

# Building Knowledge in the Virtual World – Influence of Real Life Relationships

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**This paper intends to present a preliminary PhD research that is being developed by the authors, with the intention to determine how to improve teaching and learning situations, at the university level, based on experiences in immersive virtual worlds. The authors have realized that, nowadays, courses don't fulfill our students' needs. They belong to a networked and multitasking generation, and what they get from today's teaching strategy does not, in many situations, fulfill students' needs and perspectives. They need to gather competences in order to become motivated citizens, communicative and knowledge builders. It is our belief that we can take advantage from the immersive virtual worlds' resources to overcome this situation and therefore to transfer it to real life. In order to achieve this we need, at the first instance, to understand how social interactions occur in these environments (in particular at Second Life®), how they grow and how they are developed. What we present here is a preliminary sample of our intended research.**

## Introduction

Our society is changing, as are all the citizens that are growing and living in this new age. Education cannot ignore those changes, cannot cling to the old habits and methods of teaching and learning from the last century. Today's society, and therefore today's kids and students, are interconnected. They live in a digital age, being able to multitask; they live in a "world of fast context-switching" (Brown, 2002). With today's networked society (with special impact from the facilities offered by the World Wide Web) we can observe a new way of learning that is

discovery based. The Web is now not only an informational and social resource, but also a learning tool that enables new ways of creating and sharing knowledge. Consequently teachers are becoming challenged to develop new strategies of teaching and learning, in order to fulfill the needs and enhance the skills of their digital age students. We believe that we can only catch and keep students' attention and motivation if we leverage the same tools. We have to enter and to get to know their digital worlds; and thereby become part of it! Our major focus of interest is university students. The research we are conducting has the aim to achieve better and more efficient ways to teach and learn at a higher level. We have made some preliminary research and we recognise that many studies are being done in this area. However, we detected that an important area was not being covered, due in part to the emergent nature of the tools. We are referring to immersive virtual worlds, with particular emphasis to the Second Life® platform. We have been residents of this environment for some time and we see its potential in teaching and learning situations. Why is that? Because it is immersive; it is a real world simulator; it is a social network and allows real time communication, cooperation, collaboration and interaction, and all this in a safe and controlled environment. Through understanding all those potentialities, we believe that immersive learning can be integrated in today's pedagogical practices. However we can only apply and suggest best practices if we get to know the Second Life® environment, to learn and understand how interactions and relationships are established between the users (or residents) of this Multi-User Virtual Environment (MUVE). In order to start and to achieve our research foundations we have been observing, for some months, residents behavior at Second Life®, including some informal learning situations.

In this paper we would like to briefly discuss the evolution of the web, in order to contextualize the study. It

will be followed by the presentation of the research itself, with our purposes and goals. We will end with some preliminary conclusions and outline our future work.

## State of the art

With the advent of Web2.0 users have “immersive Web sites with flash quickly followed combined with ubiquitous communication via IM and IRC chat (...) the exponential growth of self publishing, blogs and wikis (...) the massive sharing social network communities of flickr and YouTube in sync with the explosion of portals containing all the above in services such as MySpace, Yahoo and MSN” (Hayes, 2006). We are no longer simple information collectors (Web 1.0), now we are active and reactive users, we develop and share content and information. Each one of us has an intrinsic need of being part of cyberspace, of being known by our partners. We could say that we all have an unfulfilled eagerness for communication, and to share our thoughts, needs and knowledge. And that’s what Web2.0 is all about: sharing. We all are now content builders, information sharers, communicators. We all belong to a common space with no barriers called World Wide Web. Although we are already behind Web 2.0, we are in presence of what some authors called as Web 3.0. This concept is related with “virtual environments in which we meet as avatars, interact as 3D moving objects that takes sharing, co-creation and communication to the next, predictable level” (Hayes, 2006). We are now in the age of the real time collaborative web, a web where “human become more linked together (...) more networked (...) internet have no limits or borders” (Veen e Vrakking, 2006). We present a figure (*cf.* Figure 1), that clearly shows the evolution of the Web concept – from 1.0 to 3.0.

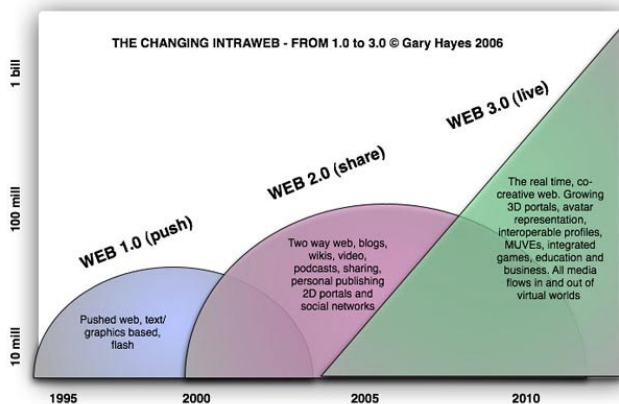


Figure 1: The Changing IntraWeb(Hayes, 2006)

We would like to say that, for us, the environment Second Life® might be the best representation of the “real time, co-creative Web”. We see Second Life® as an immersive 3D multi-user virtual world, where each user (or resident, as

they are called) is able to have a life “em tudo correspondente à vida real (...) é literalmente uma segunda vida, onde cada um define o que pretende ser, fazer ou ter”<sup>1</sup> (Bettencourt e Abade, 2007), represented in world by his/her avatar. In fact, and according to Linden Lab® itself, “Second Life is a virtual world that allows its residents to create completely original content using atomistic building tools in a shared and globally accessible space” (Lester, 2009).

The term avatar was made popular by Neal Stephenson in his novel Snow Crash, and is “an interactive representation of a human figure in a games-based or three-dimensional interactive graphical environment (...) Usually an avatar will have human characteristics, including speech and facial expressions” (Freitas, 2006).

According with the Web 3.0 assumptions we believe that Second Life®, having itself MUVE’s (Multi-User Virtual Environment) characteristics, have great possibilities if used for education and learning purposes. This environment is like an “ever growing virtual playground that is limited only by the creativity of its users” (Johnson, 2006). According with Federation of American Scientists (Wagner, 2007) it will allow us “to build 3-D objects collaboratively and in real time with others in the same world”, with major applications at “building, design, and art principles”. On the other hand, Second Life®, is a “rough simulation of the natural world, with meteorological and gravitational systems, the possibilities of experimenting with natural and physical sciences are endless”, and all this “in a safe and controlled environment” (Wagner, 2007). The twist is that in an immersive environment we are walking inside the material, not just viewing it from a distance. In fact, Second Life® and other MUVEs “have attracted a growing and increasingly sophisticated community of practice (Wenger, 1998) focused on the topic of teaching and learning in 3D immersive worlds” (Richter, Inman & Frisbee, 2007).

We have perceived that “Education began, slowly, to realize that many of the attributes of great game playing, from the intellectual challenge to the provision of multiple learning styles, had an immediate part to play in learning” (Freitas, 2006).

We also assist, with the Web 3.0, to what we called as the humanization of the virtual space, through the representation of each one of us by the avatar. It’s as if we were actually living the experiences. It’s about growth, life, interaction, communication, knowledge creation and sharing experiences in a 3D virtual world, and how real life

<sup>1</sup> “in similarity with real life (...) it is indeed a second life, where each one of us decides what we claim to be, to do or to have” (paper author’s translation)

relationships can influence it, that we would like to talk about in this paper.

## Building knowledge in the virtual world – Influence of real life relationships

### Logging in

Second Life®, as a real world simulator, has great potential. However, how can we use and enhance it? How can we be successful educators in a virtual world? What makes us grow? What makes us stick around?

Every day there are between 60-75 thousand users in world at any moment (*cf.* Figure 2), and according to Hayes (2009), it “seems many folk do tire of it at around 18 months with only around 20% going for longer than two years” (*cf.* Figure 3).

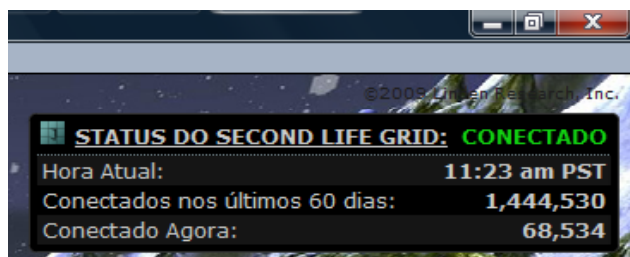


Figure 2: Users logged in (example)

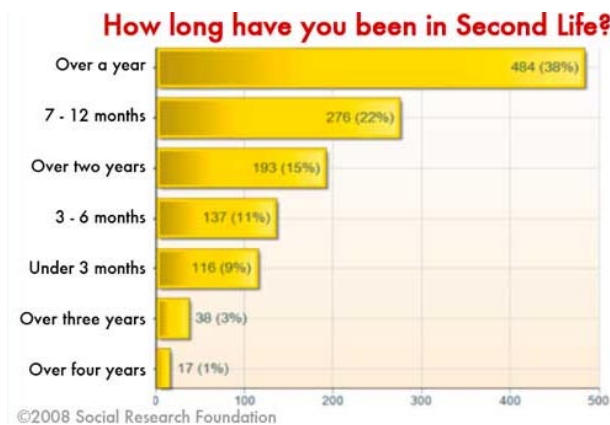


Figure 3: How long have you been in Second Life® (Hayes, 2009)

This could be a problem if we wish to develop a project in a virtual world. With no residents/avatars it doesn't make much sense. If it doesn't grow, it has no future at all.

For us, and from what we have been observing from the past few months, one of the most important conditions for people stick around at Second Life® is related with the relationships that are made (not just between avatars, but also between avatars and persons behind the screen) and with the sense of belong to a community. Like Paul (2009)

said “Shared practices and meanings help solidify cultural practices and develop common symbols and structures with which to interpret surrounding stimuli”. Second Life® is a good example of a social network and we believe that the main goal why people sign into it can be related with the need of socialize, interact, communicate. To have the chance to contact with other persons, cultures, languages, ideas. In many cases people open a Second Life® account by some friend's influence. But, on the other hand, there are also those who join Second Life® because they are “forced” to do it, maybe because of an academic project, a business/work project or just because a teacher said so! What are the major differences of behavior between people who came to Second Life® by free will and the ones who, somehow, were forced to join the environment? That's what we intend to find out. As we can see by the chart in figure 4, we have people that spend 16 or more hours per week in world. Who are they? Why are they at Second Life®? What are they doing? Where do they spend their time?

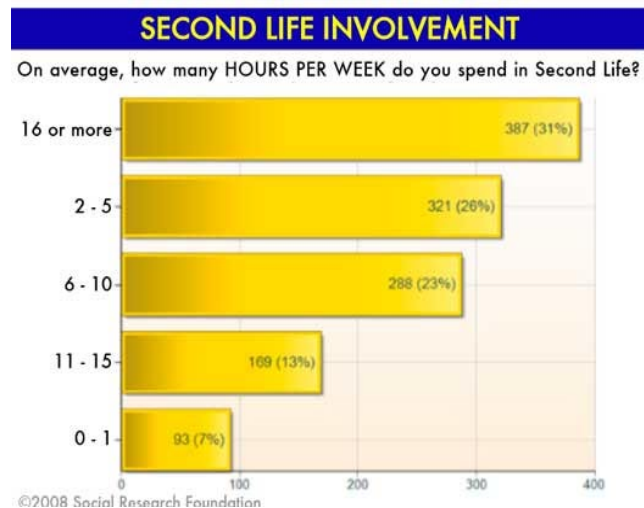


Figure 4: Second Life® Involvement (Hayes, 2009)

We should also consider the ones who are giving up Second Life® or, not giving up, don't grow or socialize in the virtual world. If we could achieve the reasons why this happens we might get into some ways to help them to stay and enjoy, and above of all, to learn through MUVE's.

Therefore we will summarize some of the Second Life® barriers, that were already identified by some authors (Harold, 2009; Pita, 2008; Kirkpatrick, 2007; Richter, Inman & Frisbee, 2007). First of all we need to have access to a good and fast Internet connection. Besides that we need to install and constantly update the software viewer. The software is very demanding in terms of hardware (*cf.* <http://secondlife.com/support/sysreqs.php>); we need, for instance, to have a good graphics card and a recent operating system in order to properly run it. As a

consequence of the many improvements that are constantly made the servers and the grid is often unavailable (normally, and fortunately, for short periods of time). Another barrier could be the fact that Second Life® is not available in all languages. All these issues lead many people to give up Second Life® at an early stage. According with Kirkpatrick (2007) and due to the huge complexity of the software, only one person, among six, keeps logging into Second Life® after the first month.

### *Learning in immersive worlds*

The potential of Second Life® has already begun to be used for teaching and learning, for some of the reasons we have already presented in this paper. We all have realized by now that we are living in the age of the “digital natives” (Prensky, 2003), of the connected generation. Nowadays, and because of the advantages of the social web, students “have a lot of practice of e-mailing, blogging, googling, chatting, gaming, and so on!” (Bekkers, 2009). They can develop several tasks at the same time; they are multitasking. For instance, “students in higher education walk around their faculties or work at computers while listening to their music files, using their iPods and MP3 players. It’s common to meet students at a teacher training college multitasking while surfing the internet, listening to their music in one ear, and communicating with a peer student through the other” (Veen & Vrakking, 2006). These are our students and we had better cater for their needs in a digital age. In fact, students “entering universities after 2000 (...) were portrayed as needing a more and IT driven learning environment” (Paul, 2009). But what do they get when they arrive to the Universities? In the most part of the cases some old strategies from the last century.

According with Bettencourt and Abade research (2007) “those students are asked to sit in rows and listen to lectures, take notes or solve exercises given by teachers. It’s a teaching strategy that doesn’t prepare students to be critical citizens and professional workers on their specialty, nor give them the skills and competences needed to be autonomous and constructors of knowledge” (Bekkers, 2009).

Nowadays students live in a multimodal and interconnect world and for them this “way of dealing with information is much more intensive than listening to one source of information at a time” (Veen & Vrakking, 2006).

Students are familiarized with video games, computer games, and online games. We could say that this is their natural environment. They are used to deal with several spaces where they present and share themselves, many times “cycling through” (Turkle, 1995) multiple characters, according with the time and space where they are mingling. These multiple “selves” are, in fact, one and the same. The same person is behind the screen or behind the gadget, the player of the game himself. Virtual spaces “blur the

boundaries between self and game, self and role, self and simulation (...) ‘You are what you pretend to be...you are what you play’” (Turkle, 1995). In fact, “today’s kids are always ‘multiprocessing’-they do several things simultaneously- in parallel and so unobtrusively” (Brown, 2002).

According with these assumptions, we could dare to say that our students are hugely familiarized with virtual life. No matter if used as a game, as a communication tool or a way to socialize. Therefore, we will state again that we believe that virtual and immersive worlds, like Second Life®, can be used to teach and to learn with success. Our society is becoming “more networked every day (...) Virtual worlds like Second Life represent the future of human interaction in a globally networked world, and students who grown up in the Internet naturally swim in these waters” (Zhu, Wang & Jia, 2007).

We would like to say that we don’t see Second Life® as a game, like many others believe it is, because it doesn’t really have the major characteristics of a game (like multiple levels, scores, or an end – we don’t see the game over label!). Of course that we can find in this virtual world some forms of game, like in role-play communities, but “virtual worlds are not themselves games” (Austin & Boulder, 2007). Even so, “Multi-user virtual environments, whether game or non-game, all have one thing in common: communication (...) may be non-verbal through gestures, appearance, or battle” (Robbins, 2007).

There so the use of MUVES in education also allows learning “through exploring environments, ‘realia’, lived and virtual experiences with tutorial and peer-based support. This method of learning is based upon the notion that learning patterns can be helpfully transferred to dissimilar situations through meta-reflection. (...) helping individuals to use their imagination and creativity to draw out lessons from interactions as well as extracting meaning from data” (Freitas, 2006). In these virtual environments students are, usually, more open, more participative, more creative, and more reactive.

In fact, in the immersive virtual worlds, students attend the classes because they want to learn. Students actually can interact with the simulated world “allowing them to engage with content (Bricken, 1991). Being able to learn subject matter in the first person, as opposed to the third person” which is “experiential, nonsymbolic, interactive, and multisensory” (Richter, Inman & Frisbee, 2007).

### *The study*

The research we are here presenting is an early stage. It will be develop in the aim of the Doctoral Program in Multimedia in Education of the University of Aveiro.

We are conducting the research under the theory of Connectivism, defined as being a learning theory for the



digital age (Siemens, 2004). In connectivism we can identify, in learning situations that occur at the MUVs, many aspects from its major principles, such as:

- “Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision” (Siemens, 2004).

After a careful comparison with the other Learning theories we believe Connectivism provides the best framework for this study.

SL® as a learning platform reflects the assumptions of the Connectivism theory in many ways. We know nowadays that information and knowledge are transitory, chaotic and unstable, there is an inherent need of a continuous learning (long life learning). SL® enables a contact and connection with a diversity of opinions, nodes, links and specialized information sources. Because it is digital, virtual and immersive it allows that those information links to be more interactive, which enhances the learning and information sharing. On the other hand, the motivation, feelings and sense of community belonging that are generated among SL® users helps to create, develop and maintain connections, and facilitate a process of continuous and natural learning. According to Siemens (2004), ability to “know more is more critical than what is currently known” and incidence (correct, up-to-date information and knowledge) is the purpose of learning contexts based in Connectivism.

As we said earlier in this paper, our main goal is focusing on understanding what are the major differences of behavior between people who came to Second Life® by free will and the ones who, somehow, were forced to join the environment. We intended to provide some “insights to all educators and researchers interested in using those environments as a teaching medium in real life, and those

new approaches to better prepare the university students for the marketplace will emerge” (Bekkers, 2009), as well to achieve a better understanding how people grow and build knowledge in Second Life® in both formal and informal learning contexts.

Our study emerges from the need to observe some of the variables that have been already identified by Bekkers' study (2009) and give it continuity (*cf.* Figure 5).

These variables are related with three major areas: the person and their motivations; the relationships that exist or are established between avatars or between avatars and persons; and the social integration at Second Life® (sense of community). Although as we can see at figure 5, the three main areas are related and can't be observed in a separated way, they all are interconnected. They all influence one another.

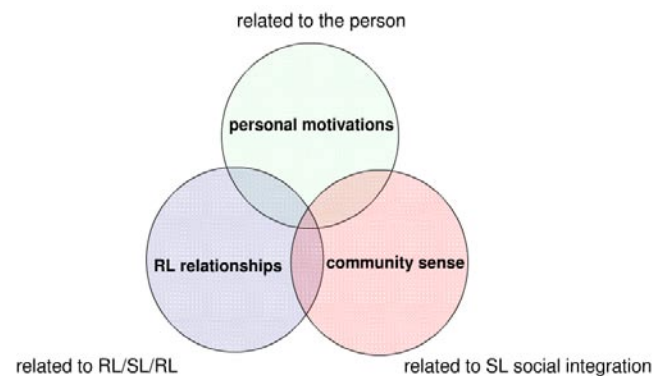


Figure 5: Variables of the Study (Bekkers, 2009)

Besides that, and in order to better explain our goals, we can say that our research concerns are more focusing on the variable related to RL/SL/RL relationships, being aware of the others variables interference.

It will be an exploratory and qualitative study.

We intend to divide the study in two different parts. For our in world research we will observe learners in what we will call as formal and as natural contexts. As formal learners we will count with the cooperation of students from Portuguese Universities (at least in an earlier phase), and as natural learners we will observe avatars that are engaged in some free courses that are available at Second Life® (also Portuguese language speakers, in this first stage). This sample will be our target audience for the research.

To collect the data we intend to use surveys (with closed answers) to inquire about the reasons why people enter into Second Life® and also what kind of difficulties they experience in using the environment; if they felt curiosity about exploring the environment; what kind of activities are they doing, where and how long; what is the frequency of logging in and how many hours they stay logged in.

We also intend to make some interviews when, and if, we feel need of an additional information, or a clarification / explanation about some data or answer.

Besides these two instruments we also will be working as observers, to identify key indicators (such as the avatar appearance and how the avatar behaves when in a group or community), that will help us to clarify the level of growth or socialization of the avatar / person in the virtual world of Second Life®.

## Conclusions and Further Work

We agree with Wagner (2007) when he says that MUVES are “an ideal pedagogical resource”, special because, “acting in virtual communities is nothing new to homo zappiens and is part of normal life”, because nowadays for the most common users “both real and virtual life are components of their lives, without considering one less valuable or real than the other” (Ween & Vrakking, 2006). In fact “the digital natives (Pransky, 2001) have limited patience with an educational system that has not changed substantially since the 19th century. They think and learn in environments that are fast-paced, multimedia, multimodal, interactive, and, of course, digital. These volatile, interconnected, and complex social milieus (Cohill, 2000) call for learning options that are critical, collaborative, creative, and futures oriented.” (Richter, Inman & Frisbee, 2007).

We can say that immersive environment bridges the gap, so people live the experience, live the learning, and thereby learn better. For us these are alternative methods of presenting content, as an attempt to catch student’s attention. In fact immersive worlds have a huge potential for education because they can facilitate “collaborations, community and experiential learning” (Kemp & Livingstone, 2007).

We will be developing this research, outlined above, for the next two years. Our purpose is to achieve a better understanding of immersive learning and develop best practices to teach and learn in virtual worlds, namely in what it concerns to the RL/SL/RL relationships variable mentioned earlier in this paper. With the information that we hope to achieve, we will intend to transfer it to a real life learning context and thereby to improve our ways of teaching and learning at a higher level.

For now we can just say that, and for what we have collected so far, Second Life® “induces teachers’ innovation of their practices and leads them into a collaborative approach with students. Teachers and students become partners and interact socially to a common goal. The process of teaching and learning tend to be more focused on the development of skills: critical thinking, making initiatives, entrepreneurship, responsibility,

teamwork, respect for others and their differences, interculturality” (Bekkers, 2009).

According with these factors we can only stay motivated to keep going with our work. For now, and because we are in a preliminary stage of this research we can not present any results or data based conclusions. We are still, at this very moment, building the analytical instruments to collect our study data. We hope we can bring further results in a next article.

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