



Games Used in Engaging Virtual Environments for Real-time Language Education

IO5: Guidelines for Language Teachers



Disclaimer

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Description: The general aim is to construct sound knowledge about why and how to make use of games in 2D and 3D virtual environments for language training in different contexts. The theory of game design focuses on creating and applying games for language acquisition in immersive environments. The target of this IO are all parties who have an interest in promoting or experiencing language learning within schools.

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List of Abbreviations

CALL	Computer-assisted language learning
CLIL	Content and Language Integrated Learning
CMC	Computer-mediated communication
EE	Education Edition
EFL	English as a foreign language
ESL	English as a second language
EU	European Union
FL	Foreign language
GUINEVERE	Games Used IN Engaging Virtual Environments for Real-time language Education
Holodec	to save different forms of content i.e. furniture settings or an entire environment
HUD	Head-up-Display
ICALL	Intelligent computer-assisted language learning
ICT	Information and communication technologies
Inworld	anything that takes place within the virtual environment of Second Life
L1	First language
L2	Second language
Machinima	The practice or technique of producing animated films through the manipulation of video game graphics (<i>Collins Dictionary</i>)
MALL	Mobile-assisted Language Learning
MMOG	Massively multiplayer online games
MOOC	Massive Open Online Courses
MOODLE	Modular object-orientated dynamic learning environment
NPC	Non-Player Character or Bot
OPEN SIM	OpenSimulator is an open source multi-platform, multi-user 3D application server.
PC	Personal computer
PISA	Programme for International Students Assessment
REZ	To build something in a virtual environment
Second Life	An online virtual world with the San Francisco-based firm Linden Lab
Sky platform	A platform high above the ground where you can rez and build things
SLA	Second language acquisition
STEM	Science, Technology, Engineering, Maths
Steve	The standard skin that comes with your Minecraft character
TELL	Technology-enhanced Language Learning
TL	Target language
TPACK	Technological pedagogical content knowledge
UNDP	United Nations development programme
VLE	Virtual learning environment
WELL	Web-enhanced language learning

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1. Introduction

The GUINEVERE project aims to create a rationale for using games in immersive virtual environments as language learning and teaching activities. We also intend to make it easier for language teachers to implement and use games in 3D immersive virtual learning environments (VLE) and in their daily practice. With this in mind, it is important to consider the ways in which games in 3D VLEs could be used in classroom practice. First of all, we will outline how to choose 3D VLEs, then how to use games for specific language learning purposes and discuss some pedagogical approaches such as the task-based approach, content and language integrated learning (CLIL), problem-solving, role-play, experiential learning and project-based learning (PBL) along with language focus in 3D VLEs and the drawbacks for teachers. Later, we will also identify how games could be used as supplementary tasks and activities to support coursework in the language classroom and how games in 3D VLEs could be exploited by adding additional exercises. Finally, we will offer some guidelines for intercultural learning.

2. Choice of 3D Virtual Environments

Kapp (2012) describes various archetypes of how students learn best in 3D VLEs. His first experience, an English lesson based on a PowerPoint presentation was also his worst in a 3D immersive VLE. This example shows that that the immersive character of the 3D VLE was not taken into account. When working in such VLEs it is essential to give learners the opportunity and the experience to fully immerse themselves in the environment in order to take full advantage of its affordances.

When choosing a 3D VLE make sure to select a space you are familiar with and like working in. This is also emphasized by Mawer and Stanley (2011) in the context of gaming, who considered it as important that teachers and learners chose a genre they were experienced with and enjoyed playing (Mawer & Stanley, 2011). In the GUINEVERE project, we provide access to three immersive environments, OpenSim (OS), Second Life (SL) and Minecraft (MC), for you to test your preferences and play and discover what they have to offer at your leisure. You will find instructions on a variety of [YouTube videos](#) and on Google Drive how to use these 3D VLEs effectively. When you play Minecraft with young children or work in OpenSim you can restrict the spaces you are working in and make them accessible to your students only. Though you can restrict a specific area in SL, too, students need to be 18 or over to join SL.

When taking your learners into 3D VLEs you might find that they may be ahead of you in using MC for example. However, you can use this as an advantage with regard to learner autonomy as it helps them to take responsibility and use their creativity in performing tasks (see chapter 5.1).

Your learners can undertake almost any activity collaboratively in a 3D immersive VLE which will help them to practise the target language you are teaching. As the paper on categorising of games (Schneider & Can, 2018) demonstrates, there is a great variety of options to choose from in terms of the types of games and game-like activities which can be carried out in MC, SL or OS.

Depending on your choice of a 3D immersive VLE there are a lot of opportunities to provide your language learners with extra material for communication practice to play around with. Your students can interact with peers or pedagogical agents known as non-player characters (NPCs) by asking questions and getting responses in the language they are learning. Even when they do not have a physical partner or avatar in-world, the chance to re-perform dialogues with NPCs is an ideal opportunity for language practice. You will find some examples of good practice of how to use NPCs effectively in Schneider and Can (2018).

Another idea to help your learners to get some extra communication practice is to provide them with a choice of holodeck scenarios, equipped with a variety of pedagogical agents. Such extra learning opportunities outside the regular classroom give learners the chance to experience genuine learning scenarios to practice their target language either on their own or collaboratively with peers.

A good example of such a language learning experience is the *Bar Magnifico*, a typically equipped Italian bar in Virtual Prato in SL where learners can buy coffee and croissants, order a meal, ask for the bill and pay. Waiters (NPCs) come to the table as soon as you sit down and bring you a menu, take your order and serve the meal you ordered. You can chat with the cashier (NPC) and waitress (NPC) in Italian. If you get stuck with words you can check the vocabulary in an online dictionary provided in a HUD and get a lot of pronunciation help (Schneider & Can, 2018). By hovering over the items displayed in the bar you can read the Italian translation. The only drawbacks could be that it might not be straightforward to get started if users are not experienced in using 3D immersive VLEs and your learners need to be 18 and above to access SL in order to visit the Bar Magnifico.

2.1 Structuring Activities Before, During and After the Game-play

Games in 3D immersive virtual environments can be used in many ways. We have extensively categorized games in IO4 as follows: competitive, skill-based, discussion-based, task-based, problem-solving, describing, narrative, recounting something, guessing, question and answers, socializing, collaborative activity or just for fun. Teachers can use many procedures to exploit the games in 3D immersive virtual environments and this can open up many opportunities for teachers to employ games alongside their lessons. The teachers can use the games before the lessons in the warm-up session to introduce new

words with 3D immersive virtual board games, or in the practice session to hear or read some authentic language, or even at the production session where they can produce language to achieve goals or get rewards.

Furthermore, the games designed in 3D Immersive Virtual Learning Environments could be used as *supplementary materials* or could be a *standalone material* for a particular learning unit itself. When we consider games as *supplementary materials*, different games could be chosen for different purposes alongside the curriculum. They can serve as supplementary digital materials. Once the lesson has been conducted with conventional materials, the games could be chunked with those and give learners opportunities for more practice. Provided that the teachers acquire the necessary digital building skills, the teachers can also create and design ad hoc games to help energize coursebook content and also extend the content and language of the coursebook. They can enrich the lessons and cater for different personal learning styles and individuals.

Examples of various 3D immersive virtual games could include: *board games* for vocabulary learnt in the unit, *dominoes* of matching written word with a picture, *spinner games* where the learners are asked questions and they have to answer, *out of the box* type of games where the learners have to make up sentences using some words they learned in the unit, *Changing the outfit and appearance* of the avatars in pairs, and *treasure hunts* where they have to find some artefacts to create a narrative with the language points learnt in the unit.

Games in immersive 3D VLEs could be used as standalone materials where learners use the game as a primary source for language and access the authentic language and context. Gameplay then becomes a goal in itself and helps learners become more collaborative and engaged. One example could be designing a learning task around gameplay on “Minecraft”. This is based on the task-based approach. For example:

Pre-task Phase

- The teacher introduces the concept/nature of the task on games in 3D immersive virtual learning environments: the task is to report in a newspaper about an “Alien Spaceship that fell into Guinevere Minecraft Server”.
- Then the teacher and the learners engage in the discussion of the topic or theme of reporting on newspapers.
- Learners pair up in groups and assign roles.
- Learners plan for the preparation and the materials needed for the preparation of the news reports.

Task Cycle Phase

Task

- Learners engage with the task (the teacher monitors, encourages, comments and helps with the task).
- Learners plan ahead for the report (search for examples by reading), script (writing), shooting pictures, characters and the plot (negotiation of meaning with bots/villagers who give a description of the event).
- Learners rehearse (speaking) and do the snapshots, then do the editing (listening).
- The teacher helps with the linguistic features used in the final product.
- Learners upload their final products, the news reports.
- Learners exploit their news reports through social media (Twitter, Facebook, and their own blogs).
- The teacher prepares language activities using the finalized news reports.

Planning

- Learners plan and prepare for the presentation of their written, audio recording or machinima (video recording made in a 3D environment) to the whole class.
- Learners prepare a rationale for their content, and process of production.

Report

- Learners present their news reports to the whole class.
- Learners report their rationale for the content and process of production of their news reports.

Language Focus and Analysis

- Teacher and learners engage in a discussion about the news reports (negotiation of meaning).
- The teacher points out the language features that are “past tenses” in this context.

Practice

- Learners do language practice activities prepared by the teacher for this specific grammar point and news reports.

Games in immersive 3D Virtual environments are a form of digital visual media that can bring in variety and motivation to students. This could also contribute to the dynamism of learning by bringing learners’ minds and cognitive skills into play. Engaging learners with rich visual media could help them become more active and autonomous in the learning process. If in addition the teacher allows learners to choose language games for specific purposes of the lessons, this could help the class become more learner-centered and learners behave more autonomously. While choosing their own games as learning tasks, learners could give their own decision and plan ahead for their own learning by incorporating their own cognitive, metacognitive and socio-affective strategies (Oxford, 1990). This in

return could raise their motivation levels because of the use of current technologies in the process of language learning.

2.2 Aspects of Competition

When you teach through Immersive environments, your class becomes a community of players open to all. In Immersive teaching everyone looks out for each other, because they work peer to peer. Experienced pupils learn to look after their beginner level schoolmates. Pupils learn to respect everyone's needs, to plan and organise their activity to solve the immersive game, so that everyone can participate in the learning path actively and independently. The following sections identifies a series of do's and don'ts which are intended to help teachers and curriculum designers aware of the opportunities and challenges that immersive environments present.

Considerations

- Use some other didactic methods based on games: gamification and game-based learning, for example, because gaming principles are important in our children's life.
- Teachers should explain the aims of the game and how to achieve them clearly.
- For young learners at primary school for example it would be ideal to work in small groups of 3 to 5 pupils as it helps them strengthen their self-confidence and their trust in each other.
- You need to explain the rules of a game in simple words in a language your learners understand to avoid misunderstanding. A useful strategy is to ask your learners to repeat the rules and this may help them to remember.
- Prizes or rewards are very important for pupils' learning motivation. You can print a nice certificate for the winners and another for all the players in the game. This will help to make everyone feel a sense of satisfaction and appreciation at the end of a game and help to keep your pupil's level of motivation and engagement.
- Remember to help your pupils "make friends" with you in the VLE, so if they travel around the area out of your control, you can teleport them near your avatar to play with their schoolmates.
- It's important that teachers become familiar with the game and are able to control every part of it.
- Set up your pupils' viewer in the language that you want them to learn, for example English. In this way they will be able to build their own lexicon about the tool and the content of the game.
- You can plan an interesting CLIL lesson according to Coyle's model entitled "language triptych", (Coyle et al. 2010), as follows:

LANGUAGE OF LEARNING (content): essential vocabulary and grammar associated with the topic for a communicative approach. The language is used in authentic interactive settings in order to develop communicative skills, rather than focusing exclusively on grammar;

LANGUAGE FOR LEARNING (meta-cognition and grammar system): the kind of language needed to operate in a foreign language environment. Learners need skills for pair work, cooperative group work, asking questions, debating, enquiring, thinking, and memorizing;

LANGUAGE THROUGH LEARNING (cognition): new meanings would require new language. It needs to be captured during the learning process, then recycled and developed later.

You can ask your pupils to make two digital dictionaries about language of learning and language for learning. Moreover, use a role-play to give your pupils a reason to communicate in the target language in real life, for example at a hotel. One pupil will act as the receptionist, another as the hotel director and others as a waiter or waitress or customer.

Challenges

- Don't let your pupils play individually: collaboration is one of the most important skills in the twenty-first century.
- Don't kill your students' creativity: a good teacher is open-minded and creativity is another twenty-first century skill. Let your learners suggest some interesting changes to the game. Remember: everything can be improved!
- Encourage communication between pupils: peer to peer confrontation is the way to make progress in understanding. Communication is another twenty-first century skill.
- Don't give away your control over a game. Be prepared to answer pupils' questions.
- Try to convey the message that competition is just a way to reach certain learning goals, not the main goal itself. One of these learning goals is the development of the computational thinking steps, such as: decomposition (solving the game by breaking it in smaller phases), pattern recognition (analyzing the data finding the right order for them), algorithmic design, finding a solution to the game, and using a series of progressive steps.

2.3 Timing of Activities

Games can be created for different language levels from elementary to advanced. The time needed for playing a game depends on the number of items displayed to respond to in a board game and the number of learners involved. If you are using board games in a 3D VLE you need to consider that the more players are involved the longer the game will take and the more boring it might become for other players until it is his/her turn. Most games work

well in pairs. When working in groups the group size should not extend to more than 4 players (Schneider & Can, 2018). Introductory games, gap filler games or specific vocabulary or grammar games should not last longer than 15-20 minutes. Depending on your lesson plan and the kind of approach you choose, you need to consider how the games and activities fit into your curriculum. A quest, for example, carried out in a task-based or problem-solving context will certainly need much more time than a simple grammar activity.

If you are planning on a role-play don't underestimate the time needed for writing the story-board for the various roles and responsibilities. You might also find that a number of repetitions will be necessary until you and your learners are satisfied with the results.

Don't forget to provide an extra time slot for debriefing and feedback. Always have a plan B ready when technical issues occur that cannot be solved in the lesson.

Don't spend too much time with one individual learner who has a problem as this can cause frustration for other learners. Try to carry on and address the learner with difficulties by using another channel in a private chat. However, if the problem becomes too difficult to solve at that moment, find another solution.

Regularly facilitated language courses in 3D immersive VLEs often lack the time for individual and extra practice inworld. Teachers' suggestions to meet with peers between the regular language lessons often fail because of either time zone differences in international teams or students' physical life commitments. So, don't rely on students spending extra time practicing at home if the completion of homework is dependent on their progress in class.

2.4 Additional Tools Used

We have collected a small selection of additional tools our learners have successfully used in 3D immersive VLEs. When teaching in a 3D VLE you can use the text or audio chat function within the system in SL and OS. Though in MC you can only use text chat, you can install an external audio system like [TeamSpeak](#), [Skype](#) or [Discord](#) to use voice and text chat. Discord is currently one of the most popular free software tools for gaming communities that specializes in text, video and audio communication between users in a chat channel. Some teachers use Skype for screen sharing or troubleshooting or for sharing materials. We have experimented with [Twiddla](#) in SL which is an online whiteboard where learners can add drawings on a blank canvas, photos or graphics, or mark-up websites and write comments. It is also useful for brainstorming or making word clouds around a specific theme or project. Additionally, it can be used for a drawing and guessing game called, "Montagsmaler", which used to be a popular TV show in Germany. [Google Docs](#) work very well for collaborative activities such as preparing a report on places visited in SL, OS or MC or preparing a travel brochure or an advertisement to rent or sell a house. Google docs can also be utilized to sketch your storyboards and dialogues for role-plays.

To give your learners access to handouts, a selection of pictures or videos [Dropbox](#) is useful to share big files. Unless you have your own YouTube Channel you can create one with and for your learners. The [GUINEVERE Project](#) has also created their [YouTube channel](#) to share instructions, explain games, share interviews and videos of interesting sights and events.

The YouTube videos we created for GUINEVERE were filmed with [Camtasia](#), a screencasting software, which you have to pay for. It is fairly sophisticated and there is a free trial version of it for you to test. Similarly, [Snagit](#) is also a screen capture software with built-in advanced image editing and screen recording useful for feedback and correction. There are some free recording systems available you might wish to try out such as [CamStudio](#), a desktop recorder streaming video software or Quicktime which is an integrated screen capture software for Mac users, who might also find [iMovie](#) useful which is bundled with all new Macs and free from the Mac App Store.

For further information about screencasting software check the comparison in [Wikipedia](#). Some teachers use [Kahoot](#) in their teaching which is a game-based learning platform that can be accessed via a web browser to create, play and share quizzes on any topic. A particular favorite is [Padlet](#) where your learners can choose their own template, create and add content, invite others to collaborate and comment and edit in real time. You can post photos, documents, web links, videos and music to make the text come alive on the Padlet wall. Finally, there are a lot of other options to keep updated with your learners such as [Google blogger](#) where students could write summaries or report what they experienced or [Facebook](#).

2.5 Round-up and Feedback

Every assignment or teaching unit needs some kind of feedback. In the context of games and game-like activities in 3D VLEs, you have a great choice of different types of feedback.

Whitton (2014) identifies a range of reflection mechanisms, that are used within, during and after a game which can be built into any game-based learning process.

Within game (intrinsic): required moments of pause/waiting

Failure and replay

Support resources (e.g. hints, helper)

Character dialogue

During the game (extrinsic): reflection moments, reviewing recent activity and failure points and looking at what was done from an outside perspective

Cut scenes and recap

Comments from others (virtual or in real time)

Watching others play

After game (extrinsic): debriefing

Reflective diaries

Production of artefacts (e.g. fan fiction, additional levels)

Game critique

Helping/mentoring others. (Whitton, 2014, p.43).

Additionally, to these reflection mechanisms, you need to consider feedback as an integrated part of learning and teaching. It can be either formative to help learners to improve their work, still open for changes, and summative, which is the information your learners get at the end of their assignment informing them how they performed overall.

Feedback gives learners the opportunity to reflect on their performance, identify strengths and weaknesses and find ways for improvement. It is important to provide feedback prior, during and after a task or assignment. The type of feedback could vary, depending on whether it is done in form of a written, discussion-based or video/audio-based assessment. You could start with a questionnaire as a written assessment, provide discussion feedback in the middle and end the session or assignment with a written assessment or questionnaire which could easily be mapped with your initial questionnaire. The discussion-based feedback could be carried out with either all learners or as a peer-to-peer discussion. Don't ask for feedback only at the end of an assignment as this may be too late for improvements and changes. To get a clear picture of your learners' achievements in 3D VLEs it is useful to offer them an initial skills assessment before entering a 3D VLE. This helps you and your learners to identify strengths and weaknesses, levels and skills. The results of such initial feedback could be mapped against the achievement during and at the end of the assignments. This way you can identify where learners would need support and extra practice, and whether you or your learners underestimated or overestimated their skills.

Remember to provide feedback regularly, especially when using 3D interactive games, to find out whether your choice of games met your learners' interest, motivated them, which games they liked in particular, which did not work well and how they coped with regards to level and challenges. Whatever type of feedback you decide to use, remember to include it in all your activities and assignments. Don't wait until after the session to ask for feedback!

With more advanced learners you can have a rotating system to give each learner the opportunity to facilitate feedback discussions following a set of guidelines.

3. Filming and recording learning sequences

Filming and recording language sessions are extremely helpful to analyze learners' performance and improve it when repeating the sequence. Usually, learners are very keen on performing. However, time commitment is often underestimated and novices to filmmaking and virtual environments are likely to require more time and effort than professional filmmakers (Schneider 2016). According to Morozov (2008), filmmaking is a complex process as it requires quite a bit of time and computer space for the footage taken. Additionally, a number of skills, such as writing a storyboard, writing the dialogues for the characters, designing the set, finding a location, acquiring permission for filming, finding appropriate characters for the roles, and editing and producing the film are required (Schneider, 2016).

The same applies to audio recordings for which you also need a script and the skills to edit your audio or overdub it on a video to either add or change the narrative. Of course, you can divide the tasks between the students. Learners who are more interested in filming than in performing could film the movie and direct other learners in adopting the correct positions. You could use a task-based-approach (see chapter 5.1) where students work in teams to create their own storyboards relating to a chosen topic and perform, record and edit as described above.

Generally, learners are very proud of their performance when it is documented in a video. A great advantage is that they can try the recordings time and again until they are satisfied. Apart from that, recordings are a useful incentive and a souvenir of learners' performance and they are often proud to show peers and parents. You will find a template for creating a storyboard which you can use with students and a lesson plan in the appendices at the end of this document.

3.1 Means of Feedback

In chapter 2.5 we already addressed some ways of assessing and providing feedback. In a previous project (CAMELOT, 2013-2015) teachers and learners considered the use of machinima, a method for screen capturing in-world activities, as an ideal tool for giving and receiving feedback. It allows learners to review their interaction and linguistic and extra-linguistic performance (Schneider, 2016) and to provide peer feedback. Watching the recordings of their performance helps learners to analyze and critique their presentation and assists them to develop awareness of their performance and improve it by re-shooting some scenes or activities (Schneider, 2014; Thomas & Schneider, 2017). Such a "visual form of

feedback, which allows learners to review their work and interactions many times and reflect on their performance” (Middleton & Mather, 2008, p.217), illustrates the added value of machinima in relation to self-reflection and feedback (Schneider, 2016).

3.2 Improvement of Learning Outcomes

To motivate learners and encourage them to engage in immerse 3D virtual learning, give them the opportunity to take responsibility. Provide them with tasks that are engaging and suitable for their virtual competence and language skill level and involve them in your planning. Active involvement is essential for your students’ learning outcome. In this regard role-plays seem to be an ideal way to practice writing, reading and performing authentic scenarios as the learners rehearse their scripted storyline a few times until they are satisfied and become more proficient in using the language. The fun element is important, too and influences the learner’s engagement and positive learning experiences. Encourage your students to take footage of their performance and discuss the recordings with them and their peers. The machinima shared with all participants after a learning unit can be used to take notes and provide feedback on language issues such as intonation, pronunciation or any challenges or highlights encountered. Reflections and feedback discussion can be arranged in the following lesson and should be organized in a relaxed atmosphere, like around a campfire for example. You will find that most of your learners are proud of their performance especially when using different identities as avatars and feel less inhibited to talk in the target language.

4. Making the Right Choice of 3D Virtual Environment

4.1 Minecraft

There are several do’s and don’ts that language educators should be aware of in using Minecraft:

Considerations

There are a variety of Minecraft editions: Pocket Edition, and the Education Edition. Choose the version which best fits your purpose. If you want to do coding activity, you should choose the Minecraft Education Edition, because there is an agent or a virtual robot that you can program.

Nowadays some schools use robots in the curriculum. Most of the robots are quite expensive, but it is not a problem if you do robotics through your agent in Minecraft Education Edition (EE). You can program it through MakeCode, Tynker, Code.org or Scratch.

If your school hasn't got a large space to show pictures, posters, papers or compositions, don't worry, Minecraft can be a virtual space for your exhibition, for example for 3D Pixel Art, drawings, and digital storytelling materials.

Do you want your students to have a particular experience in some faraway places, and you can't go there? In Minecraft you can use biomes, a climate zone used in the game to establish what kind of surface the ground has (sand or grass for example), whether it should rain or snow, what kind of trees can grow there, and sometimes also what kind of animals are allowed to spawn there. You can use, for example, a cold beach or a frozen river, Taiga or plains, various kind of forest and so on.

Doing experiments about electric energy could be dangerous if your students are young children, for example at primary school. In Minecraft, you have Redstone, a virtual form of electricity, pistons, levers, and buttons. Your pupils can make virtual electronic circuits, that may be complicated too, but they will learn without difficulty about the laws of Physics.

Set up your Minecraft program using a foreign language: it will be a wonderful tool for a CLIL lesson.

Let your students use the chat in Minecraft but explain netiquette to them and give them some chat rules. You will help your students with ICT management.

Organize some game-like activities, for example, treasure or scavenger hunts, puzzles or quizzes, such as the ones created in Guinevere Minecraft.

When you work with the project-based learning method and you divide your class into small groups, you can ask every group to choose the right skin for their avatar. So when they work all together in the virtual world, they can recognize their avatar and they can understand, seeing the other's skin, what the role of others in co-working is.

Challenges

Don't use survival mode, your pupils are not supposed to collect resources, build structures, battle mobs, manage hunger, and explore the world in an effort to survive and thrive. They must think about the focus and aim of the project, for example, building a palace, or a monument, or archaeological site.

Levels of difficulty is an option in Minecraft that has a direct impact on the ease of gameplay. There are four difficulty levels in the game: peaceful, easy, normal and hard. Set up the peaceful difficulty level, so everyone can try to play without fear and everyone will learn quickly.

Plan and arrange group work activities in advance. The teacher will decide the roles among the pupils or sometimes the students themselves.

The teacher must explain the tasks assigned clearly and give a clear focus.

4.2 Open Sim

OpenSimulator is an open source multi-platform, multi-user 3D application server. It can be used to create a virtual environment (or world) which can be accessed through a variety of clients, on multiple protocols. It also has an optional facility (the Hypergrid) to allow users to visit other OpenSimulator installations across the web from their 'home' OpenSimulator installation. In this way, it is the basis of a nascent distributed Metaverse.

OpenSimulator allows virtual world developers to customize their worlds using the technologies they feel work best - we've designed the framework to be easily extensible. OpenSimulator is written in C++, running both on Windows over the .NET Framework and on Unix-like machines over the Mono framework. The source code is released under a BSD License, a commercially friendly license to embed OpenSimulator in products.

Out of the box, OpenSimulator can be used to simulate virtual environments similar to Second Life, given that it supports the core of SL's messaging protocol. As such, these virtual worlds can be accessed with the regular SL viewers. However, OpenSimulator does not aim to become a clone of the Second Life server platform. Rather, the project aims to enable innovative feature development for virtual environments and the Metaverse at large. OpenSimulator is becoming more stable over time but is still a highly complex software system that can suffer various bugs and quirks; handle with care!

Considerations

The GUINEVERE OpenSim server has been introduced and the teachers can access this by downloading a viewer through OpenSim. Currently there is a GUINEVERE Island where games are positioned and are playable already. Other attractions on the Island are a Movie Island, which is a quest/role-play activity based on dreadful holiday chalets. It deals with form filling, direction giving and complaining. There is also a machinima platform which is ready for role-play, however it needs teachers to develop some example machinima based on their learning outcomes. There are several example games on the sandbox island like scavenger hunt and board games like minimal pairs, giving opinions, dominoes, matching shapes and colours, comparatives and superlatives. There are also resources available there for teachers to use in their own games, if they want to design and build, which are collected from all around OpenSim to provide for the teachers.

Challenges

HyperGridding may not be supported. Teachers may find it difficult to access and make their students access some areas due to technical information.

4.3 Second Life

Considerations

Second Life is a Virtual Learning Environment that can be reached through a 3D viewer. Learners are immersed in such environments that cater for realistic feeling of presence and opportunity of interaction.

SL has the potential to generate a sense of presence among peer learners via their avatars in a 3-D environment through real-time interactions that may facilitate relationship-building, learners' engagement and motivation".

The main affordance of SL is that the teachers can use SL for various purposes and activities. Learners can choose the form, shape and appearance of their avatars, thus individualizing them. As anonymous avatars, learners could attend to the learning environment, which as a result decreases their stress and anxiety and raises learners' motivation. It has the potential to generate a sense of presence among peer learners via their avatars in a 3D environment through real-time interactions that may facilitate relationship-building, socialisation, and learners' engagement and motivation.

Second Life, enables its avatars to use body language to some extent and eases the use of voice chat and thus supports the communication and interaction among the avatars, from which language education and distance learning applications could also benefit.

SL is an environment where learning by role playing, experiential learning, cooperative learning and game-based learning can take place.

Learners have the freedom to design the learning environment itself. They can design and construct the environment in collaboration by determining scenarios, own what they create and construct the knowledge themselves. In this respect, learners could relate to their own content, objects and other fellow learners, which enable them to be more active and independent in the learning process.

Challenges

- Technical problems like robust hardware and a broadband Internet connection are requirements.
- Apart from technical issues like bandwidth problems a number of educators might not have the skills to create and design the learning environment.
- Cost is another challenge in front of the educators, and many of the features of the Learning Management Systems, like reporting the amount of time spent in the virtual world or storing the grades earned and homework to be reviewed later, do not exist.

5. Pedagogical Approach

Language teachers could incorporate a task-based framework for the implementation of games and game like activities in their classes.

5.1. Tasked-based Learning

The task-based learning (TBL) approach is grounded in learners' experiences with the target language and personalised and made relevant to them. Each lesson follows a specific structure based on five stages as described below. TBL is used in communicative language teaching where "a task is an activity where the target language is used by the learner for a communicative purpose (goal) in order to achieve an outcome" (Willis, 2002, p. 27). Essential in a task-based approach is that the teacher doesn't pre-determine what language will be studied, the lesson is centred on the completion of a main task and the language studied is determined by what happens as the students complete it. Learners are obliged to use all their language resources during the various stages of the task rather than practising pre-selected items such as grammar, adjectives, if-clauses etc.

Course activities should be designed to allow a great variety of learning styles or a combination of learning techniques to provide significant experiences for the individual learner (Schneider, 2018).

STAGE 1: PRE-TASK

The facilitator introduces the topic and gives learners clear instructions on what they will have to do during the task stage and indicates what kind of support learners will be given during the completion of the task

Then facilitator discusses the topic or theme with the learners and suggests group or pair-work during the task.

Learners pair up or make up groups and assign roles (i.e. a tour guide, photographer, film director, film editor, actor in a roleplay, brochure designer etc.).

Learners plan for the preparation and the materials needed for the task.
(CAMELOT, 2015)

STAGE 2: TASK

Learners engage with the task while the teacher monitors, encourages, comments and helps with the task if needed.

Learners complete a task in pairs or teams using the language resources they have available while the teacher monitors the tasks and offers support and encouragement.

STAGE 3 PLANNING

Learners plan and decide on the kind of presentation either as video documentary (machinima), an audio documentary, a PPT presentation or a written report to the whole class.

Learners prepare a rationale for their content, and process of production.

Learners prepare a short oral or written report to inform the class what happened during their task and can ask the facilitator for advice as regards to language or any other question.

STAGE 4: REPORT

Learners report back to the class orally or provide an audio, video or written report.

The facilitator chooses the order of when learners will present their reports and may give quick feedback on the content.

STAGE 5: LANGUAGE FOCUS ANALYSIS

During the reflection phase the facilitator highlights relevant parts from the recording or report for the learners to analyse, encouraging the learners to evaluate interesting features they noted or the language used during the report.

The TBL approach also implies Kolb's learning cycle and the four stages of experiencing, reflecting, generalising and applying (Smith (2010). The majority of activities as displayed in the paper in "Categorizing of Games" could easily be adapted to following a task-based method.

STAGE 6: PRACTICE

Finally, the facilitator selects language areas to practice, based on the needs of the learners and what emerged from the task and reporting phases.

The learners engage in practice activities to increase their confidence and take note of useful language (Schneider & Can, 2018; CAMELOT, 2015).

5.2 Problem-solving

Problem solving refers to the activity where a learner feels there is a discrepancy between the current state and their desired goal state. The learners also understand that there is no one single solution to the problem, and because of this they try to act upon the given situation in order to achieve that goal. This event is assessed by a number of mental and behavioural processes that might not necessarily take place in sequential order, but can run in parallel (Hesse et al, 2015).

The PISA 2012 individual problem-solving framework identified the following four cognitive processes in individual problem-solving: exploring and understanding; representing and formulating; planning and executing; and monitoring and reflecting (OECD, 2010, pp. 20-21). Similar processes were also identified in the PIAAC problem-solving in technology-rich environments framework, with the latter being more focused on processes related to the acquisition, use and production of information in computerised environments (OECD, 2009).

This notion has been conceptualized by the PISA group in their problem-solving framework. First, a problem – that is, a discrepancy between current state and goal state – is identified. Second, a learner makes a mental representation of the problem states and of the steps that allow for a transformation between problem states (typically called a “problem space”). Third, a learner formulates a plan for steps that might enable a move nearer to the goal state. Fourth, the plan is executed. And fifth, the progress towards a problem solution is monitored (OECD, 2010).

When the problem-based learning approach to learning and teaching is examined with that terminology it is obvious that PBL and games and game-like activities, like puzzle or adventure games, when played on computers, have parallels. In problem-based learning individual, pair or small groups of students work together to tackle real-life, cross-disciplinary and engaging problems. The teacher takes on the role of facilitator rather than subject expert. Games are designed in such a way that they employ resources or inventories to help learners solve problems and gain rewards or achieve levels; however, the information on how to tackle the problem itself is not provided, and work is carried out intensively on one problem at a time.

This in return provides activity-based learning, where the students take more responsibility for their own learning, become more autonomous, and learn in a real-world context. It has been stated that computer games have the facility to create real-life problem-solving experiences and that games provide a meaningful framework for offering problems to students. It is thus possible to see how a game is a big problem that is composed of smaller causally linked problems. De Freitas (2006) argued that the experts that she interviewed advocated the use of simulations and games for problem-based learning. Especially in strategy and mystery games players have to engage with the story, characters and problems presented in order to complete the game. Even when the context of the game is not directly relevant to the subject area, the transferable skills associated with problem-solving, such as lateral thinking, information gathering and analysis, and developing and testing solutions can be valuable nonetheless.

5.3 Role-Play

When preparing a roleplay (RP) with your learners make sure you have their parents' consent. The advantage of performing in 3D virtual environments is that learners cannot be identified from their virtual identity with regard to their physical life identity. However, be aware that consent to perform is necessary in the physical as well as in the virtual world.

Before setting up a role play (RP) consider the following:

1. Provide a storyboard including the plot, characters involved, props needed, venues where the RP will take place and what learner's responsibilities are.
2. Provide enough roles for individual characters according to the number of students in class. Have some characters interchangeable in case students don't turn up to the specific lesson.
3. Choose a venue in Second Life (SL), OpenSim (OS) or Minecraft (MC) suitable for the RP. Don't forget to check with the owner of the venue in SL or MC whether you are allowed to film there or take pictures there.
4. Check whether you can build or rez items in the venue selected in SL or OS.
5. In order to familiarise the learners with the situation and environment, brief them prior to the actual role-play by providing a brief summary of the scenario.
6. Set up the scenario such as rooms, select clothing needed for avatars' roles and provide the props needed.
7. Decide whether you want to use voice, text or both in the RP
8. Make sure to provide your learners with rules required for text-based RP for example.
9. Carry out the RP and film it if possible to be used for reflections after the performance.
10. De-briefing

Depending on the learners' language level you could have your advanced learners work in teams and produce their own storyboards. The team with the best storyboard agreed by all wins a prize and will have their play performed. They then could choose the characters they wish to play and decide on responsibilities. This procedure can be very engaging and motivating as the team has ownership on their play. Collaborating in a team fosters interaction and helps to improve communication skills in the target language. However, this method could also be fairly time-consuming.

Whatever method you use, the advantage of performing in a 3D immersive virtual learning environment is that learners feel safer in their performance when they have a script to refer to compared to freely spoken dialogues, particularly at a lower language level such as A2 or B1 level. If the RP is filmed learners have the opportunity to evaluate their performance and repeat the RP to improve their performance. A template for a lesson plan and storyboard can be found in the Appendix.

5.4 Experiential Learning

Kolb's (1984) *experiential learning cycle* identifies a model that stresses the vitality of active learning, including *planning, reflection and gaining theoretical underpinning*. In this cycle, learning takes place among the steps where a learner starts by actively taking part in a learning activity which provides a concrete *experience*; this is pursued by an individual reflection on the experience. This reflection helps the application of previous hypotheses to the experience, or deriving the rules from it; and in the end the learning is used to inform, modify and plan the next steps in the learning activity. Furthermore, the constructivist approach posits the idea that students learn better by being active in the learning process, by being in touch with their immediate environment, be it real or virtual, exploring and experiencing authentic contexts for themselves and discovering their own meanings from the experience (Can, 2009).

Digital games in immersive 3D virtual environments that are only one form of technology-enhanced learning, provide computerized interaction and feedback that is vital to the experiential learning cycle and to the whole learning process. Gee (2003) also postulates that games reflect the experiential learning cycle because students have to examine the virtual environment of the game, reflect and reckon on the situation and form hypotheses about what is happening, take action and then investigate the virtual world to see what effect their action had. Those games could facilitate a whole range of types of interaction from simple items that can be clicked and movement through in a linear sequence to highly complex interactive virtual worlds.

According to Salen and Zimmerman (2004) there are *four modes of interactivity* that occur in games (as levels of engagement). These are described as *cognitive interactivity, the psychological, emotional and intellectual participation* in the game. The learners control the players and interact with the games, they make choices and act upon events in the game, they have immediate feedback from the virtual agents or events and this feedback can be a very powerful tool for learning. Games on 3D immersive virtual worlds can implicitly provide feedback through virtual effects and actions. These can be in the form of visual, audio, action, virtual agents and this can give the sense of relative progression through the game, emotional fulfilment (the feeling of achievement from having solved a puzzle) and informative.

Such games may not be taken as standalone materials but could prove very effective if used with higher order thinking skills in mind within the scope of metacognitive processes required to be transferred the learning outside of the context of the game into the real world. These games may be part of a larger learning process and have to be surrounded with other activities to foster and support reflection and the experiential learning cycle as a whole. The

games are advantageous in that they can situate experience within a meaningful context. Teachers can use these games to support their students.

5.5 Project-based Learning

Thomas (2000, pp. 3-4) found five criteria for identifying characteristics of project-based learning (PBL):

1. *Centrality*: Project-based learning type projects are central to the curriculum.
2. *Driving question*: The projects should focus on questions or problems that “drive” students to encounter (and struggle with) the central concepts and principles of a discipline.
3. *Constructive investigations*: The central activities of the project must involve the construction of knowledge by students.
4. *Autonomy*: Projects are student-driven to some significant degree.
5. *Realism*: Projects are realistic or authentic, not school-like.

Thomas (2000) posits that PBL is an approach that makes extensive use of student-directed scientific inquiry supported by technology and collaboration. In PBS environments, as in PBL in general, students are engaged as active participants in the learning process, setting their own learning goals and forging meaningful relations through their experiences, as they investigate real-world issues. The learners have a driving question which initiates a long-term, authentic investigation or design project, then the learning activity produces a tangible and meaningful product or outcome by using any kind of cognitive tool, such as the Internet, to support the process of inquiry which requires any kind of collaboration with the learner’s community, that may include the peers, teachers, or members of society.

Project-based learning requires students to work in groups to solve challenging problems which are authentic, curriculum-based, and/or interdisciplinary. Learners should decide how to approach the problem and what activities to conduct. They accumulate information from a variety of sources and synthesize, analyze, and create knowledge from this. The learning is inherently valuable because it is linked to something in real life and involves skills such as collaboration and reflection. After the learning has occurred learners can reflect and communicate their newly acquired knowledge. The teachers act as guides and advisor towards the student work throughout this process, but not directors and manager.

In this context, PBL provides learning through experience. We may liken the immediate problems to games in 3D immersive virtual environments. The learners need to solve immediate problems to be able to win, get rewards or pass the levels. They have all necessary resources, or have to solve other minor problems before acquiring some artefacts to be able to solve bigger problems and mysteries. Games can be used as individual activities that help learners acquire some concepts or information; learners can ask

questions while solving the immediate problems within the games; they can investigate and try their hypotheses during the gameplay and get feedback; they can play autonomously or in collaboration to achieve in the games and they represent a world and work that is more engaging, not like school. All of these games have the potential to engage students through hands-on, serious and authentic experience. During the game-play the games also allow for alternative approaches and alternative solutions which in return cater for students' individual differences, variations in learning styles, intelligences, abilities, and disabilities.

6. Using CLIL in 3D Immersive Virtual Environments

6.1 Presenting subject content for CLIL

Game-based learning was recognized by the European Commission as an important dimension of CALL (Computer-Assisted Language Learning), pointing out its potential with reference to CLIL and to language learning in general (European Commission, 2014). In particular, the following options are mentioned as examples of CALL:

- Authentic foreign language material, such as video clips, flash-animations, web-quests, pod-casts, web-casts, news broadcasts etc.;
- Online environments where learners can communicate with foreign language speakers, through email, text-based computer-mediated communication (synchronous and asynchronous), social media, or voice/video conferencing;
- Language-learning tools (online apps or software), for phonetics, pronunciation, vocabulary, grammar and clause analysis, which may include a text-to-speech function or speech recognition, and often include interactive and guided exercises;
- Online proprietary virtual learning environments, which offer teacher-student and peer-to- peer communication;
- Game-based learning.

Even in the latest “proposal for a Council Recommendation on a comprehensive approach to language teaching and learning” (May, 2018), technologies and game-based learning are mentioned and recommended to improve the quality of language learning/teaching and to make CLIL (Content and Language Integrated Learning) more effective.

The acronym CLIL, created by David Marsh (Coyle et. al. 2010) refers to the learning of subject content (STEM or humanistic subjects) in a foreign language. It is becoming more and more popular all over Europe and is promoted by the European Commission as a driver for pluri-lingualism and for innovation in the learning environments. In Italy it has been mandatory in upper secondary schools since 2010. Planning activity in immersive worlds such as opinions games or adding sounds and scripts to posters can help make the learning experience more effective.

The picture below shows an example of CLIL activities in geography: using their avatars, the learners have to move through the “interactive world” designed on a big poster, reach the different capital cities, talk in a foreign language about some geographical and political features etc.

Figure 5.1 poster with different capital cities (Photo: Letizia Cinganotto).



As far as STEM is concerned, very interesting activities can be realized in immersive worlds, such as simulations, experiments with physics or chemistry etc.

6.2 To Help Learners to Cope with New or Stressful Situations

Immersive worlds and games can help students overcome stressful situations and difficulties in language learning: using an avatar, it seems like another person is speaking or writing and potentially making mistakes: this prevents them from “losing face”. In this way, Krashen’s “affective filter” can be low, as learners will not feel the pressure of their performance. Moreover, using the chat instead of the voice, can help them practice their reading and writing skills and improve the language. Later on, when they feel ready, they can start speaking using the mike inworld.

7. Language Focus in 3D Immersive Environments

3D Games are becoming a focal point for the development of new language learning adventures, with an improvement in the attainment of learning objectives when compared to students using standard instructional methods. Games create deeper learning experiences that engage and motivate learners much more than with traditional teaching methodologies, especially when a foreign language is involved: in this case communication takes place in a context which can take the shape of life-like situations. The following are just some possible games that can foster the development of language skills (both receptive and productive):

Moreover, vocabulary can be expanded through this kind of activity: 3D games could be based on pictures, cues etc. referring to certain target lexical areas. In addition, Minecraft can help expand students' vocabulary: if you teach English as an L2, you choose English from the menu and you can find a specific vocabulary item about Minecraft objects and actions.

A very effective way to foster language skills is designing and implementing interactive scenarios simulated in virtual environments for the presentation of activities and role-plays: the use of role-play in simulated environments can be very effective in learning English or another foreign language, as the learners feel immersed in the simulated environment and are stimulated to represent in an almost natural way the character they have decided to play (Bailenson, Yee, Merget & Shroeder, 2006; Childress & Brawsell, 2006). The linguistic performance in the foreign language is made more effective by the contextualization within the simulated scenario and by the significance of the linguistic tasks assigned (Skehan, 1996; Willis & Willis, 2007), which make the use of the language meaningful for those specific communicative purposes.

Therefore learners can discover the value of interactive scenarios, global simulations and role-play games applied in virtual environments for a foreign language or a CLIL class: students feel immersed in a story they construct with other peers through the representation of a fictitious character they choose to be. Events (love, quarrels, incidents, crime, etc.) are invented to represent real life situations where language is naturally produced through recycling prior knowledge to develop fluency, self-correction, accuracy, authentic language in use and creativity. Virtual Worlds provide an ideal platform in which to construct the environment and personae students imagine with the possible constraints the teacher sets to limit the scope and timeframe of such extensive projects.

Learners will make progress in the language without even realizing it: their progress will be perceived from a holistic perspective in the interaction with an interlocutor: listening, understanding, speaking, pronunciation, fluency. The picture (Figure 3) shows an example of a role playing game in a medieval setting: the historical dimension make it a CLIL experience as well.

Figure 5.3 role-playing game in a medieval setting (photo: Letizia Cinganotto).



8. Security Aspects

Multiplayer games are open to anyone and they also invite players who use the game in a way which 'gives grief' to other players. Hence the expression 'griever' has been created to describe the kind of players who derive pleasure from annoying and disturbing other players, who deliberately harass with the intention of causing grief. Such griefers can cause a lot of havoc by shocking or upsetting learners, teachers and residents by being abusive in text or audio, placing objects all over the place, destroying buildings in Minecraft, cybermobbing, publicly naming and attacking people via Twitter or blogs with the intent of destroying reputation.

8.1. How to Deal with Grievors in Second Life

Grievors do anything to upset people. If they engage others in conversations, they have already won. Therefore, the number one rule on how to deal with grievors is to block and to ignore them.

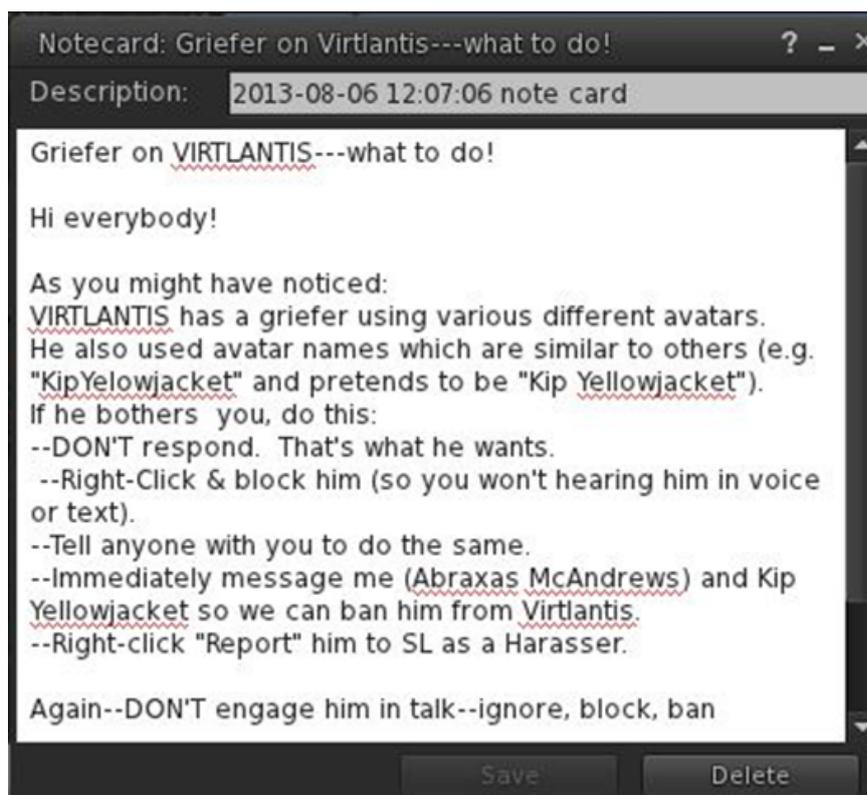
In Second Life you can simply block a person by clicking on the button provided in the profile. This way they cannot voice nor text chat and appear as an outlined person in sight. If you are present with a group of learners, you need to instruct everyone on how to block such a person. If you deal with a larger class, this might be a lot of work and even though learning how to block a person is a vital lesson in virtual worlds it might be easier for the educators to look for a sim which allows only group members to join the space.

Sant (2009) describes a griever as "any resident who harasses or maliciously disrupts the activities of other residents". Even though such a person is in violation of the Second Life Terms of Reference, it takes a while that the person is banned by Linden Lab. There are

some dark, dramatic islands in Second Life like Toxian City or Midian City where grieving is expected as part of the scene (Mansfield, 2008). No doubt you will find griefers who find pleasure in distressing others in the physical world, too, but they are easier to get hold of and deal with.

There are a great variety of methods griefers use to upset individuals, groups or communities. Such can be playful to start with like bumping or hitting, but can this can become rather irritating. Other ways of grieving are: spamming, firing bombs, shooting, cluttering the space with explosives, boxes or huge displays, trapping users, firing people into the air, slowing down people's movements or creating unbearable or spooky noises. Griefers can cause users to leave Second Life, especially newbies. The best way of dealing with them is, not to respond, ban them if you have the rights to do so, or block them so you won't hear their voice or see their text. It is recommended to report the person to SL as a harasser.

Figure 5.4 Notecard handed out to users of VIRT LANTIS Island in SL.



8.2. How to Protect Space in Second Life

With some extended resident rights, a griever can be banned from one's own plot of land and state owners can additionally ban individuals from the land or sim. It has already become common practise in sims like Virtlantis, EduNation and other open communities to close public access to the sim and only invite group members to enter the space. This is a simple

matter of administration to allow members free access. Up to 42 group memberships are allowed in Second Life of which usually only one is the active one.

8.3 How to Set OpenSim Servers for Private and Public Use: Hypergrid Enabled On/Off

As mentioned above in the section 4.2. "OpenSim is a simulated virtual environment similar to Second Life", OpenSim provides similar functionality like Second Life and allows users to create and generate content with the added advantage of being able to control access to the server. The OpenSim server can be on a so-called 'Sim on a stick' which is an OpenSim Server in a USB stick format or it can be installed on a proper web server to cater for more users and wider access.

There are many OpenSim installations which are locked and users need to get whitelisted by registering their username and password and by selecting a male or female avatar. These avatars can be pre-equipped with clothes and other items.

To avoid the process of 'starting all over again' on every new server with an empty inventory, the hypergrid protocol was developed in 2009 to allow users to teleport between multiple OpenSim installations. There is a hyperlinked map which indexes public grids. To lock or unlock a sim is possible using the codes provided on the following wiki page of Opensimulator.org (http://opensimulator.org/wiki/Hypergrid_Security). The hypergrid protocol promoted the growth of OpenSim community and for the first time items could be carried from one server space to another in a kind of 'suitcase'. This brought along new opportunities as well as new threats namely the threat of piracy and of object theft.

Malicious or greedy users created copybots to bypass permissions on objects and sometimes were so malicious as to wipe out the inventory of users after copying all of the assets. This can happen simply by visiting a malicious OpenSim installation. Piracy is another means of obtaining an item for sale and amending the properties to be used elsewhere. Therefore, the suitcase was created to ensure that only items in the suitcase can be accessed by the viewer/ server of the visiting person.

8.3 How to Set Security for Minecraft

The GUINEVERE project team had been working for several months on the project owned Minecraft Server, preparing the site for the upcoming pilots with children, when one day they logged in to discover a big surprise. Overnight some kids joined the open GUINEVERE server and deliberately destroyed many buildings. They used TNT to blow up villages, buildings, the pyramid and others which took countless hours to build.

Resetting the server to the previous day's configuration repaired some damage but most of it certainly was lost and the big shock to the educators who spent hours building can

only be imagined. Therefore, in Minecraft security measures have to be established. Set the play mode to adventure mode (can only be done by the system administrator). Lock the server and whitelist teachers and learners. Lock certain regions and allow building rights in regions to designated players only.

8.3 General Data Protection Regulation (GDPR)

The General Data Protection Regulation (GDPR) came into effect on 25 of May 2018. It is a new law which is concerned with privacy and data protection of individuals in the EU (European Union) and EEA (European Economic Area). For OpenSim this meant a lot of work for the programmer to ensure that users can opt out of some of the registration process necessary to create a learning management system, a system which is designed to remember learner progress data. Moreover, learning analytics and group dynamic statistics, which are collected by the server, would have caused a problem for the above mentioned GDPR law (see <https://worldguard.enginehub.org/en/latest/regions/commands> and <https://worldguard.enginehub.org/en/latest/regions/quick-start/>).

9. Intercultural Learning

O'Dowd (2003) states that the process of "intercultural learning" and its implied goal "intercultural competence" have recently become fashionable in the world of foreign language methodology; however, their exact meanings continue to be the source of much debate and disagreement. On the other hand, despite this lack of clarity in terms of definitions and evaluation, there seems to be general agreement among the supporters of intercultural learning as to its key underlying goals and their consequences for language instruction. One of those goals is to gain this ability to step back from one's own cultural background and critically identify the original cultural reasoning behind beliefs, actions and behaviour, which is described as "critical cultural awareness" (Byram, 1997). Thus, the learners are not expected to reject their own culture anymore. Through the critical cultural awareness the learners should find a place or location between the home and target cultures where all behaviour (both that of others and that of oneself) is seen as being grounded in a particular cultural context.

Taking into account these principles or key characteristics of intercultural learning, Byram's (1997) model of intercultural communicative competence can be seen as a representative model of what elements the process of intercultural learning should aim to develop in learners. Byram's model (1997) contains the following elements:

Attitudes of curiosity and openness, readiness to suspend disbelief about other cultures and belief about one's own (p. 50).

Knowledge of social groups and their products and practices in one's own and in one's interlocutor's country, and of the general process of societal and individual interaction (p. 58).

Skills of interpreting and relating: ability to interpret a document or event from another culture, to explain it and relate it to documents from one's own (p. 61).

Skills of discovery and interaction: ability to acquire new knowledge of a culture and cultural practices and the ability to operate knowledge, attitudes and skills under the constraints of real time communication and interaction (p. 61).

Critical cultural awareness/political education: an ability to evaluate critically and on the basis of explicit criteria perspectives, practices and products in one's own and other cultures and countries (p. 63).

Games in 3D immersive virtual environments may also serve for the learners as the no man's land, the place/location which is not reflecting their own culture or identity. They can help learners develop attitude of curiosity to explore the virtual environment. This attitude could help with openness and readiness to learn other cultures. During the gameplay, many learners from different cultures can come together to build together, to collaborate to achieve tasks and this communication can help overcome or develop prejudice towards certain cultures. The virtual environments potentially enable people from international audience to come together and cooperate and communicate on tasks. This trait of the games in virtual environments may lead to the acquisition of knowledge about the specific social groups and practices.

The learners can work on specific tasks to interpret data and cultural information to win a game, these can help them gain skills of relating to other cultures. This way, the learners can have a broader view of international and common practices and may be more willing to explore new cultures and more willing to interact with new cultures and people. Games are closed and safe environments that give learners the chance to try out new skills isolated from the real world. This sense of safety may lead to better communication and effective application of intercultural skills. Anonymity that the game environments provide may enable learners to acquire better and deeper understanding of their own culture as well as other cultures, which in return may lead to the acquisition of skills necessary to better critical cultural awareness. Games inherently possess the opportunities for learners to communicate in culturally sterile virtual environments designed to teach specific cultures.

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"Knowledge of social groups and their products and practices in one's own and in one's interlocutor's country, and of the general process of societal and individual interaction" (p. 58).

"Skills of interpreting and relating: ability to interpret a document or event from another culture, to explain it and relate it to documents from one's own" (p. 61).

"Skills of discovery and interaction: ability to acquire new knowledge of a culture and cultural practices and the ability to operate knowledge, attitudes and skills under the constraints of real time communication and interaction" (p. 61).

"Critical cultural awareness/political education: an ability to evaluate critically and on the basis of explicit criteria perspectives, practices and products in one's own and other cultures and countries" (p. 63).

Games in 3D immersive virtual environments may also serve for the learners as the no man's land, the place/location which is not reflecting their own culture or identity. They can help learners develop attitude of curiosity to explore the virtual environment. This attitude could help with openness and readiness to learn other cultures. During the gameplay, many learners from different cultures can come together to build together, to collaborate to achieve tasks and this communication can help overcome or develop prejudice towards certain cultures. The virtual environments potentially enable people from international audience to come together and cooperate and communicate on tasks. This trait of the games in virtual environments may lead to the acquisition of knowledge about the specific social groups and practices.

The learners can work on specific tasks to interpret data and cultural information to win a game, these can help them gain skills of relating to other cultures. This way, the learners can have a broader view of international and common practices and may be more willing to explore new cultures and more willing to interact with new cultures and people. Games are closed and safe environments that give learners the chance to try out new skills isolated from the real world. This sense of safety may lead to better communication and effective application of intercultural skills. Anonymity that the game environments provide may enable learners to acquire better and deeper understanding of their own culture as well as other cultures, which in return may lead to the acquisition of skills necessary to better critical cultural awareness. Games inherently possess the opportunities for learners to communicate in culturally sterile virtual environments designed to teach specific cultures.

10. Further Considerations

As is obvious from the guidelines for teachers on how to use the games in 3D VLEs for language instruction and learning, the games could be useful in many ways for many purposes. These games have potential for many different outcomes like learning new vocabulary, introducing new content and grammar information as well as helping learners to practice the language by producing written or spoken language. Furthermore, research suggests that when students perceived attention, perceived confidence, and perceived relevance are analysed they contribute positively to students' attitude towards the use of online educational games designed to develop their competencies (Galbis-Córdova. et al, 2017).

On the other hand, Persico et. al. (2017) have summarized that besides the technological aspects relevant to create games for learners the teachers and researchers should take educational, psychological, ethical, sociocultural and artistic perspectives into account. In addition, sexism and racism should be taken considered as the avatars or the game characters with their cross-generational appeal and long lasting imprint, their sexuality and their representation in games, their identity and the conflict with them could be one issue in those games when young learners are considered. Then the emergence of new technologies such as virtual and augmented reality games could be further discussed. Also, the competitiveness in the gaming as opposed to cooperative gameplay could be an issue to be thought as in today's world playing with friends by multiplayer game structures is a general practice. Some games also may require premium or freemium accounts as well as microtransactions and dynamic advertising, this could include the parent involvement and financial considerations. The last but now the least, the recognition of games' affordances for education and their potential benefits, such as improving cognitive skills and healthy behaviour could well be further discussed (p. 9).

11. Summary

The Project GUINEVERE is trying to establish a solid ground for the teachers who want to develop and use games in 3D VLEs for language teaching and learning. Thus, the mainstream language learning contexts could be diversified and the teachers could feel more confident while implementing and using games in 3D VLEs. For this, the guidelines for the teachers have been put together to clarify the path through which games in 3D VLEs could be used in classroom practice. In this respect, the guidelines outline how to choose 3D VLEs, then how to use games for specific language learning purposes, and discuss some pedagogical approaches like task based approach, content and language integrated learning, problem solving, role play, experiential learning and project based learning along with language focus in 3D VLEs and the drawbacks for teachers. Then how games could be used as a supplementary tasks and activities supporting the course work in the classroom and how games in 3D VLEs could be exploited by adding exercises has been discussed. Lastly, some guidelines for intercultural learning and further considerations are also pinpointed.

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Appendix 1 Lesson Plan/Task Description

Target Language	Turkish/German/ Flemish/Dutch/French/Italian/ English/other:
Theme/Topic	At a restaurant, at the bank, making friends, planning a holiday...
Task Description/ Aims /Objectives	What is expected from the learners? How is the task related to the learning goals of the syllabus/unit/lesson? How do the learners prepare for the task; how do they work on the task? Specifying learning goals for all interlocutors. Goals might be different for participating groups, e.g. related to language level. However, it is fundamental that relevant goals are set for all task participants.
Language Level & Descriptors	Language Levels to be determined according to CEFR Levels A1, A2, B1, B2, A2-B1 etc. by Specific Descriptors "can do statements".
Outcome/Product	What should learners produce? A complaint letter to the management, produce a language piece, specifications of the final product.
Classroom Procedure Time needed	How does the role-play task support the classroom or self-study activities related to the task? Does the teacher record the session? What are the teacher roles? What are the students' activities? What additional materials, and support are needed? Provide a reasonable estimation of preparation, performance and evaluation time. Are preparation, performance and evaluation carried out during class hours or in self-study?
Assessment Criteria	Include the CEF descriptors for the assessment of the task result/performance. A rubric prepared according to expected outcome.
Reflection	How are learners stimulated to think about their learning, add results to their portfolio, self-evaluate if they met the initial aims and objectives. Describe procedures like a discussion with the class and additional materials needed such as a digital document for students to say something about the performance and tasks.
Adaptations	Describe which elements of this planning were changed on the basis of piloting and practice experiences.

Appendix 2 Storyboard

Procedures	
Who is available to act?	List of names:
Who is responsible for choice of venue / lights / ambience or sound effects/background music/stills etc.	Roles: Who is doing what? List of names:
Characters/costumes needed for example old man, child, dog, crocodile, girl, clown etc.	List of characters and actor avatar names:
What props are needed For example, broom, chairs, a glass of champagne, chairs, a bunch of flowers etc.	A list of props with the name of the person responsible for them:

Scenes <i>Scene 1</i> <i>Scene 2</i> <i>Scene 3</i>	Choice of the place to film and a person responsible for finding them and getting permission for filming:	
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