Young People as Agents of Change
A guidebook on collaboration with VET education

Young People as Agents of Change – a guidebook on collaboration with VET education

This guidebook is for everyone who wants to start collaborating with VET education. It collects best practices on gender equality, working with VET schools and developing activities for VET students, namely for activities focused on sustainability and space. Whether you work for a museum, observatory, teacher network, non-for-profit or are a teacher yourself, you can use this document as a first step to making your project a success.

Keywords: Sustainability, space, vocational education (VET), gender equality, EU, active inquiry learning, interdisciplinary learning, education for sustainable development (ESD)

The importance of sustainability and space in vocational education

In our ever-changing world characterised by technology development, globalisation and climate change, it is more imperative as ever to become global citizens and keep learning to change with the times and develop as a person.

Formal and non-formal educational institutions play a crucial role in preparing young people for their future. The institutions support young people by providing the first stepping stone to help them develop themselves later in their lives, namely by equipping them with competences and relevant experience.

Why would you focus on VET education?

Specifically, vocational education and training (VET) prepares its students by training them in the necessary competences and gives them experience to work in the field. Almost, 50% of young people aged 15-19 in the EU participate in initial VET education (I-VET) when studying at the upper secondary level (European Centre for the Development of Vocational Training, 2024).

VET schools have expressed a need for courses that focus on interdisciplinary topics and help them to train their students in interchangeable skills, such as critical thinking, collaboration and communication, to support their students become the global citizens in our ever-changing society.

Active inquiry learning can be a method that provides this framework. It has been proved as a more effective learning technique than traditional learning techniques (Pedaste et al., 2015). Instead of reproducing knowledge, the student is an active actor in learning and retaining the knowledge. VET schools train their students for application in the work field where they need to recognise problems in different situations and act on the information. By implementing active inquiry learning in activities for VET schools, the students are well prepared for the work field. This effect can be strengthened by using real world scenarios and data as this framework helps students' skills in critical thinking, scientific knowledge and understanding data increase (Schultheis & Kjelvik, 2020).

Why use the context of sustainability and space in vocational education?

Education for sustainable development (ESD) can provide the framework needed to develop those skills. ESD encourages people to decide on and carry out actions to improve their quality of life without compromising the planet. By confronting the students with these challenges, they can learn how to understand others' intentions, actions and feelings, anticipate the short-term and long-term consequences of their actions, influence their future and have a positive impact on their environment.

Space science can present modern societal challenges in an inspiring context while emphasizing the global threat our planet is facing and highlight the need for building sustainable societies.

By using space as a context, activities can increase awareness of sustainability and environmental issues, as they support most, if not all Sustainable Development Goals.

Many shortage occupations in the EU are occupations in trades (EURES, 2023), and this is no different in the space sector. The context of space can give the young people more awareness of career opportunities in the space sector and other STEM (Science, Technology, Engineering and Mathematics) related fields that use similar methods.

How to incorporate gender inclusivity in ESD activities for VET education

One of the possible outcomes of using ESD as an inspiring context is to attract more women to STEM related careers. In 2024, women were the minority in the workforce of most STEM related fields across the EU, such as agriculture, forestry and fishing (30.8%), information and communication (30.4%), electricity, gas, steam and air conditioning supply (27.2%), water supply (23.3%), mining and quarrying (14.4%), and construction (10.6%). In other fields, such as education (72.8%) and human health and social work activities (78.3%), women were overrepresented (EuroStat, 2025).

Women graduates of a vocational upper secondary education are also underrepresented in STEM fields (*What Is New in IVET? Key Pointers From Statistics*, 2025, fig. 6.d). According to Eurostat data from 2022, women made up 15.4% of I-VET graduates in mathematics and statistics, 12.5% in information and communication technologies, and 7.1% in engineering and engineering trades, while making up 86.6% of graduates in welfare and 90.3% in education.

To appeal to all genders choosing to follow VET programmes in STEM fields and encourage a welcoming environment, it is needed to promote gender inclusivity in the activities in all aspects of the activity. The gender-inclusive approach is described by the European Institute for Gender Equality (2024) in three pillars:
1. Recognise and challenge gender stereotypes;
2. Maintain inclusivity by ensuring the visibility of women and men and girls and boys in all their diverse situations;
3. Uphold the values of dignity, respect and equal treatment.

Following on these three pillars, we have compiled a list of practices with the help of I MOVE project et al. (2023); Achiam, M., Holmegaard, H. T. (2016) and European Institute for Gender Equality (2024) to help you incorporate gender-inclusivity in your activity descriptions:
1. Focus on their abilities instead of anything they might not be capable of.
2. Before starting development of the activities, talk to VET students of all genders who can express their needs in their own words.
3. Pay attention to the language used in the text and rewrite the text to be gender-neutral or -inclusive.
4. In examples and stories, do not use stereotypical depictions of people and make sure to depict people in equal roles.
5. If depicting people in images, use images that contradict stereotypes.
    a. We have mostly used images without humans due to the technical and scientific nature of the activities. However, if we use images of people, we use images that contradict the stereotype surrounding the subject and give a well-rounded view of the users.
6. If possible, let the target group help in the development of the activities; for example, let them test the activity during development or provide feedback on the communication.
7. If possible, pay attention to the career prospects related to the activity and support this with role models that contradict the ruling stereotype.

While these practices are compiled with gender-inclusivity in mind, they are also applicable for developing activities that are inclusive in different aspects.

How to collaborate, communicate, develop and provide support with and for VET schools

If you want to work more closely with VET schools and develop activities, take a look at our recommendations, applicable in every step of your project:

Prepare the project

- Make sure to have a VET school as an associate partner or in your consortium. This gives you the opportunity to ask quick questions and check if you're still on the right path.
- Invest in relations with VET teachers during your research phase and keep them updated throughout the project, for example through social media posts or a newsletter.
- Look into the curricula of the VET programs and find similarities to your project goals. This makes it easier for teachers to implement your activities in their yearly practices.
- Consider teacher workload and availability as the key challenge to achieve your goal of reaching the target students. If the teachers cannot implement your activity, it has a small chance of reaching students.

Research current needs in VET schools – find the blind spot

- Talk to key persons in the VET school system to gauge their needs. Think of teachers, management, councils and students.
- Focus on the sector and think from the industry perspective. VET programs train for the job market and their curriculum is closely tied to the needs of the industry.
- Adapt content to the particular interests of the VET schools and their specialities and domains for easy implementation in the curriculum.
- Find a council or higher institution that has an existing network and can reach all VET schools at once. Invest in a collaboration with them to disseminate your results.

Determine your topics

- Actively involve teachers and students in choosing the topics and developing the activities. They are the experts on their needs and can help you make your activities more applicable.
- Take gender inclusivity into account in the description of your activity (see recommendations above).
- Look for topics that add a new perspective on the learning goals in the curriculum too.
- Invest in connecting to the students' daily lives to make the topic tangible.
- Visualise data to enhance the awareness of the state of the planet.

Develop your activities

- Don't be afraid to provide specific information but gauge their prior knowledge before diving in too deep. The students are future experts.

- Lead with questions and encourage the students to ask them. Don't tell, but let students discover so they may remember the concepts of the activity better.
- Have the students work together in the activities to enhance learning.
- Have the students work in hands-on or guided activities at first, so they learn actively by doing.
- Students want tangible assignments; work hands-on or with real data. Earth observation data gives the sense of working with the real thing.
- Give the students enough time to familiarize themselves with the tools before they dive into the topic to help them feel capable.
- Help the teachers prepare for the lessons as much as possible by providing clear but concise descriptions of the activities.

Provide support for implementation

- Consider teacher workload and availability as the key challenge to finally reach the target students.
- Think from the teacher's perspective and answer the question why teachers should use it. Explicitly state what participating will bring them.
- Try to also reach teachers who might not be interested at first, for example through a higher institution, council, their management teams or their students.
- Organise in-person events near their daily routine or at a nearby location to ease the boundary of participating for teachers.
- Provide teachers with the necessary training so they can implement the activities developed later on with their students while feeling knowledgeable about the subject.
- Connect the teachers with specialists in the sector to lower the boundary of looking for role models in the field.
- If you want the teachers to implement the activities in the upcoming school year, make sure to finalize the activities and contact the teachers by the end of March. The curriculum of the next school year will be determined in the month after then.

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FAQ:

What is the VET system in my country like?

- If you're from a country in the EU, you can find more information on the European framework here: https://education.ec.europa.eu/education-levels/vocational-education-and-training/about-vocational-education-and-training
- Below we have provided links to more information for five countries in the EU:
  - Italy: https://www.cedefop.europa.eu/files/4168_en_it.pdf
  - Netherlands: https://www.rijksoverheid.nl/onderwerpen/middelbaar-beroepsonderwijs
  - Norway: https://www.cedefop.europa.eu/files/4168_en_no.pdf
  - Portugal: https://www.anqep.gov.pt/np4/home
  - Spain: https://www.todofp.es/sobre-fp.html

Where can I find partners in my country?

- If you are looking for partners in one of the five countries in the EU listed below, you can contact the institution below:
  - Italy: CRES, info@asscres.eu
  - Netherlands: NEMO Science Museum, educatie@e-nemo.nl
  - Norway: Andøya Space Education, education@adoyaspace.no
  - Portugal: Virtual Campus, projects@virtual-campus.eu
  - Spain: Instituto de Astrofísica de Canarias, info.iactec@iac.es

Colophon

Partners
NEMO Science Museum
CRES
Virtual Campus
Instituto de Astrofísica de Canarias
Andøya Space
Leidse instrumentmakers School