



DIGITAL GAMES FOR YOUNG LEARNERS- SHORT VERSION



1. Background

Due to the progress in the IT industry, digital technologies are easily accessible and widespread which allows using them for providing students with new opportunities.

Technology is used to help students participate. In today's education system, the goal for students with special needs is to allow them to be in the least restrictive environment. That means allowing them to participate in the same activities and learn the same material as non-disabled peers. This can be an empowering experience for students with special needs. Instead of segregating them in separate classrooms, teachers are now finding ways to allow students with special needs to showcase their knowledge and talents, and technology is making this possible.

2. Digital tools

Tools created ad hoc for artistic creations that however have internal functionalities that allow collaboration and group work and consequently favor the inclusive process.

Tools for creating interactive activities and digital games that have been adapted within the project for the creation of products and artistic activities.

Most of the software chosen is free so that it can be used in the most disparate contexts without imposing limitations and without the need for installation, since it can also work online and not necessarily locally.

The software that will be presented can be grouped into 3 main macro-areas:

- 2D collaborative drawing software (Aggie.io - Google Jamboard - Sketchtogether)
- 3D drawing software (3D Builder - Tinkercad - Blender)
- Software for the creation and development of interactive activities and digital games (Google Arts & Culture - Code.org - Scratch)

2.1 Description of the tools

- **Aggie.io**

Aggie.io is a collaborative painting application. It allows you to draw a picture together with your friends in real-time over the internet in your browser. Create new canvas and share the link to start drawing a picture together.

- **Google Jamboard**

Jamboard is a free mobile app that allow you to brainstorm, jot ideas down, collaborate with others in a visual environment. It is accessible through mobile devices, enabled devices that are accessible to the android app, such as a Chromebook or a Pixel Book, and via the web.



- **SketchTogether**

Use a tablet, desktop, electronic whiteboard, or even mobile phone to join. SketchTogether enables effective and efficient creation, review, and organization of anytype of content, as fluidly as pen and paper. SketchTogether safely and securely manages all content in the cloud.

- **Microsoft 3D Builder**

View, create, and personalize 3D objects using 3D Builder. Download many kinds of 3D files and edit them using wide range of powerful yet easy-to-use tools. Take a picture with your webcam and make it 3D. Personalize 3D objects by embossing your name on them, or combine models and pieces to make something new. Build from scratch using simple customizable shapes. It is a program that allows you to make simple changes to 3D models which are then printed using a 3D printer or imported into other programs for more complex changes.

- **Autodesk TinkerCad**

Tinkercad is a free, easy-to-use web app that equips users with basic skills for innovation in 3D design, electronics and coding. Tinkercad is an easy-to-use tool for creating digital designs that are ready to be 3D printed into physical objects. Users are guided through the 3D design process through 'Lessons', which teach the basics before moving on to more complex modeling techniques. This is a very basic 3d cad program with a very simple interface.

- **Blender**

Blender is the free and open-source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation.

- **Google Arts & Culture**

Google Arts & Culture is an online platform of high-resolution images and videos of artworks and cultural artifacts from partner cultural organizations throughout the world. It utilizes high-resolution image technology that enables the viewer to tour partner organization collections and galleries and explore the artworks' physical and contextual information. The platform includes advanced search capabilities and educational tools.

- **Code.org**

Website that works to promote the teaching and learning of major programming languages. resources, tools, online courses and tutorials are collected to encourage the spread of information technology, specifically to learn how to program. It is basically divided into two macro-sections: a first dedicated to teachers and a second to students.



- **Scratch**

Visual programming environment for the creation of games, activities, interactive lessons. It can be used both locally and online.

2.2 Description of Digital Games

COAT Onlus has created some Digital Games which can serve as an example or starting point for the implementation of activities by means of the tools just presented. All activities have been carried out within the Scratch programming environment.

Below is a brief description of this Digital Games:

- **Synesthetic Paint**, through the use of the mouse and keyboard you can create a picture or a drawing. The peculiarity of this activity is given by the fact that the thickness of the stroke is determined by the sounds and noises that there are in the surrounding environment. The higher the volume of these are, the greater the thickness of the stroke and vice versa.
- **Piano**, a piano is depicted on the screen which allows the user to compose melodies, record them in order to listen to them again and/or delete what has just been recorded. With each note the background changes color.
- **Synesthetic Picture**, this activity has been realized in two versions. In the first one a painting has been played on the screen: when you click on a specific part of the painting you start an audio track. You can start multiple audio tracks at once by clicking at different points in the painting. In the second version, instead, it is sufficient to move the mouse cursor to start the music, however it is not possible to proceed with the exploration and the consequent start of the audio tracks until the previous one is finished.

3. Reports of 1st Local Workshops

Through the use of the aforementioned tools, workshops were held in the various project partner countries (Greece, Italy, France and Spain), in order to concretely experience this new approach to art through digital software.