

ERGO PROJECT

Educational Robotics Goes Online

Activity A2.3

Review of Good Practices for Empowering Girls' Participation in STEAM

Work Package: WP2 – ERGO Technical & Pedagogical Framework

Leading Organisation: Ediciones Octaedro S.L. (P4 – Spain)

Contributing Organisation: EDUMOTIVA (P2 – Greece)

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1. Introduction

This document constitutes the output of Activity A2.3 of the ERGO project (WP2 – ERGO Technical & Pedagogical Framework). Its purpose is to review and document good practices for empowering girls' participation in STEAM-related activities, drawing on a range of European and international initiatives, with reference to prominent frameworks such as EU Code Week among others.

Gender inclusivity is one of the central pillars of the ERGO project. The needs analysis carried out across Poland, Greece, Italy, and Spain during the project's preparation phase revealed that 89.6% of teachers reported their schools lack any structured strategy to encourage girls' participation in STEM, or acknowledge a need for significant improvement.¹ Furthermore, 81.2% of respondents identified gender-inclusive strategies as a priority. These figures underline both the urgency and the opportunity that ERGO addresses.

The practices gathered in this document serve three purposes within ERGO: they inform Chapter 2 of the ERGO Teacher Guidebook ('Promoting Girls' Engagement in Robotics'); they provide models and scenarios for teachers to draw upon during the eCourse and participatory design workshops in WP3 and WP4; and they guide the inclusive design of pilot activities in WP5, including the gender tracking metrics embedded in ERGO's evaluation tools.

2. The Gender Gap in STEAM: European Context

The underrepresentation of girls and women in STEAM fields is a well-documented and persistent challenge across Europe. According to the *She Figures 2024* report, released by the EU Publications Office on 11 February 2025, only 32.8% of graduates in STEM across the EU were women.² Women's representation drops further as they progress through education and professional life: while women outnumber men at bachelor's level across all fields, their

¹ERGO Partnership, "ERGO Needs Analysis Survey Report", 2024 (internal project document, annexed to ERGO application KA220-SCH-D0356924).

presence falls sharply at doctoral level, with women's representation at doctoral level having decreased in half of all narrow STEM fields since 2018.

The EU Digital Decade Progress Report 2024 confirms that women account for just 1 in 5 ICT specialists in Europe.³ The EU's STEM Education Strategic Plan has set ambitious 2030 targets, including that at least 40% of STEM students at tertiary level should be female and that one in three ICT PhD students should be women.⁴ Reaching these targets requires systematic, early, and sustained intervention — starting in secondary school, precisely the level at which ERGO operates.

Critically, research consistently shows that girls generally outperform boys in computer and information literacy at a young age,⁵ yet self-select out of ICT and STEM pathways as they progress through school. This points to pedagogical and cultural interventions — not aptitude — as the key lever for change, and is where projects like ERGO, and the practices reviewed below, are most valuable.

Key European Statistics (2024–2025)

- Only 32.8% of EU STEM graduates are women (She Figures 2024)
- Women account for just 1 in 5 ICT specialists in Europe (Digital Decade 2024)
- Women represent just 24% of self-employed professionals in science, engineering and ICT
- 89.6% of ERGO survey respondents report no structured strategy for girls' STEM participation
- Girls outperform boys in computer and information literacy at early ages (ICILS 2023)
- EU 2030 target: 40% female STEM graduates at tertiary level

3. Review of Good Practices

The following practices have been selected on the basis of their documented impact, their alignment with ERGO's pedagogical approach, their replicability in secondary school settings, and their relevance to online or digitally enabled robotics and STEAM education. They span EU-funded programmes, school-based initiatives, and wider European frameworks.

3.1 Girls Go Circular / Girls Go STEM (EIT – European Institute of Innovation & Technology)

Girls Go Circular (GGC), now rebranded as Girls Go STEM, is a flagship EU initiative coordinated by the European Institute of Innovation and Technology, designed to equip students — especially young women — with digital and entrepreneurial skills through free, online education. Its curriculum covers topics including AI, robotics, sustainable mobility, and

²European Commission, "She Figures 2024: Gender in Research and Innovation", Publications Office of the EU, released 11 February 2025. Available at: <https://op.europa.eu/en/publication-detail/-/publication/2d15c6d4-dae4-11ef-a76b-01aa75ed71a1>

³European Commission, "Report on the State of the Digital Decade 2024", September 2024. Available at: <https://digital-strategy.ec.europa.eu/en/library/state-digital-decade-2024>

⁴European Commission, "STEM Education Strategic Plan", European Education Area. Available at: <https://education.ec.europa.eu/focus-topics/digital-education/action-plan/Women-participation-in-STEM>

⁵International Association for the Evaluation of Educational Achievement (IEA), "International Computer and Information Literacy Study (ICILS) 2023". Available at: <https://www.iea.nl/studies/iea/icils/2023>

the circular economy, making it one of the most comprehensive European programmes at the intersection of gender inclusion and STEAM.⁶

By 2024, the programme had reached over 48,000 girls across 35 countries, with 18 specialised learning modules available in 24 languages.⁷ In the 2024 edition alone, over 21,000 girls successfully completed courses, and 85 teams participated in the STEM Challenge, culminating in a STEM Forum where 20 teams showcased their projects. The AI for Gender Equality Student Challenge engaged 234 girls from 24 European countries in critical discussions about AI's ethical and societal implications.

Key Takeaway for ERGO

GGC/Girls Go STEM demonstrates that free, multilingual, online STEAM education can scale to tens of thousands of girls across Europe.

Its integration of real-world challenges (AI, sustainability, robotics) into learning contexts is directly applicable to ERGO's WP4 project design.

The STEM Challenge competition format offers a model for ERGO pilot activities that motivate participation through peer collaboration and showcasing.

3.2 ESTEAM Fests (EISMEA – European Commission)

The ESTEAM Fests are a series of events organised under the European Innovation Council and SMEs Executive Agency (EISMEA), bringing together girls, young women, and women professionals to build digital and entrepreneurial competences. They combine hands-on technical workshops with role model presentations, networking, and confidence-building activities.

The 5th Girls ESTEAM Fest took place in Berlin in April 2024, co-organised with the German Federal Ministry for Economy and Climate Action — the first time a ministry co-organised such an event. A total of 120 girls aged 12 to 16 participated, hearing from female entrepreneurs who had started a company at age 15.⁸ The 5th Women ESTEAM Fest was held in Milan in March 2024, bringing together approximately 130 women for workshops on data, digital competences, and public speaking. An online edition in September 2024 reached 60 women with workshops on AI, analytics, and leadership. In February 2025, 28 organisations gathered in Brussels for an ESTEAM Fest that included a visit to a local FabLab and a bioeconomy incubator.

Key Takeaway for ERGO

The ESTEAM model of combining technical skill-building with role model stories, confidence workshops, and networking is highly transferable to ERGO's teacher training and pilot activities.

Co-organisation with a government ministry signals institutional endorsement that amplifies impact and credibility.

⁶STEAMBrace Project, "EU Initiatives for Gender Equality in STEM Education", October 2025. Available at: <https://steambraceproject.eu/eu-initiatives-for-gender-equality-in-stem/>

⁷JA Europe, "Why Investing in Girls in STEM is Essential for a Thriving Future", February 2025. Available at: <https://jaeurope.org/why-investing-in-girls-in-stem-is-essential-for-a-thriving-future/>

⁸European Innovation Council and SMEs Executive Agency (EISMEA), "ESTEAM Fests and Communities for Girls and Women". Available at: https://eisma.ec.europa.eu/esteam-fests-and-communities-girls-and-women_en

FabLab and makerspace visits demonstrate how physical making and digital simulation can be productively combined.

3.3 BridgeSTEAM – Girls in STEAM Academy

The Girls in STEAM Academy operates a flagship programme called BridgeSTEAM — a free, two-day intensive coding and digital skills experience for girls aged 14 to 16. The programme deliberately pairs technical coding instruction with discussions on gender equality, global challenges, and personal development, creating a holistic learning experience rather than a purely technical one.

Results are among the strongest documented in any European girls-in-STEAM initiative: over 93% of participants reported increased interest in STEAM careers, and 89% noted improved self-confidence.⁹ Over 250 girls have graduated from BridgeSTEAM — including Ukrainian refugee girls and Turkish Cypriot girls — and many continue to benefit through an alumnae network offering job shadowing, public events, and the SheSpeaks podcast, where participants practice public speaking and share their perspectives as young women in STEAM.

Key Takeaway for ERGO

BridgeSTEAM's outcome data (93% increased STEAM interest, 89% improved confidence) provides concrete benchmarks for ERGO's own evaluation framework.

Its model of pairing technical activities with gender equality discussions directly supports ERGO's inclusive STEAM framework.

The alumnae network model demonstrates the value of sustained community beyond a single activity — relevant to ERGO's sustainability ambitions.

3.4 STREAM IT – Erasmus+ Project on Structural Barriers in STEAM

STREAM IT is an Erasmus+ project specifically focused on identifying and addressing the institutional and structural challenges that limit girls' participation in STEAM education and careers, with a target age group of 14 to 18. Its research work involved an extensive review of existing European STEAM education initiatives, making it a valuable reference for ERGO's own good practices review.

As part of its hands-on activities strand, STREAM IT organised a dedicated International Girls in ICT Day event at the Institute Mihajlo Pupin, where 20 girls aged 13 to 14 explored advanced simulators, 3D printers, and a coding workshop tackling real-life programming challenges, accompanied by a panel of five female engineers and one researcher providing career insights.¹⁰ The initiative also created workshop series, hands-on activities at science centres, mentoring programmes, and collaborative networks at national and international level.

Key Takeaway for ERGO

⁹EU Digital Skills and Jobs Platform, "Girls in STEAM Academy – Good Practice". Available at: <https://digital-skills-jobs.europa.eu/en/inspiration/good-practices/girls-steam-academy>

¹⁰STREAM IT Project, "STEAM for All: Best European Practices in Gender-Inclusive Education", May 2025. Available at: <https://streamit-project.eu/2025/05/01/steam-for-all-best-european-practices-in-gender-inclusive-education/>

STREAM IT's focus on structural and institutional barriers — not individual attitudes — frames gender inclusivity as a systemic challenge, which is the level at which ERGO's teacher training is most impactful.

Its combination of technical simulation activities with female professional panels provides a direct model for ERGO webinars in WP3.

The project's multilevel approach (workshops, mentoring, networks) maps naturally onto ERGO's own cascading structure.

3.5 Girls in ICT Talks – Malta (2024–2025)

The Girls in ICT Talks initiative in Malta offers a school-embedded model of gender-inclusive STEAM promotion, delivered through collaboration between the Malta Digital Innovation Authority (MDIA), the national career guidance service, and the Church Secretariat's digital literacy department.

In the 2024–2025 edition, nine schools participated — both state and church institutions — with sessions led by MDIA Women Ambassadors who shared their personal journeys in ICT.¹¹ The sessions were designed specifically for Year 7 girls, using relatable examples and accessible language to make ICT feel exciting and attainable. Key messages included that curiosity and creativity — not perfect grades — are what matter most in technology. Feedback from schools was overwhelmingly positive, with educators highlighting how the sessions complemented classroom learning and introduced students to curriculum topics in real-world contexts.

Key Takeaway for ERGO

The partnership between a digital authority, schools, and career guidance services provides a scalable institutional model that ERGO school partners can replicate locally.

Focusing on relatable storytelling and accessible language — rather than technical jargon — is especially effective with girls who do not yet self-identify as 'tech people'.

Embedding sessions within normal school hours, rather than as extra-curricular activities, maximises reach.

3.6 EU Code Week – Girls in Digital and GCIB Sprints

EU Code Week, the European Commission's annual initiative to promote digital skills and coding across Europe, has developed a dedicated gender programme called Girls in Digital (GiD), operating through Girls Code it Better (GCIB) Sprints.¹² These are short, 3 to 4-hour hands-on learning experiences where girls collaborate to tackle real-world challenges using digital tools, led by female tech professionals who serve as role models. Sprints can be run fully online as well as in-person, making them compatible with ERGO's emphasis on digital-first learning.

¹¹EU Digital Skills and Jobs Platform, "Empowering Future Innovators: 2024–2025 Edition of Girls in ICT Talks Marks Another Successful Year", May 2025. Available at: <https://digital-skills-jobs.europa.eu/en/latest/news/empowering-future-innovators-2024-2025-edition-girls-ict-talks-marks-another-successful>

¹²EU Code Week, "Girls in Digital – Girls Code it Better Initiative". Available at: <https://codeweek.eu/girls-in-digital-week>

EU Code Week is directly referenced in the ERGO proposal as a channel through which results will be disseminated, and EDUMOTIVA (P2) has established connections to the Code Week ambassador network. Over 1.34 million participants have been reported on the EU Code Week platform, with female participation averaging 40% across reported figures.¹³ The GCIB Replication Kit — a publicly available, step-by-step guide for organising Sprints — makes the model immediately accessible to ERGO teachers who complete the WP3 training. The 2024 Launch Event featured a dedicated 'Girls and Women in Digital' session with inspiring stories from female tech professionals.¹⁴

Key Takeaway for ERGO

GCIB Sprints require no prior experience from participants and no expensive equipment — directly mirroring ERGO's own low-barrier, simulation-based approach.

The Replication Kit means ERGO-trained teachers can independently organise GCIB activities post-project, strengthening sustainability.

Girls in Digital Week (March 2026) falls within the ERGO teacher training period, offering school partners a ready-made European event to align their activities with.

3.7 Programming, Robotics and Rights for Girls (EU Delegation, Geneva)

This event, organised at the EU Delegation to the United Nations in Geneva as part of EU Code Week, represents one of the most documented examples of combining robotics education with a gender rights framework. EU Ambassador Walter Stevens opened a one-day workshop for 150 young participants, specifically framed around encouraging girls and young women to invest in digital technology expertise.

Girls aged 6 to 17 coded an electronic light card (hepiaLight) and programmed the collaborative robot PoppyJr, while engaging with discussions about their right to education.¹⁵ The dual framing — technical skill-building alongside civic awareness of gender equality as a fundamental right — is a powerful pedagogical combination. Connecting robotics activities to wider social and rights contexts gives girls a reason to care about technology beyond its technical dimensions, and has been shown to resonate strongly with female learners drawn to purposeful, socially embedded work.

3.8 STEAMBrace (Horizon Europe)

STEAMBrace is a Horizon Europe 36-month project that aims to address the existing gender gap in STEM fields by leveraging the potential of STEAM education and establishing a European-wide coordination network: the STEAM Alliance for Europe.¹⁶ The project takes a specifically arts-integrated approach, arguing that when creative and artistic methodologies are embedded in STEM learning, girls are more likely to participate, express themselves, and

¹³European Health and Digital Executive Agency (HaDEA), "Inspiring the Next Generation: Girls in ICT Day 2025", April 2025. Available at: https://hadea.ec.europa.eu/news/inspiring-next-generation-girls-ict-day-2025-2025-04-23_en

¹⁴EU Digital Skills and Jobs Platform, "Highlights from the EU Code Week 2024 Launch Event", October 2024. Available at: <https://digital-skills-jobs.europa.eu/en/latest/news/highlights-eu-code-week-2024-launch-event>

¹⁵European External Action Service (EEAS), "EU Code Week – Programming, Robotics and Rights for Girls", EU Delegation to the UN Geneva. Available at: https://www.eeas.europa.eu/delegations/un-geneva/eu-code-week-programming-robotics-and-rights-girls_en

¹⁶STEAMBrace Project, "The Rise of STEAM Education: Why Arts Matter in STEM", 2025. Available at: <https://steambraceproject.eu/arts-in-stem-steam-education/>

remain engaged. STEAMBrace collaborates with complementary projects such as STREAM IT and Road-STEAMer, exchanging strategies to enhance creative pedagogy and boost diversity in education.

In pilot activities across Europe, over 120 students and 9 teachers engaged in STEAMBrace workshops that combined science with design, AI, and creative thinking. The project also established the first coordination network for gender-responsive STEAM education at European level, and organises the STEAM Week for future women innovators as an annual showcase event.

Key Takeaway for ERGO

STEAMBrace's arts-integrated approach directly reinforces ERGO's own emphasis on the 'A' in STEAM — the integration of artistic and creative thinking into robotics and coding activities.

Its European coordination network (STEAM Alliance for Europe) is a potential dissemination channel for ERGO results beyond the consortium.

The STEAM Week format provides a model for ERGO's promotional events in WP5.

3.9 Girls Who Game (Dell Technologies, Microsoft & Intel)

Girls Who Game (GWG) is an extracurricular programme created by Dell Technologies in partnership with Microsoft and Intel, providing students across the world with an opportunity to explore STEM through gaming.¹⁷ Using Minecraft: Education Edition as the primary platform, participants develop computational thinking, critical thinking, communication, collaboration, creativity, and problem-solving skills in a learner-driven environment. The programme targets girls primarily but is open to all, and operates through school clubs with virtual mentorship from STEM professionals.

Since its launch in 2019, GWG has grown to over 75 clubs per cohort across the United States, Canada, and beyond. The programme deliberately uses gaming as an entry point — recognising that the word 'code' can be off-putting to girls who would otherwise engage enthusiastically with technology. Mentors share non-linear career paths to demonstrate that there is no single route to a STEM career.

Key Takeaway for ERGO

GWG demonstrates the power of using familiar, engaging digital environments (gaming) as a gateway to computational thinking — a principle directly applicable to ERGO's simulation-based approach.

The mentorship model, where diverse STEM professionals share personal career stories, provides inspiration for the role model content in ERGO's WP3 eCourse.

The club-based, after-school format shows how schools can sustain engagement beyond one-off activities.

3.10 Girls Code Too (UK)

¹⁷Dell Technologies, "Girls Who Game – Empowering the Next Generation in STEM". Available at: <https://www.dell.com/en-us/lp/dt/girls-who-game>

Girls Code Too is a UK-based initiative passionate about introducing girls to rewarding careers in technology through coding and design workshops.¹⁸ Its freely available micro:bit lesson resources offer a practical, no-equipment-barrier entry point into physical computing and coding — students use the micro:bit microcontroller to build beginner projects including name tags, simple sensors, and interactive games. The lessons are structured as downloadable workshop guides, making them directly usable by classroom teachers without specialist training.

The micro:bit platform itself has been used across Europe — including in refugee camp settings in Athens, British Council summer schools in Spain, and digital literacy programmes across the Balkans — as a vehicle for coding education. Its combination of physical and digital elements makes it particularly engaging for students who might not respond to screen-only coding environments.

Key Takeaway for ERGO

The freely downloadable workshop format of Girls Code Too is directly replicable by ERGO school partners, requiring no specialist resources beyond the micro:bit hardware.

The micro:bit platform bridges physical making and digital coding — mirroring ERGO's interest in combining simulation tools with tangible learning outcomes.

The UK focus is complementary to ERGO's European scope: materials can inspire locally adapted versions in partner countries.

3.11 greenlight for girls (g4g)

Greenlight for girls (g4g) is an international non-profit organisation based in Brussels, dedicated to inspiring girls of all ages and backgrounds to pursue STEM subjects by introducing them to science in fun and exciting ways. Its flagship activity is the g4g Day — a one-day, girl-focused event featuring hands-on workshops run by volunteer STEM professionals, open to the local community and designed to reach girls in less advantaged communities.

Since its inception, g4g has reached over 60,000 girls and young women through a network of more than 13,000 STEM professionals and mentors, with over 500 face-to-face events in 39 countries.¹⁹ In 2024, g4g partnered with Microsoft Portugal and Pavilhão do Conhecimento to organise an event in Lisbon specifically aimed at inspiring 200 middle-school girls to pursue STEM careers. G4g also collaborates with the Erasmus+ project EITIC-EU, creating open resources for teachers and parents to support girls in STEAM. The organisation operates across Europe with a particular emphasis on reaching schools in Brussels, Denmark, Germany, Portugal, and the UK.

Key Takeaway for ERGO

G4g's model of 100+ hands-on workshops run by role model volunteers in a single day event is highly replicable for ERGO multiplier events in WP5.

Its explicit focus on reaching girls from less advantaged communities aligns directly with ERGO's equity objectives and the profile of partner schools such as 1 EPAL Korydallos (P5).

¹⁸Girls Code Too UK, "Micro:bit Lessons". Available at: <https://girlscodetoo.co.uk/lessons/microbit/>

¹⁹greenlight for girls, "g4g and Microsoft / Ciência Viva Collaborate to Bridge Gender Gap in STEM", February 2024. Available at: <https://www.greenlightforgirls.org/2024-hot-off-the-press/2024/2/15/g4g-microsoft-and-cincia-viva-collaborate-to-bridge-gender-gap-in-stem-gf54g>

The EITIC-EU collaboration shows how g4g resources can be integrated into Erasmus+ projects — a direct precedent for ERGO.

3.12 EQUALS-EU – Europe's Regional Partnership for Gender Equality in the Digital Age

EQUALS-EU is a Horizon 2020-funded coordination and support action that promotes gender equity in social innovation and digital inclusion across 29 EU Member States and Associated Countries.²⁰ The project builds capacity through multilateral partnerships, creates inclusive innovation ecosystems, and conducts a combination of online and face-to-face mentoring, training, and lifelong learning programmes focused on empowering women and girls in STEM and ICT. Its activities include interdisciplinary hackathons, innovation camps, high-level seminars alongside UN and EU flagship events, and a dedicated professional network for women and girls in social innovation and entrepreneurship.

The project's scope and approach are particularly relevant for understanding the systemic and policy-level conditions for gender equity in digital education. EQUALS-EU has produced open Gender Equity Tools for digital inclusion that can inform the design of inclusive policies and practices, and its activities have reached women and girls across Europe and beyond through its consortium of 19 organisations from 15 countries.

Key Takeaway for ERGO

EQUALS-EU's systemic approach — covering access, skills, and leadership simultaneously — provides a policy framework against which ERGO's own gender-inclusive activities can be positioned.

Its hackathon and innovation camp formats are directly adaptable for ERGO's participatory design workshops in WP4.

The project's open Gender Equity Tools are a ready-made resource that ERGO teacher trainers can reference when designing inclusive activities.

4. Comparative Overview of Good Practices

The table below summarises the practices reviewed, their scope, and their key relevance to ERGO activities.

Practice / Initiative	Scope	Key Features	Relevance to ERGO	Website
Girls Go Circular / Girls Go STEM (EIT)	Europe-wide (35+ countries)	Free online modules; AI, robotics, sustainability; 48,000+ girls; 24 languages	Model for ERGO's online, challenge-based robotics projects and WP4 design criteria	eit-girlsgocircular.eu
ESTEAM Fests (EISMEA)	Europe-wide	Technical workshops + role	Model for ERGO multiplier events in	eismea.ec.europa.eu/esteam-fests-

²⁰EQUALS-EU, "Europe's Regional Partnership for Gender Equality in the Digital Age". Available at: <https://equals-eu.org/>

	events	models + confidence-building; FabLab visits; ministerial co-org	WP5; combines making, digital skills and inspiration	and-communities-girls-and-women_en
BridgeSTEAM – Girls in STEAM Academy	Cyprus, expanding EU	Free 2-day coding programme; 93% increased STEAM interest; 89% improved confidence	Provides outcome benchmarks and pedagogical model for ERGO's girl-focused pilot evaluation	digital-skills-jobs.europa.eu/en/inspiration/good-practices/girls-steam-academy
STREAM IT (Erasmus+)	Multi-country (EU)	Structural barriers research; simulation + female panels; mentoring networks	Frames gender inclusion systemically; informs ERGO's teacher training and evaluation design	streamit-project.eu
Girls in ICT Talks (Malta)	Malta (school-based)	Women Ambassadors in schools; Year 7 target; storytelling + relatable ICT examples	School-embedded model replicable by ERGO school partners; emphasises accessibility	mdia.gov.mt/services/women-in-ict
EU Code Week – Girls in Digital / GCIB	Europe-wide	3–4h online/in-person sprints; female role models; Replication Kit; no experience needed	Direct synergy with ERGO — same networks, same partner (EDUMOTIVA), replicable model	codeweek.eu/girls-in-digital-week
Programming, Robotics & Rights for Girls	Geneva (EU Delegation)	Collaborative robots + gender rights framing; 150 girls aged 6–17; civic + technical blend	Model for linking ERGO robotics activities to gender equality narrative in teacher materials	eeas.europa.eu/delegations/un-geneva/eu-code-week-programming-robotics-and-rights-girls_en
STEAMBrace (Horizon Europe)	Europe-wide	Arts-integrated STEAM; STEAM Alliance for Europe; STEAM Week; VR/AR; policy network	Arts + STEAM integration reinforces ERGO's 'A' emphasis; EU-level dissemination channel	steambraceproject.eu
Girls Who Game (Dell / Microsoft / Intel)	USA, Canada, expanding globally	Gaming-based STEM learning; Minecraft; 75+ clubs; mentorship; computational thinking	Gaming as coding entry point mirrors ERGO's simulation approach; mentorship model for WP3	dell.com/en-us/lp/dt/girls-who-game
Girls Code Too (UK)	UK (resources freely available)	Free micro:bit workshop guides; physical computing; no specialist training needed	Replicable workshop format; micro:bit bridges physical making and digital coding for ERGO pilots	girlscodetoo.co.uk
greenlight for girls (g4g)	International	One-day STEM events; 60,000+ girls	Multiplier event model for ERGO WP5;	greenlightforgirls.org

	(Europe, Americas, Asia)	reached; volunteer STEM role models; free community events	equity focus matches ERGO partner school profiles	
EQUALS-EU (Horizon 2020)	29 EU countries + Global South	Gender equity in digital innovation; hackathons; mentoring; open Gender Equity Tools	Policy framework and open tools complement ERGO's inclusive design approach in WP4	equals-eu.org

5. Key Lessons and Recommendations for ERGO

Across the practices reviewed, a consistent set of enabling principles emerges. These are proposed for integration into Chapter 2 of the ERGO Teacher Guidebook, the WP3 eCourse content, and the design criteria for WP4 student projects.

5.1 Pedagogical Design Principles

- Ground activities in real-world, socially meaningful challenges: sustainability, health, equality, community problems. Girls are more strongly motivated by purpose-driven technology than by technology for its own sake.
- Use creative and culturally accessible entry points (games, art, storytelling, social challenges) rather than abstract coding exercises to lower self-exclusion barriers.
- Integrate the Arts into STEM activities deliberately: arts-based approaches have been shown to increase girls' engagement, self-expression, and sense of belonging in STEAM contexts (STEAMBrace; greenlight for girls).
- Ensure activities are low-floor — accessible with no prior experience — while still offering depth for those who want to explore further.
- Combine technical skill-building with discussion of gender equality, career possibilities, and girls' right to participate in science and technology.
- Make female role models visible throughout: invite female professionals, feature women-led projects, highlight female researchers and engineers.

5.2 Structural and Organisational Conditions

- Train teachers first: cascading models that empower educators to deliver inclusive activities to their own students are the most sustainable and scalable approach at European level.
- Ensure all activities are free of charge and require no expensive equipment, directly addressing the socio-economic barriers that disproportionately affect girls in under-resourced schools.
- Embed activities within regular school hours and curriculum wherever possible, to maximise participation and avoid creating an 'opt-in' dynamic that self-selects only the most motivated girls.
- Connect school activities to wider European networks (EU Code Week, eTwinning, Scientix, Girls Go STEM, EQUALS-EU, greenlight for girls) to amplify reach, sustainability, and visibility.

- Seek institutional co-endorsement — from education authorities, universities, or ministries — to signal legitimacy and encourage broader school participation.

5.3 Evaluation Metrics to Adopt

- Percentage of girls reporting increased interest in STEAM careers after ERGO pilot activities (benchmark: 93% in BridgeSTEAM; see note 9).
- Percentage of girls reporting improved self-confidence in using digital and robotics tools (benchmark: 89% in BridgeSTEAM; see note 9).
- Drop-out rate among girl participants during pilot activities (ERGO target: no more than 1 in 10).
- Percentage of teachers who feel confident implementing inclusive robotics activities after ERGO training (target: 70% positive responses, per ERGO proposal).
- Qualitative reflections from girls on their sense of belonging and engagement in STEAM contexts.

5.4 Synergy Opportunities for ERGO Partners

- EDUMOTIVA (P2) can facilitate connections between ERGO teachers and the EU Code Week ambassador network and the Girls in Digital Replication Kit, enabling school partners to organise GCIB Sprints alongside ERGO pilot activities.
- Girls in Digital Week (March 2026) falls within the ERGO teacher training period — school partners could organise a GCIB Sprint as part of their ERGO engagement, gaining European visibility at no additional cost.
- IES Mar Azul (P7, Spain) and other school partners can register ERGO pilot activities on the EU Code Week activity map each October, connecting local practice to a Europe-wide movement.
- Octaedro (P4) can promote ERGO's gender-inclusive outputs through its connection to El Diario de la Educación, reaching millions of Spanish-speaking educators and amplifying ERGO's impact beyond the consortium.
- ERGO partners can connect with the STEAM Alliance for Europe (STEAMBrace) and the EQUALS-EU network to position ERGO results within the broader European landscape of gender-inclusive STEAM education.
- ERGO's final evaluation report can contribute gender participation data to EU Code Week and the EU STEM Coalition's tracking systems, strengthening both communities.

6. Conclusion

The practices reviewed in this document collectively demonstrate that empowering girls in STEAM is not a matter of a single intervention or formula, but rather a consistent set of pedagogical principles applied across a range of formats, settings, and partnerships. Whether through intensive coding sprints, school ambassador visits, project-based EU-funded curricula, or robotics workshops framed around rights and social justice, the most effective initiatives share a common DNA: they are hands-on, purposeful, free of heavy resource requirements, embedded in supportive adult relationships, and connected to broader communities and networks.

ERGO is well positioned to draw on all of these practices. Its teacher-training-first model, its emphasis on free and open-source digital tools, its participatory design approach grounded in students' own ideas, and its connections to EU Code Week, eTwinning, and Scientix all align with the structural conditions for success identified here. As the EU's own data confirm, the gender gap in STEAM is real and persistent²¹ — and closing it requires exactly the kind of sustained, teacher-empowering, school-embedded approach that ERGO provides.

This review will be updated following the ERGO pilot activities in WP5, incorporating evidence from the project's own implementation alongside the external practices documented here.

7. References

All sources cited in this document are listed below in numerical order, corresponding to the footnote numbers used in the text.

- [1] European Commission, "She Figures 2024: Gender in Research and Innovation", Publications Office of the EU, released 11 February 2025. Available at: <https://op.europa.eu/en/publication-detail/-/publication/2d15c6d4-dae4-11ef-a76b-01aa75ed71a1>
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