Virtual Reality for Augmenting Creativity and Effectiveness of training

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Intellectual Output III
User's Handbook

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1. INTRODUCTION

The VRACE 3D World is the main output of the VRACE project, hosting the methodology and all learning material developed. The platform is freely available for teachers to visit and use for self-learning purposes. Moreover, trainers will be encouraged to participate and extend the courses offered while improving their ICT skills. We expect that the innovative approach of a dynamic 3D training platform, that will allow teachers to add their own courses could revolutionize school learning.

2. CONNECTION INSTRUCTIONS

2.1 Account Creation

You can create an avatar account (Firstname, Lastname, Password) here: http://vr-edu.sch.gr:9025/wifi/user/account/

The Email field is optional. You will need to remember your First Name, Last Name and Password to be able to connect, so make sure you write them down.

2.2 Installation and Initial Configuration

To connect to the 3D World with that avatar you need 3D viewer Software such as Firestorm or Kokua. We recommend using Firestorm. You can download the version for OpenSim here: https://www.firestormviewer.org/os-operating-system/

Scroll down to the "**Choose your Operating System**" section, select your Operating System from the available icons and download the suitable version.
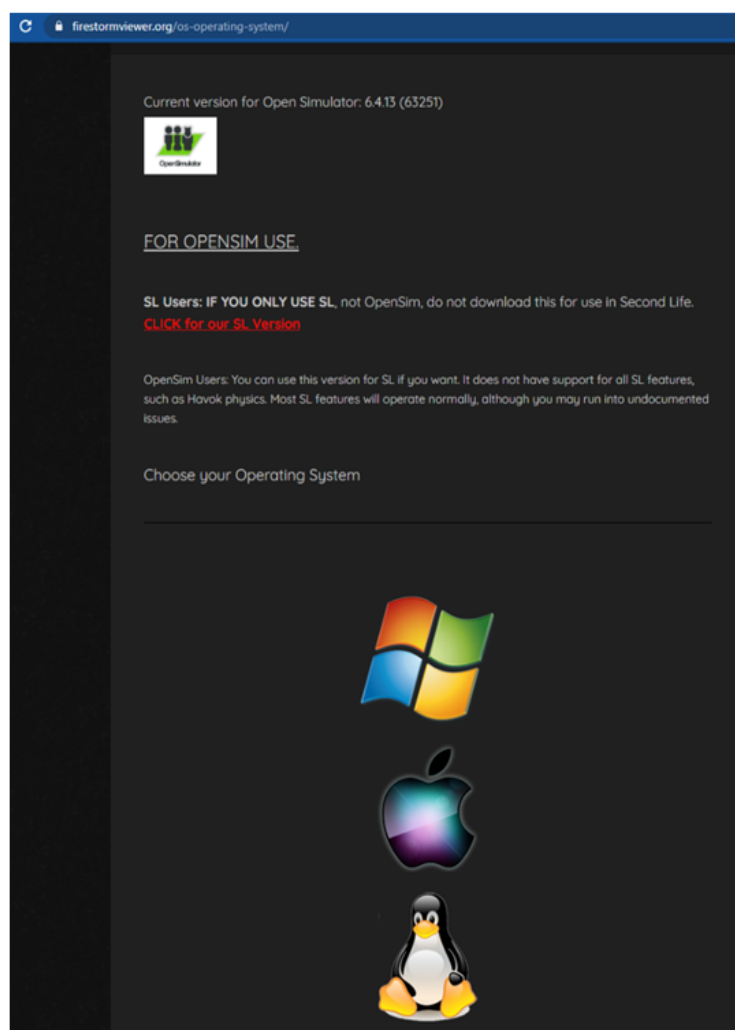
Once you have downloaded, installed, and opened Firestorm, you need to add the VRACE 3D World in the list of available destinations (you only do this before connecting for the first time):
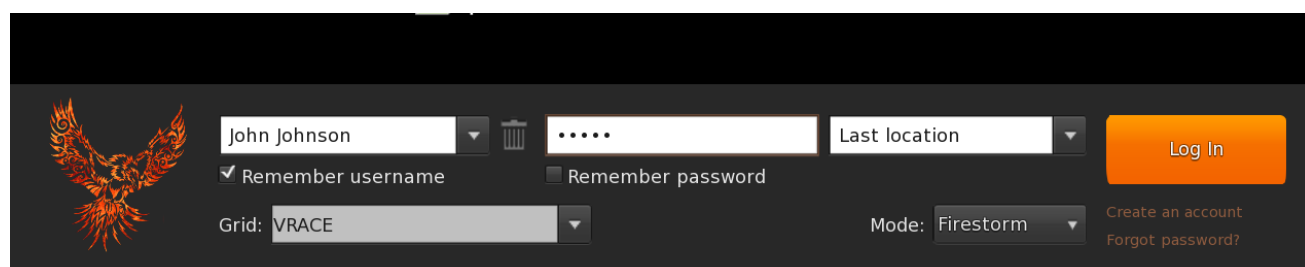
1. Viewer -> Preferences -> OpenSim
2. Add new grid: http://vr-edu.sch.gr:9025/
3. then click 'Apply' and 'OK'

The VRACE grid should be now added to the **Manage Grids Table**.
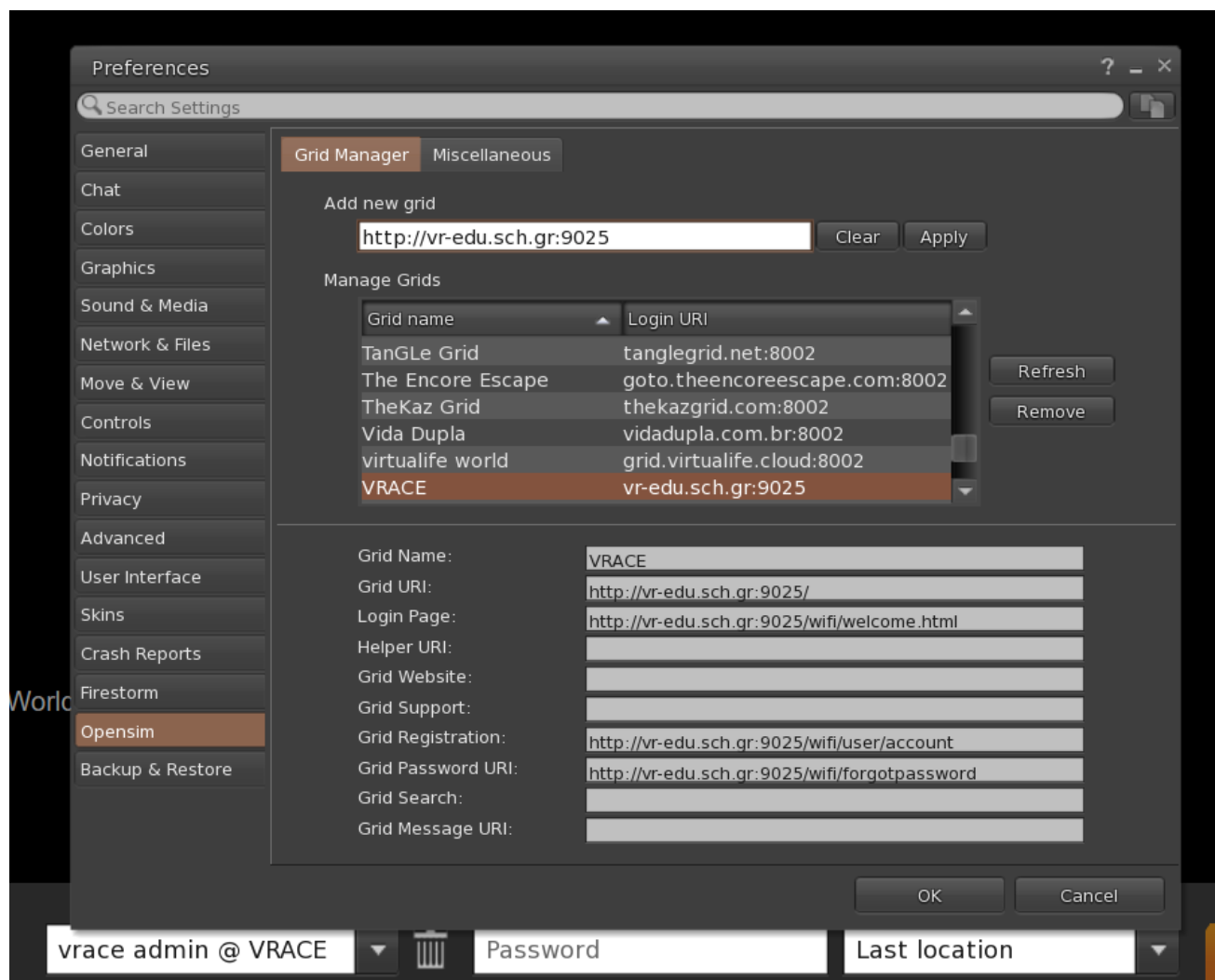
2.3 Connecting to the 3D World

Use your username "**Firstname Lastname**" and **password** and select the "VRACE" grid from the drop-down menu. Click 'Log In' to enter.

If the "Grid" dropdown list does not appear in the form, then you have probably downloaded the wrong Firestorm option (return to the installation instructions and make sure you have selected the Opensim version of Firestorm).

After a connection is made you will be inside the virtual world with your avatar.

3. BASIC CONTROLS

3.1 Moving Around

The initial area covers all the basic controls for moving around and controlling the camera. Study the posters on the wall and try to get accustomed with controlling your character.

3.2 Appearance

When you are ready you can continue to the next room, where you can adjust your avatar's appearance. We have included a variety of material you can use.

3.3 Navigation

There are two kind of maps you can use for navigation:

> **World > Minimap**

- It shows a small map where you can Identify your location and it updates according to Avatar movement

- It acts as a compass

- You can use this map to **teleport** to another point by Double Clicking required location
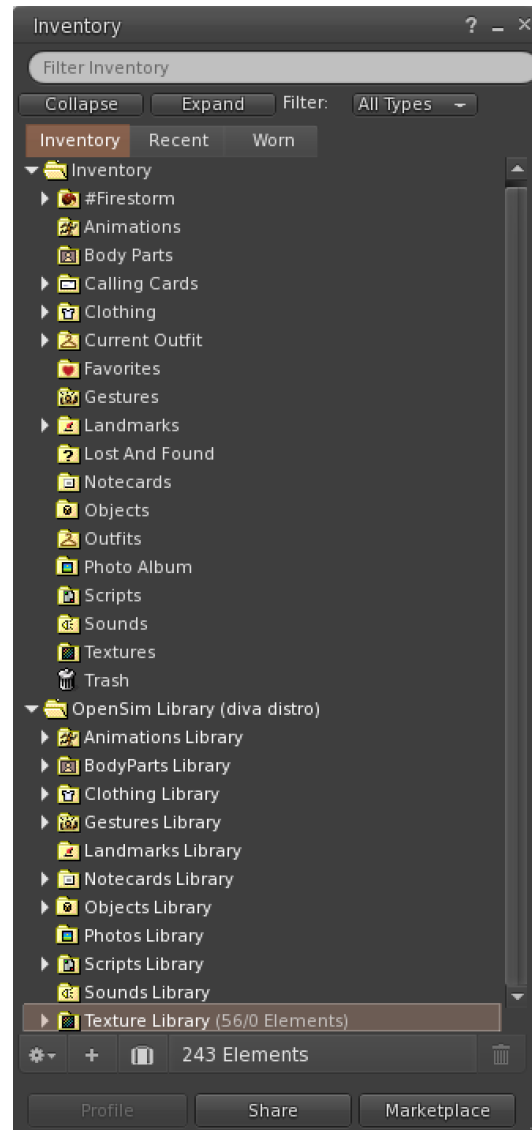
World > World Map

- Larger overview of the region with filtering feature

- You can zoom in/out to find more regions nearby

3.4 Inventory

Each avatar has an inventory of files organized by file type:

Avatar > Inventory (Ctrl + I)

You can create files for your avatar's appearance (BodyParts and Clothing folders), you can find or create text files with notes (Notecards folder) or find Objects that you have received from the activities (Objects folder).

3.5 Communication

You can add other user avatars as friends to easily find them and be able to teleport to them. From the viewer's navigation bar, select **Comm -> People**, to open a window that display a list with all nearby users. Right click on one of the users and you get the option to view their Profile, add them as a friend, send a private instant message (IM), request that you teleport to them (**Request Teleport**) or that they teleport to you (**Offer Teleport**), and to create a distinct marker on his place to easily find him (Track).
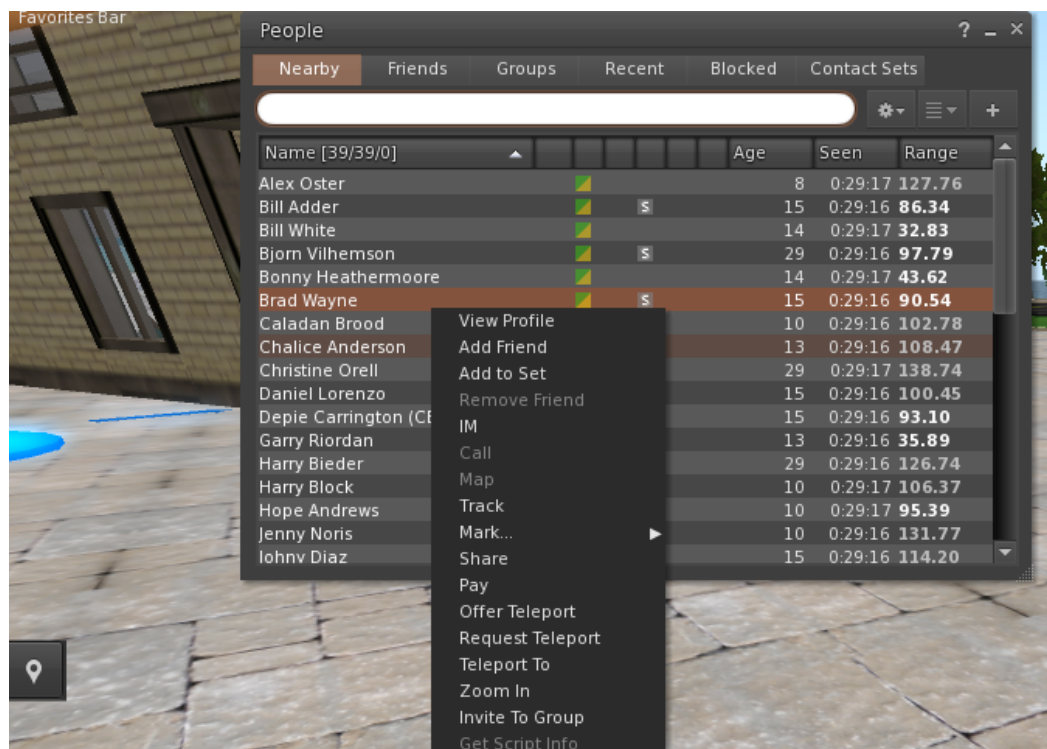
If you have already added some user as a friend, you can find them in the 'Friends' tab, even if they are not online at the moment. You can send them a private message and they will be able to see it as soon as they log in the virtual world.

You can open the chat window (**Comm -> Chat**) to view and participate in conversations. The default '**Nearby Chat**' displays all discussions that happen near your avatar. There is also a shortcut for righting quick messages that nearby avatars will receive by using the chat bar on the bottom left of your screen.

You can configure **Gestures** to be used with chat. Gestures are animations performed by your avatar to indicate or emphasize your attitude or your emotions. You can associate specific Gestures with specific words, so when you include them in your chat messages, your Avatar will perform the animations.

First, open your Inventory (**Avatar -> Inventory**) and locate the "**Gestures Library**" folder, under "**Opensim Library**". There are several gesture files in that folder, and you can right click and select "Activate" the ones you want your avatar to be able to perform.
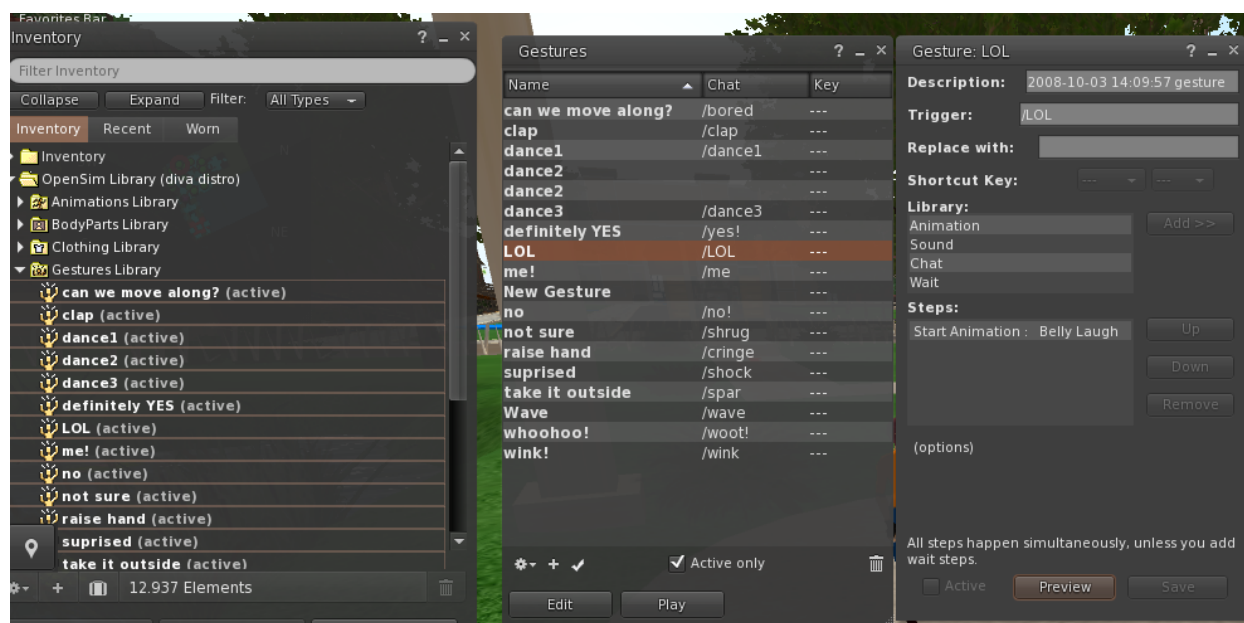
Then open the Gestures Window (**Comm -> Gestures**) and you will see the Gestures you have activated. Double click on one of the Gestures and you will see your avatar performing the animation. Select a Gesture and click the "**Edit**" button to view the details. There is a **Trigger** field that shows the command to use in chat to perform the Gesture. For example, you can write **/LOL** in the chat menu to make your avatar perform a laughing animation.

You can use the groups window (**Comm -> Groups**) to join or create a Group with other users to communicate with.

Communication with voice with other users in the virtual world is not possible directly from the 3D Viewer. However, we have prepared a voice channel in a Discord server (https://discord.gg/ZKQ3bTUY), where users can join and participate in conversations while they are connected to the 3D World. You can direct all your students to enter the "vrace-voice" voice channel.
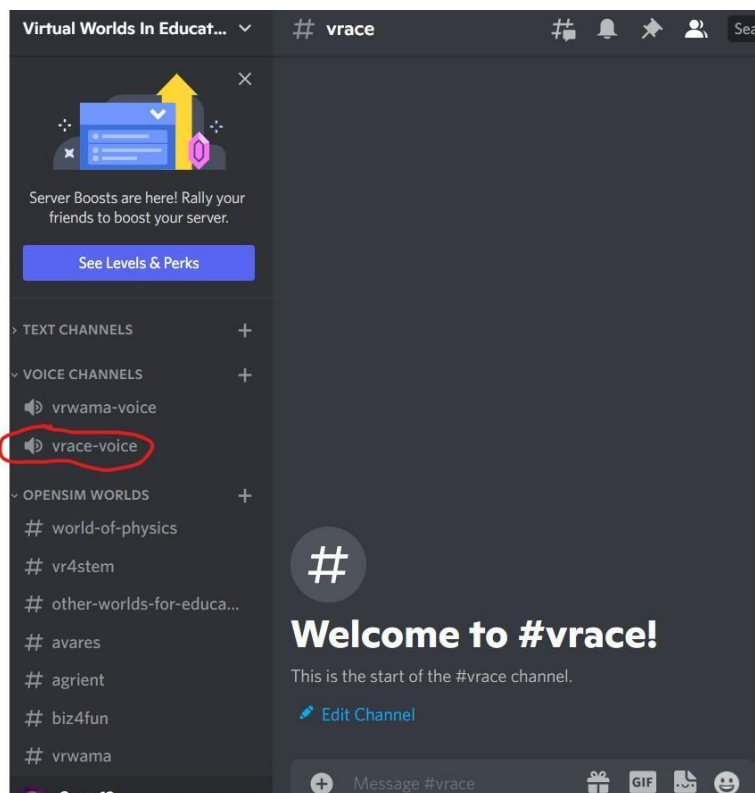
4. THE VIRTUAL WORLD COURSES

4.1 Course 1: ICT in Education

The *ICT in Education* course consists of 8 topics covering an introduction to theoretical aspects of using ICT for teaching. There is a self assessment activity at the end (a quiz activity) and a couple of practical exercises.

4.2 Course 2: Web 2.0 Tools for School Education

The *Web 2.0 Tools for School Education* course consists of 10 topics covering some of the most representative and popular applications that have been used for teaching. There is a self assessment activity at the end (a quiz activity) and a couple of practical exercises.

4.3 Course 3: Using Social Networks for School Education

The *Social Networks* course comprises of short courses on 10 topics which will help to develop practical knowledge in using social networks for school education. It also has 3 activities which will guide you to design your own social network pages or channels to facilitate learning activities in the school. There are no perquisites for the activities, completing activities can be done in any order. In addition, the course also provides some case studies for showing good examples of using social network in school education.
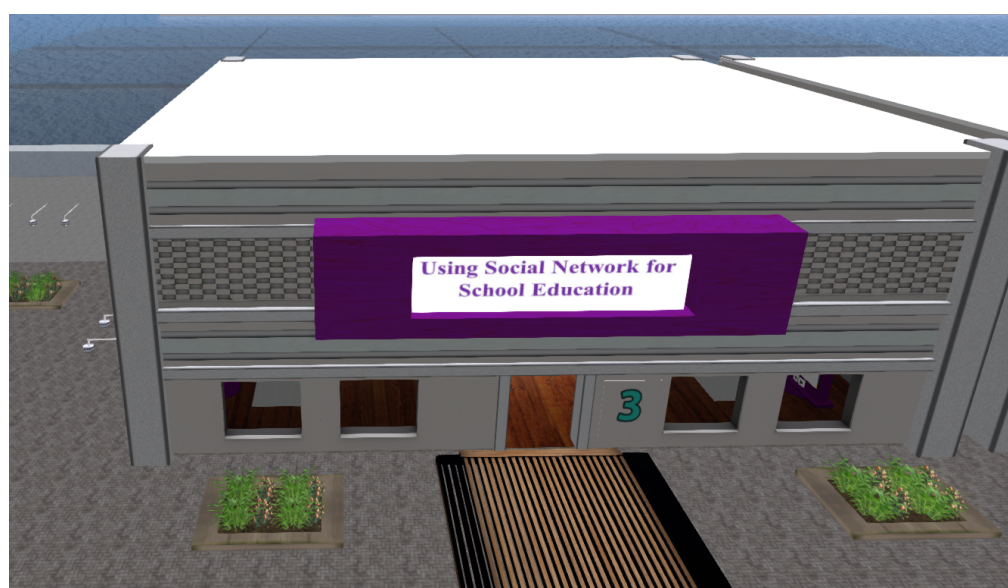
4.4 Course 4: 3D Virtual Worlds

The 3D Virtual Worlds course, takes place on a building with 10 floors, one for each one of the topics it covers. This course introduces the teacher to the technology of Virtual Worlds, and provides all the technical knowledge to start using Opensimulator and build their own Worlds with it.

Each floor contains a presentation panel with the theory. Some topics include a self-assessment activity (e.g quiz, matching, sorting). For topics that involve the scripting LSL language, there are examples of implemented objects with specific behaviour, accompanied by the script/code that was used. Some topics provide an Assignment, that instructs the teacher to try implementing something on their own. These activities usually direct the teacher to teleport to a "Sandbox" region, where they can find small areas where they have permission to build content of their own. In the landing area of the "Sandbox" region, the user can use a dial to select a specific area of the available ares they can use, and signs

that will teleport him back to the topic they were before. This way the teacher will be able to quickly visit the Sandbox areas when they want to try something, and then return back to the main course to continue with the next topics. Each floor of the course has an elevator with two buttons that allow the teacher to go the next(upper floor) or previous (lower floor) topic.

4.5 Course 5: Game-Based Learning & Gamification in 3D Virtual Learning Environments

The *Gamification* course comprise of 8 (structured) + 1 (unstructured) unique experiences which will help to develop fundamental knowledge—theoretical and practical—on the essence of this instructional approach. The so-called 'questlines' (i.e., the challenges) can also act as a point of reference or inspiration for future developments and classroom applications. Both the theoretical material and the practical exercises are completely intendent to each other. Prior experience or knowledge on the field can facilitate the procedures but is not required. Likewise, completing the activities can be done in any order (i.e., there are no perquisites).

Unlike the other courses, when you begin the Gamifcation course, you are teleported to a separate island, where you can select the language you prefer and visit the "Tower" where the activities take place.
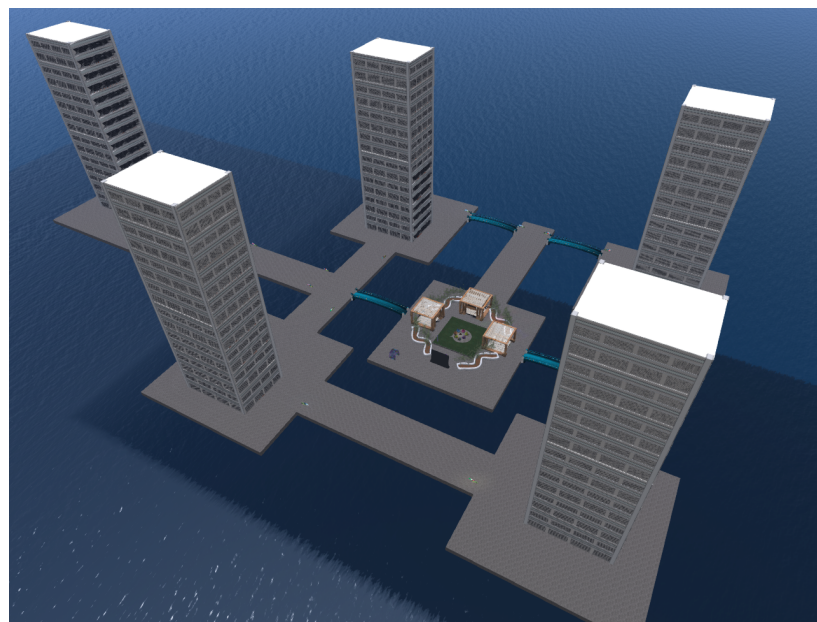

4.6 Course 6: Instructional Design & Development of 3D Learning Activities

The *3D Instructional Design & Development* course comprise of 2 activities which will guide you to design and develop your very own instructional activities in the 3D Virtual World. The ***first part*** provides step-by-step

guidelines on how to define the learning goals and objectives, how to design the learning activities and how to prepare your gamification / gameplay approach. In addition, it provides pointers to sources of premade content and material and concludes with the design procedures that need to be followed in order to create your blueprints. The **second part** is purely technical as it concerns the design and development of the 3D content. To help you grasp the basics of these activities, we have enclosed a number of 'easy to do' tasks and provided the corresponding content in the 3D Virtual World. You are free to adopt and adapt the example exercises by any means or ways you wish. In addition, we provide guidelines for those who are technically savvy and wish to experiment with more advanced features.

More specifically, after reading the presentation panels provided, the teacher will be able to receive a collection of implementations that cover a variety of learning activities. Then, they are encouraged to visit the "Sandox" region, and build their own content by adjusting the provided implementations, or implement their own ideas using the technical skills, tools and methodologies they have learned from the previous courses.
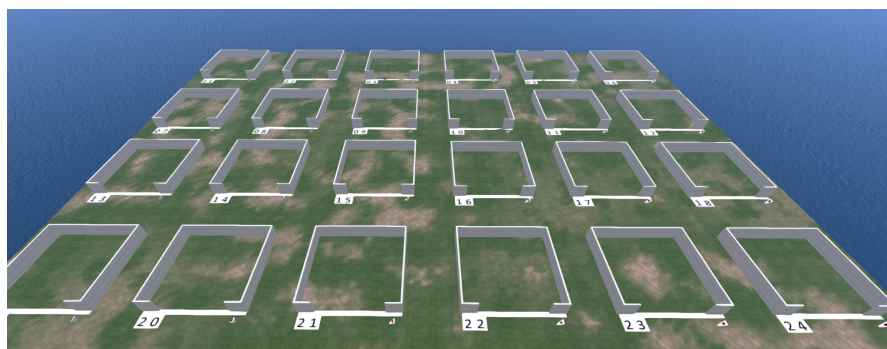
4.7 Case Studies

Finally, there are two small areas that host material (learing activities) from a couple of Projects that have successfully used 3D Virtual Worlds and Gamification concepts.

The first area includes selected activities on Mathematics, implemented by members of the consortium in the project "MATHESIS - 2020-1-RO01-KA201-080410.

The second area includes selected activities on Physics, implemented by members of the consortium in the project "World Of Physics - 2016-1-CY01-KA201-017371.