEM positions helps dismantle stereotypes and serves as a roadmap for aspiring young women. A key focus of STEFORA was fostering inclusivity, a theme which resonates across other project initiatives. Engaging both men and women in the conversation about gender equality in STEM was identified as a vital strategy for creating lasting cultural change. The importance of inclusive dialogue is reinforced by earlier project findings, which emphasize that gender equality in STEM is not only a women's issue but a societal one that benefits everyone. Workshops and training sessions played a significant role in cultivating this inclusive mindset, helping participants recognize that change requires the active involvement of the entire community. These activities, which integrated gender awareness into STEM curricula, are setting the stage for similar initiatives in the future. In addition to these efforts, the development of education modules, advanced trainings and Institutional STEM strategies have been instrumental in creating sustainable change within partner institutions. These initiatives have helped reshape institutional practices to better support women in STEM fields.

The creation of STEM-focused institutional strategies, aligned with gender equality goals, marks a shift toward more inclusive academic and professional environments. These documents, coupled with advanced faculty training, ensure that gender considerations remain a central focus of institutional efforts in the long term. As demonstrated through the project's ongoing initiatives, these developed modules, trainings, and strategic frameworks will continue to guide future efforts.



They represent a shift toward institutionalizing gender equality in STEM education and career pathways, providing a sustainable model for other universities to follow. The combination of these strategic tools with mentorship and inclusive community-building efforts creates a robust framework for empowering women in STEM.

Looking forward, the lessons learned from the STEFORA project suggest that sustained efforts in faculty and staff development are crucial for continuing progress. And again, as indicated by previous research within the project, expanding mentorship opportunities and integrating gender awareness into STEM curricula are essential steps toward achieving a more equitable STEM environment. By continuing to foster inclusive and collaborative learning environments, STEFORA is setting a precedent for how future initiatives can create long-term change. The ongoing commitment to these principles will ensure that both current and future generations of women in Kosovo and Albania will have the support needed to thrive in STEM careers, contributing to a more diverse, innovative, and inclusive STEM community.

7. Bibliography

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1. Interview with staff

As part of our case study on "Empowering Women in STEM: Lessons from the STEFORA Project in Kosovo and Albania," we kindly ask you to share a personal experience/story from your involvement in the STEFORA project. We are particularly interested in how the project has impacted your institution, your experiences during staff exchanges, and the benefits of the workshops and training sessions. Your insights will help highlight the real outcomes of STEFORA, especially in advancing gender equality in STEM education. To guide your reflections and capture the unique experiences and successes of the participating staff, please refer to the following questions.

1. How has participating in the STEFORA Project influenced your institution's approach to promoting gender equality in STEM education?
2. Can you share your experience with the exchanges staff that were organized as part of STEFORA? How have these exchanges benefited both staff and students?
3. What role did the workshops and training sessions play in improving the skills and expertise of faculty members in STEM fields?
4. How has the collaboration with other partner universities and international STEM networks through STEFORA impacted your institution's ability to support women in STEM?
5. What long-term changes do you foresee for your institution's STEM programs as a result of the training and capacity-building activities initiated by STEFORA?
6. Can you provide an example of a successful event from the STEFORA project that had a significant impact on fostering inclusivity in STEM education?
7. In what ways has the STEFORA Project enhanced your understanding of emerging STEM careers, and how will this knowledge influence future curricula or career guidance?



As part of our case study on "Empowering Women in STEM: Lessons from the STEFORA Project in Kosovo and Albania," we would love to hear one personal experience/story from your involvement in the WiSTEM club and the STEFORA project. We are particularly interested in how these initiatives have shaped your journey in STEM, from being part of the club, mentorship, experiences to overcoming challenges. Your reflections will help showcase the impact of STEFORA on supporting women in STEM and advancing gender equality. Below are a few questions to guide your thoughts and highlight the unique experience you've had through the project.

1. Can you introduce yourself and share what motivated you to pursue a career in STEM?
2. How did you get involved with the WiSTEM club, and what does it mean to you in relation to the STEFORA project?
3. Can you describe a specific event organized by WiSTEM that was influenced by the STEFORA project? What did you benefit from it?
4. Have you had any mentorship experiences through STEFORA? How did they impact your confidence or career path?
5. What challenges do you think women face in STEM fields in Kosovo and Albania?
6. Can you share a moment when you felt particularly supported by WiSTEM or the STEFORA project?
7. What are your future aspirations in STEM, and how do you see WiSTEM and STEFORA helping you achieve them?
8. What key lessons from the STEFORA project do you believe can benefit other women in STEM?

