
COLLABORATION IN THE VIRTUAL WORLD

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Abstract

Virtual Reality can be used effectively to enhance collaborative learning. This article will give an example of how a virtual world within a MOOC (Massive Open Online Course) uses collaboration to construct knowledge, share and learn together in a semester program on intercultural education for graduate and undergraduate students. Much of the collaborative work takes place within an immersive virtual world. The program is designed to gradually increase the collaboration between members of small multicultural groups. The experience shows the value of virtual worlds to the increase of online collaboration between students, and suggests these environments are effective for building collaborative skills. Virtual worlds are particularly effective when face to face meetings are not possible.

Key Terms: Virtual World; Collaboration.

Introduction

When we think about collaborative learning, our immediate association is of people working in small groups face to face, and we would probably also think about the different skills and techniques required for successful collaboration. However, much of collaboration today is done online, noticeably in times of pandemics, and even before. The Internet has made international collaboration much easier in the business world, where people, sometimes in

different parts of the globe work on projects and need to collaborate in order to build products together. Various technologies and platforms can be used for online collaborative learning as well, from forums to Skype/Zoom type meetings, to sharing technologies, to virtual reality, where participants feel they are working in the same place. What are the additional benefits for using more advanced technology, in our case virtual reality, for collaborative learning? This article will discuss the advantages of virtual

worlds for improving collaboration between people. It will present a new form of MOOC (Massive Online Open Courses) which is termed a MOOVE: Massive Open Virtual Environments.

What is a Virtual World?

When we talk about Virtual Reality (VR) we refer to three dimensional experiences using headsets and other wearables, such as hand devices, which, together, form an experience where people feel they are in a real environment. This could be something familiar, for example, in a forest; or it could be in a different time period, such as the time of the dinosaurs; it could be inside the human body, or it could be on the moon, or in an imaginary future world. The possibilities are endless. By using the wearables players' experience is enhanced and enables them to fully take part in the virtual environment.

In a virtual environment players are represented by an image of their character, called an avatar. The avatar could appear very similar to the players themselves, though players can choose how they wish to be portrayed in the form of their avatar. When players move their hands, their avatar does the same.

When they speak, their avatar's mouth moves as if they are really speaking. This type of environment makes players believe that they are in a different place and time. This virtual reality can also exist without headsets and other wearables, just by using a computer screen, and in some cases, just by using a smartphone. In these cases we refer to these environments as Virtual Worlds.

Daily millions of people spend hours in Virtual Worlds (VW); we only have to mention games such as Worlds of Witchcraft, Minecraft, or Fortnite, to see how prolific these games are. Some of these games have collaborative elements, such as missions to carry out with a team. Although some of these missions may not be educational, for example, they may involve killing as many aliens as possible, nevertheless they are highly motivating and provide endless hours of entertainment. They involve challenges and quests requiring progressively higher levels of proficiency and collaboration.

Studies have been carried out to learn how the experiences in the virtual world affect participants in the real world. They have shown that if the participant is about to fall from an imaginary high mountain, or

a high rise building, the participant will have ‘real’ symptoms, such as sweating, perspiration, increased heartbeat, that they would have in the real world (Markowitz & Bailenson 2019).

The virtual environment can also be a place in which to manipulate people’s feelings. For example, an experiment was carried out where the avatar was an elderly person. The participants in the study entered the virtual environment and saw that their avatar was an elderly person with similar symptoms to a real elderly person: when they tried to move, their avatar moved slowly and their hands shook slightly. The results showed that after this experience, participants became much more empathetic to elderly people (Yee & Bailenson 2007). Similar results were found when the participant’s avatar was of a different color than the participant. This made the participants more sympathetic to people of another color and reduced their racial biases (Groom, Bailenson & Nass 2009; Peck, Seinfeld et al. 2013). The effect of feeling that the avatar is you is termed the Proteus effect. These examples show how connected we feel towards our avatars, and although we know subconsciously

that this is only a virtual world, we feel it is very real. In order to feel that the experience is real, and is in fact an immersive experience, we need to feel presence (as if we are actually present), as well as being in a virtual world designed with few technological hitches (Markowitz & Bailenson 2019).

VWs are used to train surgeons, fire fighters, police officers, pilots, and people in other professions where real life situations would be dangerous, difficult or costly to stage (Jurík, Herman, et al, 2016). VR can be used to improve our cognitive skills in all areas of life, such as negotiation, public speaking, dance, music, and even carpentry (Markowitz & Bailenson 2019).

Generally speaking, VWs can be divided into 4 types: gaming worlds, social worlds, building worlds, and collaborative worlds, and, fifth, a combination of these (Hoter, 2017). What makes virtual worlds collaborative? These are worlds built to allow collaboration between participants. They contain games, simulations, quests and assignments that require collaboration, or enable participants to develop their own projects together.

Virtual Worlds and Collaborative Learning

In today's schools and in teacher education we often have our students experience collaborative learning, one of the 21st century skills of vital importance in almost any job they will need to perform in the future. It allows for collaboration with peers, reflection, and a deep understanding of the subject matter, as well as the development of a sense of belonging on an equal basis (Gánem-Gutiérrez 2014; Schouten & Feldberg 2010). Online collaborative learning is not easy and many students complain about having to work in groups, which lengthens the learning process. In cases when some group members fail to pull their weight or are absent from meetings, collaboration becomes much harder and often frustrating. However, as educators, this should not stop us from working with our students in collaborative groups.

The same rules for teachers using face to face collaboration are appropriate for online collaborative work, and for collaboration in a VW:

- Plan the collaborative activity to the finest detail in advance,

and keep in mind the end product.

- Start with assignments requiring basic levels of collaboration and work up.
- Give very clear instructions for each stage of collaborative work.
- Ensure there is an information gap that requires students to collaborate, and assign tasks for each member of the group when needed, so that every student can participate.

When we combine Virtual Worlds with collaborative learning, we create a space where students from different locations can meet in real time. They can talk through their avatars and work together, feeling as if they are in the same room, the same space together. An added advantage to virtual worlds is the opportunity to have cross-cultural collaboration (González, Santos, et al. 2013). Unlike connecting through Skype, when we see people in their own environment, in virtual worlds we are all together in the same setting and therefore can collaborate in the same space. This type of environment is termed an 'immersive environment' and has been shown to be more effective in

developing the skills for collaboration than text driven instruction (and, in some cases, teacher driven instruction) (Chin & Lim 2015; Schouten & Feldberg 2010). Another advantage is that VWs provide authentic contexts, in which students jointly identify, represent, analyze, and solve problems. VWs allow students to have Collaborative Problem Solving (CPS) experiences that would otherwise not be possible in their everyday lives (Cho & Lim 2015; Duncan, Miller & Jiang 2010).

These online spaces have been used successfully for collaboration between students, whether they come from the same or different countries. It has been shown to be efficient for small team meetings, training, community building, and conferences, thus connecting people from different places (Bosch-Sijtsema & Sivunen, 2013). Research claims that social presence is heightened in these environments, which leads to higher levels of student engagement, which, in turn, enhances collaboration (Lee, 2014).

As mentioned above, collaborative learning is not always a successful experience for all learners. VW is quite complex, and

successful collaboration depends on a number of factors, including each individual's proficiency and comfort level with the technology (Boughzala, de Vreede & Limayem 2012). VW's can enhance collaborative learning in almost every field: education, sciences, language, humanities, social sciences and intercultural education; its potential is endless. Teachers do not need to build these worlds themselves; they can enter existing environments, for example Second Life (SL), an adult environment where many universities have made activities and simulations available for anyone to experience.

An example of how a VW can be used for supporting cross-cultural learning teams is *Amazing Race*, developed by Shonfeld and Resta (2019). Cross-national learning teams were asked to design a collaborative learning task in the virtual world to accomplish a specific educational objective. These tasks ranged from learning about another culture and its language, traditions, or history, to learning about a particular place. Then the race begins where each team needed to carry out the collaborative assignments set by the other teams (ibid.).

Much research has been carried out on the improvement of language skills using VR, in particular in Second Life (SL). Liou (2012) explored EFL college students' attitudes toward a computer-assisted language learning course conducted in SL. The research results emphasised the advantages of virtual worlds for language competence and collaboration. It was found that students perceived SL as an optimal virtual environment for language learning due to features such as immersive collaboration and real-world task simulations in 3D mode. The 3D environment also facilitated real-world task delivery, which is difficult to manage in a conventional class, and promoted authentic interaction. Researchers stress the importance of using pedagogically sound tasks and not to rely on the novelty value of technology alone (Berns, Gonzalez-Pardo & Camacho 2013; Chen 2016).

Another study discussed the quests and mysteries in virtual worlds that aim to improve English language skills, for example through the Chatterdale Mystery virtual language village in OpenSim (Hadjistassou & Molka-Danielsen, n.d.). In his numerous studies of text chats for interactive sessions using

Active Worlds and SL, Peterson (2016) shows that EFL students saw their SL learning experience as beneficial, more enjoyable, and less stressful than a traditional class. Peterson found that EFL students were engaged in collaborative interaction and also used different social management strategies for their interactions. He also found that the avatar presence improved student engagement and sense of autonomy (ibid.).

MOOC: Massive Online Open Courses

The idea of massive online open courses can be traced back to the idea of allowing access to the best lecturers at MIT, together with the concept of connectivism, coined by Siemens in 2008. Connectivism refers to a large number of students coming together to share and collaborate among themselves, create new content, and start new discussions and debates, using various platforms. The aim is to allow students to create their own personal learning environments (PLEs) independently, and at the same time support interconnected knowledge (Downes 2019). Another example of massive online open courses is the 'Khan academy,' which offers short video

explanations to help students learn material, as well as online courses that cater to large groups of students, and podcasts that enable anyone to access recorded lectures.

MOOC courses, as we know them today, began in the year 2011 with three free online courses offered by Stanford University. This was an attempt to reach as wide a population as possible and indeed, 160,000 students from all over the world registered. The concept of MOOCs became standardized in 2012, when large companies and platforms, notably Udacity, Coursea, and EdX, provided hundreds of online courses for free or a certificate for a fee. Today it is possible to obtain qualifications through these courses as well as a degree. The prevailing model of a MOOC course today is one where telegenic lecturers prepare the course and present lessons in a lucid and interesting manner. Students access the desired course, and execute the required assignment, such as watching a short video, reading, entering the forum, filling out a reflection form, or answering questions. In many such courses the student does not interact with other learners and is relatively passive. The history and

analysis of MOOCs also shows that there is a high dropout rate from these courses, and the number of those who complete them is very low; (Gašević, Kovanovic, Joksimovic & Siemens 2020; Terras & Ramsay 2015; Zheng, Rosson, Shih, & Carroll 2015). The interaction is often less than desirable, and the result is that students can feel passive as well as isolated (Conole 2016). There are many different types of MOOC courses. Many offer few opportunities for collaboration and are mainly for self-learning. However, in instructor-led courses there are a number of models for more collaborative forms of learning, in which students are divided into small groups and carry out joint assignments, or peer review the work of others (Hoter & Nagar 2019).

MOOVES and Collaborative Learning

In a theoretical article Karutz and Bailenson (2015) offered a solution to the drawbacks of using massive open online courses (MOOCs), namely: assessment, accountability, and personalization. They suggested capitalizing on the existing research on immersive virtual environments and forming what they termed as a massive

open online virtual environment (MOOVE). The teacher training course discussed in this paper, “Introduction to Multiculturalism and Cultural Diversity,” is the first complete collaborative MOOC course to take place in a virtual world.

In what way is the course collaborative? The course consists of eight units and is designed so that from the outset students collaborate on tasks in small multicultural groups of six; throughout the semester they only meet their group members through the virtual world and not face to face. Students get to know one another gradually, through activities designed for building rapport, empathy and understanding, as well as trust. For example, one of the first group assignments in the virtual world in

the first unit relates to personal identity. The six students in the group meet in the virtual world at a time they decide ahead of time. Their assignment is to visit six guesthouses; each house specializes in something different: music, holidays, clothing, etc. Each student chooses an item that is part of their identity and then all group members discuss their, and conclude what they have in common and where they differ (see Figure 1).

This is the first level of collaboration. One of the assignments in the second unit is to answer personal questions relating to the advantages of belonging to their families (see Figure 2). Each student stands at the beginning of the track in a virtual sports stadium, as an avatar in the virtual world,



Figure 1: Unit 1-Identity



Figure 2: Unit 2–The Sports Stadium

together with the other group members. Questions appear on the board in the sports stadium within the virtual world, as shown in Figure 2. For example, “If your parents speak more than 2 languages move one space forward”. The students move forward according to their answer to these questions. They can see where their colleagues are in relation to themselves. At the end of the activity the students discuss how they felt, how advantaged some people are in society, and the inequality that exists from birth.

Getting to know group members: The collaboration moves from “getting to know you” activities to synergetic collaboration. As students go through the units, they get to know one another better. In the initial

units, as explained above, they learn a little about one another, but it is only in unit 4, when they tell each other their own personal stories around a virtual campfire. By this stage, through working collaboratively, they have developed trust in their group mates; it is not threatening to share more about themselves. This experience was very moving for most of the students. Reflecting and discussing the material studied in the course about cultural diversity together in small groups was very enriching because everyone came from a different culture and their input varied.

Collaborative Debating: In unit 3 one of the assignments is to collaborate with the group to form



Figure 3: Unit 3-The Debate

arguments for and against in a debate. In preparation for the debate they need to divide the selections as in a Jigsaw assignment, and, finally, meet to summarize their findings (see Figure 3).

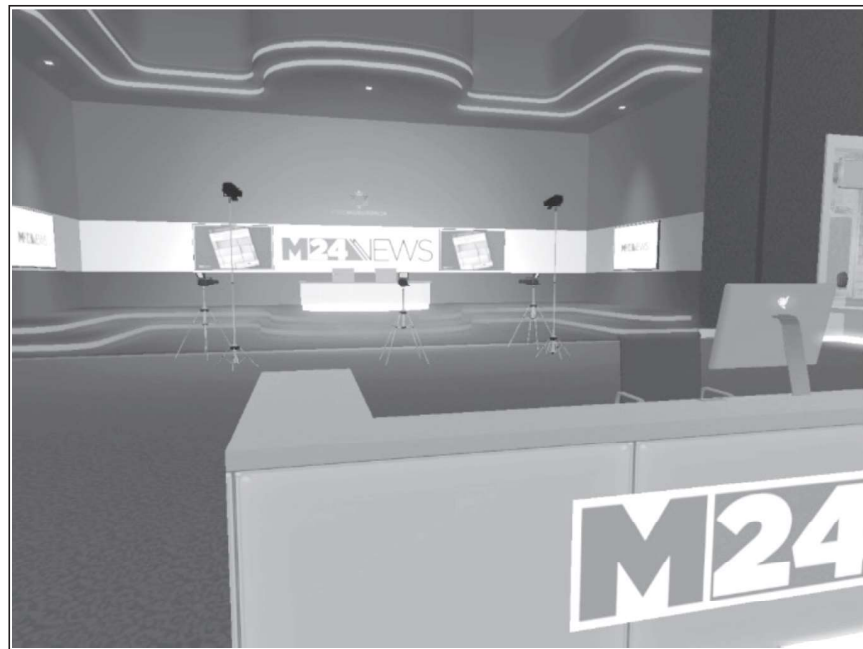


Figure 4: Unit 7-The News Room

Synergetic Collaboration:

The final group assignment, in unit seven, takes place in a television studio. This is the level of synergetic collaboration (Salomon 2008). The students are asked to read a report about intercultural education in Europe and, based on the material, prepare a news item. They are given roles to choose from: interviewer, education expert, camera person, etc. As one student said “We were so in synch as a group by this stage, we knew who was good at what, easily divided the roles; we had a really fun time making the news item” (see Figure 4).

Discussion

From questionnaires given to the 1000 students who have participated in the MOOVE to date, and from group interviews, we conclude that approximately two thirds enjoyed the course a great deal and would highly recommend it to others. They felt that the collaborative experience in the VW helped increase their understanding of the topic of multiculturalism, and enhanced their connections with different people whom they would never normally meet.

For many students this was their first real extensive collaborative learning experience. The experience was not without its problems. In some groups some participants did not pull their weight or attend the joint synchronous meetings in the virtual world. Some of this was understandable, because with some students’ busy life styles, work and family commitments, it was difficult to find a convenient time for all group members to meet. In these cases the group experience was considerably weakened.

However, when groups worked together successfully, members were very enthusiastic and felt they had learned a great deal from one another. They had the experience of collaborating with someone from a community they hadn’t known before, and some had even considered as enemies before the course (e.g. Jews and Arabs). To quote one participant:

I realized that as we progressed individually in the course and accumulated joint experiences, the stigma I had about people who are different from me and had no past connection to them was wrong. I realized that it is not

right to look only at these external elements, and we need to see what a person has “inside”. Often those who seem so different from me culturally are the people who have most in common with me.

Another issue that marred the enjoyment of this course for some of the students was technological. Although some of the problems were caused by slow Internet connections and real technical issues, the main problem involved the level of comfort with the VW. When users didn’t have enough online experience and weren’t willing to invest the time to become competent, they were so concerned with the technology that they weren’t part of the course. These users were easily frustrated and could not overcome technological issues. It is crucial to offer a period of initial orientation through training and “walk-throughs” (Spencer 2019).

Despite these problems, it is vital for our students to experience collaborative learning. The MOOVE allows for collaborative online learning, which feels as if participating students are together in the same place in real time. These collaborative experiences play an

important role in our students’ education and should be part of their learning experience in schools and colleges, to better prepare them for life.

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