TEACHING METAVERSE. WHAT AND HOW TO (NOT) TEACH USING THE MEDIUM OF VIRTUAL REALITY

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Abstract: Virtual Reality (VR) in education is a frequently discussed topic in many academic papers. Yet there is strong controversy around the extent to which it is possible to use this new medium in order to meet educational goals. Marshal McLuhan once said that "Our Age of Anxiety is, in great part, the result of trying to do today's jobs with yesterday's tools and yesterday's concepts" (McLuhan, & Fiore, 1967, pp. 8-9). On the contrary - we believe that in the case of virtual reality this anxiety is, in great part, the result of trying to achieve old linear goals in a new environment and that we need to re-evaluate the purpose of using the virtual reality platform to get more relevant results. In this paper we will try to shortly introduce the most used VR platform called Second Life and also examine attempts at using it for education purposes by pinpointing some issues that affected its adoption by students and teachers.

Keywords: *Metaverse, virtual reality, edutainment, non-linear gaming, non-formal education.*

INTRODUCTION

Virtual reality represents a new digital medium and we can assume it will also become part of ongoing media convergence that started with the Internet and video-games (in terms of interactivity, non-linearity and multimedia capability). Devices in the digital network are now able to replicate and incorporate most previous analog and electronic communication forms, while sharing algorithms and even computing power. At first, computers were able to transmit just plain text, then simple imagery and later more complex or moving images. In the last decade, most communication devices became fully mobile which means, that people could control them more naturally (by moving around, making gestures, tilting head, or simply looking in different directions).

Until now, the interactive, non-linear and three dimensional experience has been almost limited to video and computer games. They were producing a virtual environment that could be experienced on screen or using various methods of multidimensional visualisation (for example: helmets, glasses, projection rooms or holograms). The nature of this environment depended on the type of game and playing mode, but it was mostly goal-driven with a predefined set of possible outcomes. This way, games used to be one-way communication platforms in means of delivering

the experience. Players were able to interact with game algorithms, but they were limited in altering the experience by the game mechanics.

Around the same time that the World wide web incorporated previous media forms, gaming devices also transcended from electronic to digital. They became networked, which allowed more people to play together and thus create a more unpredictable and non-linear experience. While most games are still focused on traditional game mechanics inherited from original genres of RPG, strategy or shooter games, some of them have become more oriented on social engagement and creativity. The primary goal in this environment is not to win, but to play. Satisfaction in experiencing this paradigm lies in appreciation of creativity by other players, mostly coupled with some kind of measurable units that players gain for their achievements both in the virtual and real world (for example: you can exchange them for fiat currency). To better understand the mechanisms behind this hybrid medium that combines social networking with game technology we look at some examples to see the way in which they are unique.

(BEFORE) THE BIRTH OF METAVERSE

One of the first gaming platforms that enabled users to "live" in a game instead of achieving some kind of final victory, is called Second Life. It was developed by Linden Labs lead by Philip Rosale. In 1999 he founded Linden Lab, focused primarily on developing hardware for virtual interaction. It was obviously too soon for such a concept to be vital without any platform to access, so they decided to create "LindenWorld", an open virtual 3D game-like landscape but with no narrative or goals that form the actual game. There were no quests and no violence, as users[1] were not allowed to kill each other (Linden, 2006).

Despite that, in the beginning this virtual world was still very gun-oriented and resembled a typical shooter environment in many ways. As one of Linden developers explains it: "Every avatar in the system had a gun, you had energy and you can drop grenades. The only way to terraform is to drop grenades on the land. We spend a lot of time dropping grenades on the land. Grenades were also able to interact with physical objects. And we spend a lot of time fracturing objects in different ways" (Linden, 2006). It serves as a reminder that violent (and pornographic) elements are commonly present in the development and adoption of new media.

After this "violent" era, LindenWorld started to be more sophisticated in ways of shaping its landscape, objects and social relations. In 2002 Linden Labs renamed the platform Second Life, which (after public beta testing) was launched in June of 2003. At this time "Second Life definitely broke away from other online multiplayer environments by focusing on construction, not destruction" (*A Story Of Virtual Creation*, 2002).

"The initial grid consisted of 16 regions, the first one being called Da Boom, which Residents have speculated serves as a symbolic reference to the »Big Bang« conception of this virtual world" (*History Of Second Life, n.d.*). Its business model in the early phase consisted of weekly payments from Residents that depended on "volume" of stuff they were using in the virtual world. It was easy to bluff by compressing all prime[2] into an inventory

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1 From the begining, Rosale prefered to call participants users, not players.

2 A primitive, or prim, is a single-part object. Multi-part objects will have multiple parts ("prims"). In Second Life, virtual physical objects such as cars, houses, jewelry, and even less obvious things like hair and clothing are made out of one or more prims. Each prim is represented by a set of parameters, including shape/type, position, scale/size, rotation, cut, hollow, twist, shear, etc. These parameters are sent from a server to the viewer running on the resident's device, where the local video card is used to render the visual appearance of everything as rendering on the server would create a much higher amount of network traffic.

at the end of the week and unpacking them another day. Later in 2003 Linden Labs introduced Linden Dollars, that became interchangeable for fiat currency two years later via LindEx exchange, while it started taxing land owners (in the virtual landscape). In 2004 a teleport technology (via TeleHubs) was introduced as walking and flying become insufficient for moving Residents along an expanding grid. Direct teleporting on given coordinates became possible a year later.

In 2005 LindenLab released Teen Second Life, in order to reflect criticism against rising volume of adult content in the virtual world. As Residents were able communicate with each other via the new medium it was natural to try and fulfill their basic desires. Due to the immortal status of an avatar, food or violence became obsolete and thus virtual sex has become the new trend after mainstream adoption of online pornography. Despite Teen SL and many other efforts, Second Life did and still does cater to paying users who like to produce and consume adult-oriented experience (Mitchel, 2011).

As we already mentioned, some view it as a pattern for the mainstream-adopted media like photography, video or the Internet. They all have been adopted early by the pornographic industry that accelerated (i.e. paid for) their further development. According to Gene Munster, senior research analyst at Piper Jaffray: "Whenever there's a shift in content conception, it's typically adult entertainment that's the first monetizable app [...] We've seen adult entertainment drive sales of VHS, DVD, Blu-ray, high definition, mobile, and online video over the years" (Gaudiosi, 2015).

Second Life economy is based on the premise that all users can register and "play" for free as long as they don't want to own land. Owning land or having permission to use it is needed for any object placement or modification. This way, owners are forced to make objects that are worthy for other users to pay for in order to remain profitable. Through the SL history most of sustainable regions (a) were financially backed in real world (for example via education or science grants or corporations), or (b) offered adult-oriented entertainment (for example allowed nudity) or objects (for example virtual genitalia that were missing on default avatars or furniture that provided avatar animation in order to perform sex-related movements).

JUST ANOTHER 2.0 BUBBLE

Despite (or maybe thanks to) the fact that the virtual world of Second Life was bearing this "x-rated smear", it quickly escalated in media and started to attract early adopters and investors. In 2007 it was believed that virtual reality would be instantly the next big thing and many were looking for an opportunity to exploit its potential. Companies were opening their virtual shops in virtual malls and also some universities were founding virtual campuses in order to innovate e-learning and "create more immersive and interactive modes of learning" (Gregory, Butler, & de Freitas, et al., 2014, p. 281) for their students.

But as with world wide web in the prior decade, the wide public was yet not ready to adopt new technology, nor was there solid hardware to support this medium on a consumer level. Therefore after a steep increase in 2007 the "citizenship" and region count became. But as with many startups, registration is just the beginning and many people didn't find what they expected in this brave new world.

Most users that were exploring the 3D world had had some digital game experience. Of course, games are usually described as interactive, but user's immersion in gameplay is structured around sets of rules, predefined scenarios, goals and outcomes. Second Life imposes no such structure and therefore cannot be "won". It's a different kind of game. In these conditions, most initially registered users never became regular active users. Those few who did used the new medium mainly for social interaction with other users, not unlike people do on social networks and messaging, but in a visually representative way. According to insider data published in 2011 most active core users (70%) that

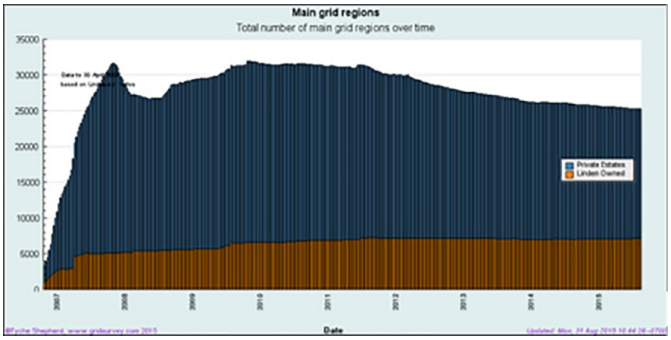

Fig. 1. Developement of regions in SL from 2007 to 2015. Source: Second Life Grid Survey - Region Database, 2015.

visit SL regularly just to visit their favourite location for social interaction and not to explore the rest of the Metaverse (New World Notes, 2011). This may be due to the amount of time it takes for new textures and objects to download while "travelling".

Second Life represents just part of an actual Metaverse that is (according to some) going to be the next Internet (Fineman, 2014). There are some other virtual worlds (OpenSim, Zindra, Utherverse or Kitely to name a few) that launched during the first period, but again, as with the web in 90s, most of them has failed. With very little information about development done by key players like Facebook (which has lately bought the most progressive virtual helmet technology startup Oculus Rift) or Google (that is silent since their discontinuation of the Lively project in 2008), most attention is still going to Linden Labs. They have lately announced their new project named Sansar for mid 2016, that should bring the next generation of virtual gameplay.

According to developers, it will have the structure and partial compatibility with current Second Life world, but will be based on different rules (for example, virtual land will be for free to use and instead in-world currency transactions will be taxed). Also the main engine will get some important updates (most importantly, it should be able to bring fluent experience even with many avatars and objects present in same location). All these enhancements are addressing the main drawbacks of system that were identified in the previous era and are aimed at bringing consumer-level readiness for mass audiences that will come with the advent of affordable virtual helmets and other 3D-enabled accessories.

ARE WE THERE YET?

When it comes to dividing people into digital natives and immigrants I find it hard to say where I belong. Being born in 1985 I consider myself an early adopter of most digital platforms (even those not yet discovered by the majority of so called "digital natives"). I registered in Second Life around 2008 and (despite the poor internet and hardware options we had) it was an extraordinary experience, but as most users I visited it only infrequently.

In 2011, during my postgraduate studies there, FMK UCM decided to explore the potential of SL and established its virtual residency (*Univerzita Sv. Cyrila a Metoda v Trnave vstupuje do Second Life*, 2011). Everyone was wondering how to engage students in virtual reality in order to gain some positive educational outcome. But when we explored some other virtual places with educational purpose in SL, it became obvious, that something was not working. Many schools attempted to "inhabit" the digital environment, but their representations looked the same as in real world with very little imagination in utilising new functions of the virtual medium.

In their virtual presence, most schools were attempting to "build" some place that would cover their "real" needs - such as classrooms and campuses with small parks with trees and pavements. Of course there were some creative attempts to break out "from the box", more informal environments and objects like fancy sofas, treehouses or even pirate ships. Patrick Hogan in

Fig. 2. "Comfy" lecture place with prim texture resembling photorealistic woods. Source: Hogan, 2015.

his examination of what is left from these attempts describes this as "an attempt by education institutions to embrace the weirdness of the web" (Hogan, 2015).

When we think about this era afterwards, we can observe some aspects that might be responsible for poor results both in terms of education and promotion of our and also many other, if not all other schools and universities.

1. Too much effort and time invested in cloning real world artefacts and simulating their functionality, even if these have no purpose or meaning with relation to a virtual environment. From sliding doors to trees and trash cans, the only purpose of such objects can be to showcase them for educational, research and maybe artistic and "fun" use, but not to serve their original purpose. They become obstacles for movement (as avatars can be of various size and may prefer flying to just walking) and they also use unnecessarily high amount of prims, thus increasing hardware load and decreasing smoothness of the user experience.
2. Inability to influence and change the environment. Ordinary visitors, students and even most of the faculty staff were unable to modify objects in virtual space owned by the school. There were also very few truly interactive objects and even the "information rich" objects were merely giving answers to predefined requests as objectified links to text, audio, image or video files.
3. Ignoring gamification opportunities and virtual currency. The fact that SL itself does not have any goals doesn't mean that there can not be any quests and challenges like those present in role playing games. In fact there are a lot of regions with specific rules involving real gameplay and even ability to hurt or temporarily "kill" avatars and also lots of places that benefit from using virtual Linden Dollars to achieve a more immersive experience[3].
4. Failing to make a bridge between real and virtual world in other than material way. Yes, they have tried to bring as much possible from real world to the virtual grid, but these two worlds remained separated and there was no connection between them. What happened in one, has remained there and was not influencing the other. This however may be mostly due to the apparent two-dimensionality

[3] It is true that people often use virtual worlds to sense real places or situations that they can not experience in the real world, but we suspect that going to school (for lectures) is not one such experience for actual students.

of virtual world as there was no real means to explore the Metaverse other than through a computer screen, mouse and keyboard. This limitation makes it hard to feel and think "inside" the virtual world and perceive it as real.

5. Low to none interest in the Metaverse as such. Some, especially technically oriented schools have their own agenda and purpose for 3D visualisation of objects and mechanisms or testing architecture concepts. But many others, including ours invested money just to "be there", without really acknowledging virtual reality as a new medium and thus subject for media studies and so called "digital humanities".

Fig. 3. Main hall of National University of Singapore with one of their students. Source: National University Of Singapore, n.d.

CONCLUSION

There is no reasonable use of this new media as a means of presenting content that was created for older media forms. Teaching classes, exhibiting artefacts or even records and all the other traditional means of communication represent the first stage in new media adoption. In its beginning, any medium is replicating old content first (for example - the film was first imitating theatre principles, radio was reading newspaper news and so on), but the mainstream adoption depends on incentives that are worth the struggle that comes with buying and learning any new technology.

For the internet the main incentive was interactivity and multi-level communication and collaboration that succeeded linear transmission of content. This was later extended by mobile technology that shaped its ubiquitous character. Virtual reality shares these aspects, but it also has some qualities that exceed this technology. The most obvious is the ability to navigate the Metaverse visually in a multi-dimensional environment. This can be done on 2D screens, but when it comes to experience, this can be compared to printing websites and then reading them from paper.

From it's beginnings, well before the advent of the internet, virtual reality was designed to bring immersive experience via bypassing most technology in between the user and network, enabling users to engage their senses in the most natural way. According to latest predictions, virtual helmets, glasses and lenses along with motion sensors and speech (or mind) recognition should become widespread by the end of this decade and will probably fully merge with mobile devices in the future.

In this way, the Metaverse will become accessible and people will be able to find new means of using it in everyday life and it should also create new opportunities for schools. For example our faculty, that is focused on Media studies can use them in way they are using traditional media. Our students can become true netizens, not just random visitors and learn different roles that will generate future jobs in this new medium (like object design, marketing, arts or media coverage). I believe that the next generation of virtual reality devices will also bring new education models, that will be focused not just on teaching in, but also about the Metaverse as such.

REFERENCES

- *A Story Of Virtual Creation* (2002). Retrieved from http://web.archive.org/web/20060701075155/http://www.g4tv.com/techtvvault/features/36196/a_story_of_virtual_creation.html.
- Fineman, B. (2014). Trending: *Metaverse-Moving The Internet from Interface to Interaction*. Retrieved from http://www.internet2.edu/blogs/detail/7198.
- Gaudiosi, J. (2015). *Why Porn Is Virtual Reality's Dirty Little Secret*. Retrieved from http://fortune.com/2015/07/31/porn-virtual-reality/.
- Gregory, S., Butler, D., de Freitas, S., Jacka, L., Crowther, P., & Reiners, T., et al. (2014). Rhetoric and reality: Critical perspective on education in a 3D virtual world. In: B. Hegarty, J. McDonald, & S. Loke (Eds.), *Proceedings of the 31st Annual Ascilite Conference (ascilite 2014): Rhetoric and Reality: Critical perspectives on educational technology, Nov 23-26 2014* (pp. 279-289). Dunedin, NZ: University of Otago.
- *History Of Second Life*. Retrieved May 11, 2011 from http://wiki.secondlife.com/wiki/History_of_Second_Life.
- Hogan, P. (2015). *We Took a Tour of the Abandoned College Campuses of Second Life*. Retrieved from http://fusion.net/story/181901/we-took-a-tour-of-the-abandoned-college-campuses-of-second-life/.
- *Libopenmetaverse*. Retrieved March 20, 2012 from http://www.snipview.com/q/libopenmetaverse.
- Linden, J. (2006). *Historical Movie - Linden World August 2001*. Retrieved from https://www.youtube.com/watch?v=uK3x3FNlleU.
- McLuhan, M., Fiore, Q. (1967). *The Medium Is the Massage: An Inventory of Effects*. Harmondsworth: Penguin.
- Mitchel, J. (2011). *Second Life makes 100M a Year in Revenue*. Retrieved from http://readwrite.com/2011/08/08/second_life_makes_100m_a_year_in_revenue.
- *National University Of Singapore*. Retrieved March 30, 2016 from: http://secondlife.com/destination/nus.
- *New World Notes* (2011). Retrieved form http://nwn.blogs.com/nwn/2011/12/70-of-slers-dont-explore-sl-1.html.
- *Second Life Grid Survey - Region Database* (2015). Retrieved from http://www.gridsurvey.com/index.php.
- *Univerzita Sv. Cyrila a Metoda v Trnave vstupuje do Second Life* (2011). Retrieved from http://cinemaview.sk/clanok/2000/detail/univerzita-sv-cyrila-a-metoda-v-trnave-vstupuje-do-second-life.

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