

D1.3 GENDER STRATEGY

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Project title: Outdoor Science Education for a Sustainable Future

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OTTER project

OTTER is an H2020 funded project that aims to **enhance the understanding of Education Outside the Classroom (EOC) methods and pedagogies** and how they can help **improve the acquisition of scientific knowledge and transferable skills in students, specifically in the field of environmental sustainability and the reduction of plastic waste**. It aims to increase interest in scientific topics among young people, while also contributing to the range of innovative educational projects and the increase of scientific citizenship within the EU.



OTTER aims to strengthen educational outside-the-classroom (EOC) **networks within Europe**, connecting experts from four different regions within the continent (**Finland, Hungary, Ireland and Spain**). The strengthening of these networks will be utilised to carry out a programme of EOC pilot schemes and analysis of the effect they have on the performance of participating students, including their levels of sophisticated consumption and scientific citizenship, to increase understanding of the effects of education outside the classroom on EU citizens. The pilot schemes will share a common theme revolving around issues of plastic waste and recycling in order to build upon recent momentum in tackling related global educational, social, and environmental issues and due to the close relationship between reducing plastic waste and the need for more sophisticated consumers.

Project Consortium

Geonardo Environmental Technologies (**GEO**)



European Science Foundation (**ESF**)



University of Groningen (**RUG**)



University of Limerick (**UL**)



Bridge Budapest (**BB**)



Learning Scoop - oppimisen osuuskunta (**LS**)



The Big Van Theory (**TBVT**)



Center for the Advancement of Research & Development in Educational Technology (**CARDET**)



1. Background Information

Supporting and promoting gender equality is a core value of the European Union (EU) and a key principle of the European Pillar of Social Rights (EC, undated). A particular interest of the OTTER project is to obtain a better equality of genders in STEAM participation, programmes, and professions. In line with the Horizon 2020 Guidance on Gender Equality, the Sustainable Development Goals, and other relevant EU document, OTTER will contribute to promoting gender equality as a cross-cutting theme throughout the project by implementing actions aimed at ensuring gender balance in all project activities. Core to this endeavor is an effective and embedded Gender Strategy.

1.1 Defining Gender

Gender, as defined by the European Commission (2011), refers to:

the social construction of women and men, of femininity and masculinity, which varies in time and place, and between cultures. The notion of gender appeared in the seventies and was put forward by feminist theorists who challenged the secondary position of women in society. It departs from the notion of sex to signal that biology or anatomy is not a destiny. It is important to distinguish clearly between gender and sex. These terms are often used interchangeably while they are conceptually distinctive.

Gender is a complex socio-cultural issue that plays out differently in different geographical regions and cultures. It is important to note that understandings of gender are evolving with, for example, gender now being more commonly understood as

an individual's actual or perceived sex, gender identity, self-image, appearance, behavior, or expression, whether or not that gender identity, self-image, appearance, behavior or expression is different from that traditionally associated with the sex assigned at birth (de Blasio and Malalis, 2016)

Throughout this gender strategy, the term gender is used in an inclusive manner to encompass the above understandings.

1.2 The Current Field in STEAM

Training and education play an important role in preparing well-rounded and socially aware students with a strong sense of sustainability (Skowronek et al., 2021). While, STEM represents Science, Technology, Engineering and Mathematics, STEAM incorporates Art as a way of encouraging creative young minds to explore STEM subjects with the enthusiasm and level of engagement which is synonymous with the arts (Liao, 2016). STEAM education encompasses creativity and innovation to encourage students to understand science and feel connected to their school and community

through “holistic inclusive education for a sustainable society” (Skowronek *et al.*, 2021, p.3). The UN 2030 Agenda for Sustainable Development emphasizes the need to include minority groups affected by poverty, gender inequality and inequity in development discourses around environmental challenges and sustainability issues (UNESCO, 2019, p.3).

One dimension of gender equality, female creativity and involvement in STEAM, is still not exploited to its full extent, and there is still a gender gap in this regard. The international literature has identified various explanations for why women are underrepresented in STEAM fields. These sources of gender inequalities are located on the interplay between individual-level traits and socio-cultural framework conditions and therefore are overlapping and reinforcing each other (Thébaud & Charles, 2018). They include the masculine culture of STEAM fields leading to stereotypes of men and women in these fields (Allegrini, 2015) negative stereotypes of women’s abilities and a lack of role models (Semrow, et al. 2020; Farland-Smith,2009); insufficient early STEAM experience gender gaps in self-efficacy; stereotypes about the nature of STEAM work and workers (Moote, et al 2020; Muller, 2014); and mismatches between self-perceptions and images of STEAM studies and careers.

2. OTTER Gender Strategy

The OTTER Gender Strategy is underpinned by Four Principles:

1. Gender is a **cross-cutting theme** across all dimensions of the project (footnote 1).
2. **Project management** at all levels and culture are open, inclusive, and transparent and encourage equal opportunities for all genders throughout the project.
3. **All research** conducted throughout the project is gender-sensitive (footnote 2), paying attention to the participation of a range of genders, providing equal opportunities for all, and integrating gender into the research content all the way from the initial research idea to the dissemination of results.
4. **Teaching, learning and assessment** activities and pedagogical approaches developed and conducted throughout the project, and experienced by teachers and students, are gender-sensitive, paying attention to the involvement and engagement of a range of genders and providing equal opportunities for all.

Each principle offers a number of related *Principles of Practice*, indicating how the principle is evident in and informs the work of the project and partners. Such an approach offers a **flexible strategy** that is adaptable depending on the unique requirements of each work-package and task. The intent is that *Evidence of Related Practice* will celebrate the consideration of gender across the project. Therefore, some *Principles, Principles of Practice and Evidence of related practice* across the project will be more relevant to particular work-packages/tasks than others.

2.1 Implementing the Strategy

Gender is a cross cutting theme within OTTER and this gender strategy is integrated and applies to all levels and participants in the project, as outlined in figure 1 below. This includes management, contributors, teachers, and students. The principles and related principles of practice outline how gender equality will be promoted across all aspects of the project to have an overall positive impact on teachers practices and students' experiences of and engagement in STEAM.

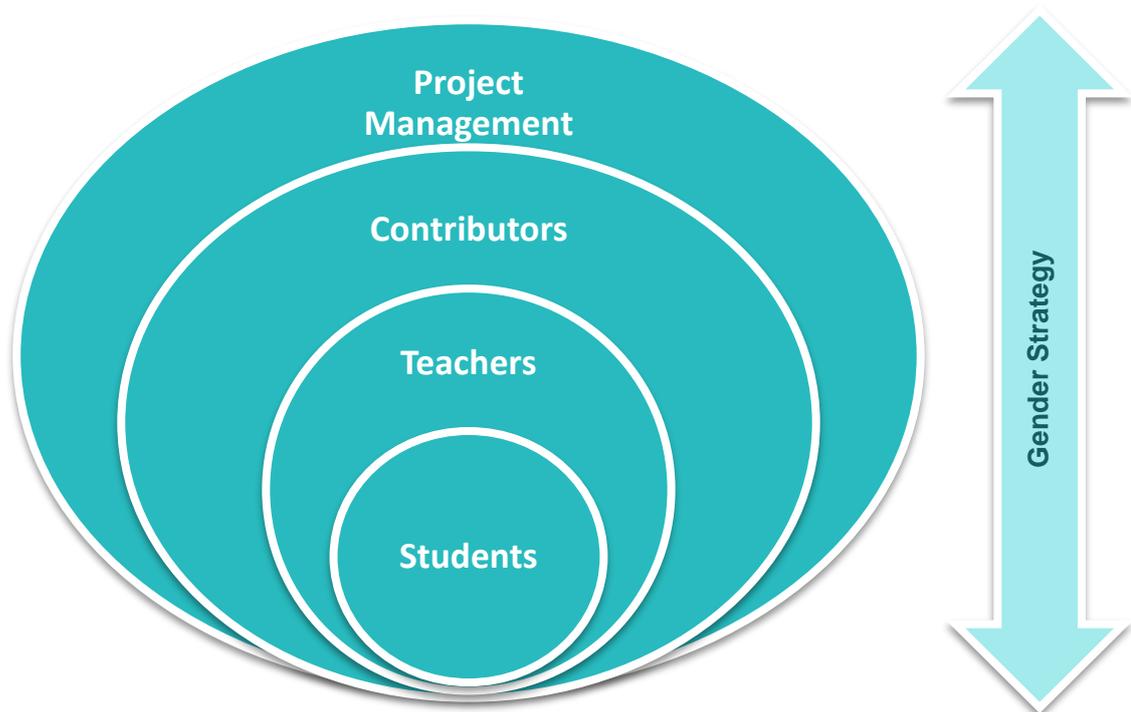


Figure 1: Embedding the gender strategy across all participants

Implementation of this strategy at project level is three-fold (See Figure 2).

- The gender strategy is implemented in initial work package meetings as a guide for partners to conduct the work package and project in line with these guiding principles.
- Each of the four principles are discussed within the unique boundaries of the work package aims. Work package leaders identify suitable protocols to embed the strategy within the practices of the work package.
- Evidence of Practice will be documented and reported on throughout the design, implementation and dissemination of tasks.

Applying this gender strategy to all dimensions of the project aims to have a positive impact on teachers and students, of all genders, experiences, engagement, and participation in STEAM.

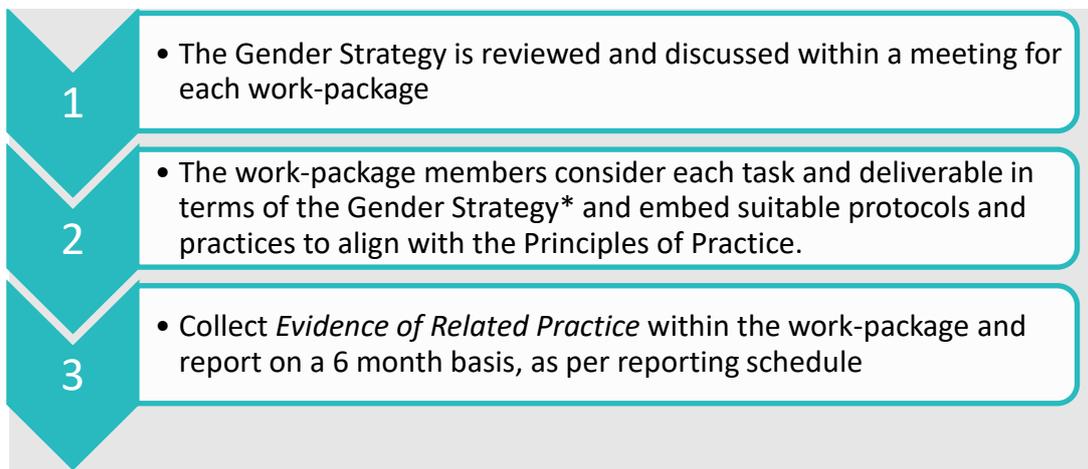


Figure 2: Gender Strategy Implementation Plan

*Please note that all *Principles* and *Related Principles of Practice* will NOT relate to all work-packages.

2.2 OTTER Gender Strategy Principles and Principles of Practice

Principle 1
Gender is a cross-cutting theme across all dimensions of the project (See Section 5.1)
Principles of Practice
<ul style="list-style-type: none"> • All work-packages consider the impact and place of gender, gender equality and differences across genders within the related deliverables • Gender equality is encouraged and supported throughout all work-packages • A balance of genders is supported in the evaluation panels • The project has a clear Gender Strategy, underpinning all dimensions of the project • All contributors to the project, including participating teachers and students, are made aware of the gender strategy and are explicitly informed how this gender strategy informs the practice of all aspects of the project • Internal and External communications, and all communications with teachers and students, stress the message of gender equality as a cross-cutting theme of the project. • An inclusive and diverse range of speakers/participants will be invited to at all seminars, colloquia and events. Records of the range of participants will be maintained. Speakers and participants from under-represented groups/genders are actively sought, particularly females in STEAM
Evidence of related practice across the project

Principle 2

Project management at all levels and culture are open, inclusive, and transparent and encourage equal opportunities for all genders throughout the project.

Principles of Practice

- Gender balance is supported in the project consortium and management, at all levels and in decision-making positions
- Working conditions allow all project participants to combine work and family life in a satisfactory manner
- Meetings are scheduled, where possible, at times that support those with caring responsibilities
- There is a fair, transparent, and open system for allocating workload and this is reviewed regularly
- An inclusive and diverse range of speakers/participants will be invited to at all seminars, colloquia and events. Records of the range of participants will be maintained. Speakers and participants from under-represented groups/genders are actively sought, particularly women in STEAM
- There are clear values and expectations of the behaviour of individuals to each other
- There is a policy on harassment and misconduct covering all partners and participants.
- There is a system for recording confidential complaints of harassment, bullying or misconduct.

Evidence of related practice across the project

Principle 3

All research conducted throughout the project is gender-sensitive (See Section 7.1), paying attention to the participation of a range of genders, providing equal opportunities for all, and integrating gender into the research content all the way from the initial research idea to the dissemination of results.

Principles of Practice

Research Ideas Phase

- The relevance of gender to the research topic is considered
- Literature and other sources are reviewed for gender differences in the research field

Research Proposal

- Research questions/hypothesis are gender-sensitive
- The research methodology ensures that (possible) gender differences are investigated
- The research methodology ensures that sex (See Section 7.2) and gender differentiated data is collected and analysed throughout the research cycle

Research Phase

- All research instruments are designed to explore potentially relevant sex and/or gender differences in the data collection
- Gender neutral language is used in the design of all research instruments
- A balance of genders is supported in the selection of participants in the research
- Data is analysed according to the sex/gender variables
- Other relevant variables are analysed with respect to sex/genders

Dissemination Phase

- Analysis and reports/publications present statistics, tables, figures, and descriptions that focus on the relevant gender statistics and gender differences that come up during the project
- Relevant stakeholders and journals that focus on gender are included among the target groups for dissemination
- Gender statistics and gender differences are considered in the project's recommendations

Evidence of related practice across the project

Principle 4

Teaching, learning and assessment activities and pedagogical approaches developed and conducted throughout the project are gender-sensitive, paying attention to the involvement and engagement of a range of genders and providing equal opportunities for all

Principles of Practice

- Teaching, learning, and assessment activities (e.g. Methodological Protocol; Practitioner Toolkit; EOC Hub) support the inclusion of all students and teachers in the activities
- Students are exposed to a diverse range of role models through the teaching, learning and assessment resources
- Images and resources used within teaching, learning and assessment resources provide a balance of genders
- Communication and language is non-discriminatory and makes genders visible when relevant (e.g. avoiding gender biased expressions, using feminine and masculine pronouns, using gender-neutral language) (United Nations, undated)
- Examples used within teaching, learning and assessment resources provide a balance of genders
- Teacher training supports teachers to consider genders, gender differences and gender equality in their teaching and EOC practices
- Pedagogical approaches are inclusive and accessible to all participating students
- An inclusive and diverse range of speakers/participants will be invited to at all seminars, colloquia and events. Records of the range of participants will be maintained. Speakers and participants from under-represented groups/genders are actively sought, particularly females in STEAM

Evidence of related practice across the project

3. Definitions & Concepts

3.1 Gender Sensitive Research

In gender-sensitive research, gender is consistently taken into account throughout the research cycle.

- Investing in equal opportunities for a range of genders in research makes for teams that perform better, and attracts top-level researchers
 - The best possible team: mixed team with creative and diverse points of view
 - The best possible talent: Create accessible working condition and culture for all
- Investing in a gender-sensitive approach to the research content makes for higher quality and validity
 - The best possible research validity: take into account differences between men and women
 - The best possible research utility: take gender into account and ask from the start who will use the results and when and how will they be used.

Adapted from (European Commission, 2011)

3.2 Sex

Sex refers to the biologically determined characteristics of a range of genders in terms of reproductive organs and functions based on chromosomal complement and physiology. As such, sex is globally understood as the classification of living things as male or female.

(European Commission, 2011)

4. Reference List

- Allegrini, Alessandra. (2015). Gender, STEM Studies and Educational Choices. Insights from Feminist Perspectives. 43-59. 10.1007/978-94-007-7793-4_4.
- European Commission (2011) 'Toolkit Gender in EU-funded research'. doi:10.2777/62947.
- Farland-Smith, D. How does culture shape students' perceptions of scientists? Cross-national comparative study of American and Chinese elementary students. *J Elem Sci Edu* 21, 23–42 (2009). <https://doi.org/10.1007/BF03182355>
- de Blasio, M.B. and Malalis, C.P. (2016) NYC Commission on Human Rights Legal Enforcement Guidance on Discrimination on the Basis of Gender Identity or Expression: Local Law No. 3 (2002); N.Y.C. Admin. Code § 8-102(23). Available at: https://www1.nyc.gov/assets/cchr/downloads/pdf/publications/GenderID_InterpretiveGuide_2015.pdf (Accessed: 24 November 2021)
- Liao, C. (2016) From Interdisciplinary to Transdisciplinary: An Arts-Integrated Approach to STEAM Education, *Art Education*, 69:6, 44-49, DOI: 10.1080/00043125.2016.1224873
- Moote, J., Archer, L., DeWitt, J., MacLeod, E. (2020). Comparing students' engineering and science aspirations from age 10 to 16: Investigating the role of gender, ethnicity, cultural capital, and attitudinal factors. *Journal of Engineering Education*, 109 (1), 34-51. <https://doi.org/10.1002/jee.20302>
- Muller, Johan. (2014). The future of knowledge and skills in science and technology higher education. *Higher Education*. <https://doi.org/10.1007/s10734-014-9842-x>
- Semrow, M., Zou, L.X., Yang, S., & Cheryan, S. (2020). Gay Asian Americans are seen as more American than Asian Americans who are presumed straight. *Social Psychological and Personality Science*, 11, 336-344. <https://doi.org/10.1177/1948550619849426>
- Skowronek, M. *et al.* (2021) 'Inclusive STEAM education in diverse disciplines of sustainable energy and AI', *Energy and AI*, 7, p. 100124. doi:10.1016/j.egyai.2021.100124.
- Thébaud, S., & Charles, M. (2018). Segregation, Stereotypes, and STEM. *Social Sciences*, 7(7), 111. <https://doi.org/10.3390/socsci7070111>
- UNESCO (2019) 'Framework for the implementation of Education for Sustainable Development (ESD) beyond 2019', in. *UNESCO. General Conference, 40th, 2019*, Paris. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000370215.locale=en> (Accessed: 24 November 2021)
- United Nations (no date) Gender-inclusive language. United Nations. Available at: <https://www.un.org/en/gender-inclusive-language/guidelines.shtml> (Accessed: 3 November 2021).

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