

## CHAPTER 2

# REFLECTING ON INCLUSIVENESS AND EQUITY WHILE CONCEIVING A TECHNOLOGY-ENHANCED ACTIVITY

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Today's technologies, apart from having many educational and learning benefits, present some new security and ethical challenges, which might be necessary to consider. As Let's STEAM activities will be implemented in very different educational contexts, it becomes necessary to appropriately reflect on how these implementations will be carried out. We argue that this reflection should be carried out with the aim of promoting the engagement of all students and, therefore, ensuring inclusive STEAM teaching and learning practices, adapted to the educational contexts and needs of learners.



By ethics, we understand the appropriate and acceptable behaviour in relation to Digital Technology (DT) practices and Internet usage. Computer or digital ethics deal with, for example, the unauthorized use of computer systems, software theft (piracy), information privacy, unauthorized collection, use of information copyright... The responsible and ethical use of DT is an important part of trainees' work and students' learning and, for this reason, it is evidenced in many national curricula.



Safe use of the Internet is one of the main concerns of school curricula in many countries, as adolescents need to be safe when using information technology for learning and in their daily lives. To promote the safe use of information technology, we need to know how our students use the Internet and information technology, and what risks they may encounter online (e.g. harmful content online, online radicalisation and extremism, risks related to personal content sharing and sexting, online harassment, etc.). Although promoting safe use of the internet and digital communication is a broad topic to cover, we want to use this training to bring to the table some of the issues around digital communication that may prevent our students from taking advantage of digital communication for learning in their daily lives.

Some students are disadvantaged and have fewer opportunities than their classmates. Our aim as teachers or educators is to ensure that all students have equal learning opportunities to develop their potential and abilities. In the STEM fields (science, technology, engineering and mathematics), there are particular issues that reduce the learning opportunities of some students, which can sometimes be hindered by our daily teaching practices. By discussing Let's STEAM activities and the ethical and safe use of digital technologies for our students, we would therefore like to contribute to the creation of more equitable and inclusive educational activities.

It is therefore important to recall the definitions of some of the concepts we will use frequently in this manual and in the activity sheets proposed in this training, as terms such as "**equity**" and "**inclusion**" can be confusing and mean different things to different people:

## INCLUSION

In the words of UNESCO, inclusion means ensuring that each individual has an equal opportunity for educational progress remains a challenge worldwide. It is increasingly seen as a principle that supports and welcomes diversity amongst all learners (UNESCO 2017). This view presumes that the aim is to eliminate social exclusion resulting from discriminatory attitudes about race, social class, ethnicity, religion, gender, and ability. However, in common language, inclusion is usually used focusing on the integration of students with special needs.

## SPECIAL NEEDS

We consider students with special needs those students with learning problems or disabilities that make it more difficult for them to learn than most students their age. These limitations may include (but are not limited to) disadvantages in physical, behavioural, intellectual, emotional and social capacities (UNESCO) (e.g. autism, Asperger, down syndrome, dyslexia, dyscalculia, dyspraxia, dysgraphia, blindness, deafness, ADHD, etc.). They require additional support and adaptive pedagogical methods in order to participate and meet learning objectives in an educational programme.



## EQUITY

Equity is an approach that ensures everyone accesses the same opportunities. Equity recognizes that advantages and barriers exist, and that, as a result, we all don't all start from the same place. Equity is a process that begins by acknowledging that unequal starting place and makes a commitment to correct and address the imbalance. Hence, practices promoting equity not only try to engage students with special needs but also many other students who may have fewer learning opportunities. In the STEM field, these students are mostly:

- Girls/female students. As literature has evidenced, STEM fields are socially constructed as masculine items and girls can feel detached from them.
- Students from racial/ethnic minorities. Literature has also evidenced how the social reference of a "STEM person" is a white and brilliant man, which usually serves as a detaching factor for racial minorities.
- Students from low and high socioeconomic backgrounds. Again, the socially accepted image of a STEM person is a middle-class man. Students from low socioeconomic backgrounds might also face economic hardships which may prevent them from developing STEM-related trajectories.

## OBJECTIVES OF APPROACHING INCLUSIVENESS AND ETHICS IN THE LET'S STEAM TRAINING

Discussing and reflecting about ethics in the course of the Let's STEAM training will enable you to analyse and transform the designed educational materials and activities to adapt them to students' needs and increase equity and inclusion in learning. This will mainly enable to:

- Create and apply new and different teaching strategies to promote an inclusive and equitable learning environment in the implementation of Let's STEAM activities.
- Apply the knowledge acquired of safety, ethics, and security to identify potential issues in the use of digital technologies by students.

To these ends, the resources you will find in the second part of the manual are structured in two:

- A first set of activity sheets, templates and canvas aim at adapting and improving the design and implementation of your activities so a **more inclusive and equitable learning environment can be promoted**. It is expected that trainees would progressively become aware of their students' needs, adapt the design of the Let's STEAM activities to their educational contexts, reflect on the possible issues in the implementation, and transform their teaching practices to address these issues.

*This include R2AS1 "Inclusive Design" and R2AS2 "Inclusive implementation" and their annexes.*

- The second part takes a more **general approach to build a comprehensive perspective of ethics and security** with digital technologies in classrooms. Supporting materials are provided, although trainees will be also invited to develop their own resources.

*This include R2AS3 "Ethics & Security" and R2AS4 "Promoting & Sharing".*

We are aware that Let's STEAM activities will be implemented in very different educational contexts. For this reason, the resources are designed as a flexible proposal. We aim to ensure a proper fit of the resources with the students' needs where Let's STEAM activities will be implemented. They are organised in activity sheets, that can be used for the purpose of this training of trainers programme or directly within the classroom, separating the guidelines for the learners and the ones for the trainers/teachers.