Body perception in virtual worlds: The case of Second Life

Nikoletta Gkatsonidou, Christos Kortikis, Ioanna Vasileiadou, Aggeliki Zamaria, Evangelos Lioupras

To cite this article:

Gkatsonidou, N., Kortikis, C. ., Vasileiadou, I. ., Zamaria, A. ., & Lioupras, E. . (2022). Body perception in virtual worlds: The case of Second Life. *Homo Virtualis*, *5*(1), 111–135. https://doi.org/10.12681/homvir.30319
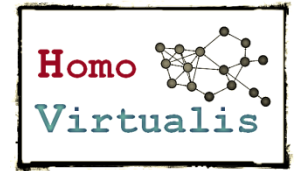
Body perception in virtual worlds: The case of Second Life

Nikoletta Gkatsonidou[1], Christos Kortikis[2], Ioanna Vasileiadou[3], Aggeliki Zamaria[4] & Evangelos Lioupras[5]

Abstract: Researchers have studied the body at first as a biological subject and then as a social one. At the same time, with the evolution of technology, a new way of viewing the body is proposed, namely the virtualization of the body resulting in the emergence of the "virtual body" (avatars, cyborgs). Thanks to the "virtualized" body, the body that man now has, can be the subject of prediction, control and therefore experimentation with infinite possibilities - as everyone wishes, in virtual environments and worlds. The current study examines body-perception in the context of Second Life (SL); a virtual social world. Data is presented from the first content analysis of YouTube comments by SL users. Data are also presented from the second content analysis of ten (10) interviews of people having experienced worlds similar to Second Life. The results show that Second Life users seem more willing to experiment with the avatar and consider Second Life an environment that inspires creativity and facilitates the expression of desires regarding to the appearance of the avatar. Participants introduced to the virtual world of Second Life for the first time, claimed that SL and its avatars are attractive, with many features and in some cases very "close to reality". However, they stressed the inability of the virtual body to take on a completely "real" state and function. Finally, some limitations are mentioned as well as ideas for future research.

Keywords: Body perception; Virtual worlds; avatar; Second Life; SL

[1] Undergraduate program, Department of Psychology, Panteion University of Social and Political Sciences
Email: nicolesalg@hotmail.gr
[2] Undergraduate program, Department of Psychology, Panteion University of Social and Political Sciences
Email: chriskortikis@gmail.com
[3] Undergraduate program, Department of Psychology, Panteion University of Social and Political Sciences
Email: vasiliadou45@gmail.com
[4] Undergraduate program, Department of Psychology, Panteion University of Social and Political Sciences
Email: ageliki25122000@hotmail.com
[5] Undergraduate program, Department of Psychology, Panteion University of Social and Political Sciences
Email: vagoslurpack16@gmail.com

Body perception in virtual worlds: The case of Second Life

The body

The human body plays a crucial role in people's lives. It could therefore be suggested that it cannot be understood separately from the person who "owns" it. "[The body] is a part of our existence, which we consider to possess ('I have a body'). Otherwise, it is inevitably carried by us, throughout life, so we treat it as a self-evident element of our being and often we identify with it ("I am a body") (Alexias, 2011)". The aforementioned definition may seem "self-evident" in these days, but it was not always like this. In modern liberal societies where individualism and consumerism prevail, our body, self and (social) identity are (and are considered to be) an inseparable total. It took many years for the body to be considered as an important factor of social action and to be studied by social sciences (Sociology, Psychology, etc.). This fact is largely due to "Cartesian Dualism".

René Descartes (1596-1650), in an effort to study better aspects of human existence, made a distinction between "body" and "spirit" for purely methodological purposes. However, the acceptance of this philosophical tradition led to additional "dualisms" and more specifically to the separation into social and positive sciences. The body was considered a purely biological object and according to Alexias (2008) was cut off from the social sciences, as it was considered to have nothing to do with the manifestation of human, individual or social behavior. Changes began relatively recently with the development of new technologies and the great development of medicine. New forms of communication and action began to appear (Virtual environments, avatars) as well as medical procedures such as transplants, prostheses, etc. The body began to be considered as a "Biological-Psychological-Social" state which through a dynamic process "tends from the biological to the virtual" (Alexias, 2011).

Thus, with the development of the sociology of the body, the body is considered a social creation that is perceived as an element of our existence and, in combination with new technologies, helps us to achieve our desires. The concept of "embodiment" based on phenomenology is used in this new reality. Embodiment "suggests the understanding of the body not as a static biological entity, but as a dynamic biological-social phenomenon that actively participates in the manifestation of social behavior" (Alexias 2006, pp. 261-280; Csordas, 1994; Williams & Bendelow, 1998; as cited in Alexias, 2011, 4.2 The Sociology of the Body, para. 5). The human beings do not act independently of their body, but their actions can be determined and influenced by it. "Embodiment offers the breaking of Cartesian dualism." This is because, phenomenology values the relationship between self-perception, perceived body integrity and the experience of the disease as a threat to the embodied self- and not just a threat to the body as a tool (Turner, 1992, as cited in Alexias, 2003). The body has a meaning for the individual and this becomes even more complicated in the modern world we live in. Technological and social changes are forming a new

framework for the body perception and in combination with the interdisciplinarity that characterizes science today, new problems are emerging. New technologies, the development of the Internet, virtual reality, virtual bodies and many other possibilities have led to "Virtualization".

Virtual worlds - virtual body

At this point a definition of the concept of the virtual world, which has many different interpretations, at different times, as proposed by researchers, is necessary. More specifically, the virtual world in the 1970s and 1980s was defined as "an environment considered as autonomous by its inhabitants". These virtual worlds are not perceived as entire planets but more in the sense of structures like the one of the Roman Empire (Bartle, 2003). This definition however does not sufficiently explain the "virtual" aspect.

In the 1990s the element of persistency and avatars are added to the definition of the virtual world (Koster as cited in Bell, 2008). Castronova (2004) defines the virtual worlds as "computer-generated places designed to accommodate large numbers of people", adding the concept of technology and computers.

The role of individuals in virtual worlds and the social networks formed are not yet addressed by these definitions. Without the inhabitants the virtual world would be "an empty data warehouse house". Consequently, a new definition of the virtual world emerges, a combination of the aforementioned definitions. People are constantly connected in a modern network in which they have the appearance of an avatar. That is the environment of a virtual world which offers a sense of time and space. Users communicate via modern means and even if they are not actively present or go out, the virtual world still exists. There is constant communication, and every activity of the individual affects the environment to a small or large degree.

Schroeder (2006, as cited in Schroeder, 2008) notes a prominent feature of virtual worlds; that is their persistency. In these settings people have the feeling of being with others like they are in the "real" world. Emphasis is placed on the sensory experience; on the experience of a world different from the one we naturally belong to. The difference between the virtual environment and the virtual world is that the latter has been applied to persistent online social sites, in the sense that it is experienced by people as continuous over time and within it there are populations that experience it as a place for social interaction. It is, as Steinkuehler and Williams (2006) note, an online socialization site (as cited in Schroeder, 2008). As a subset of virtual worlds, online games contain the element of socialization, but they are designed primarily to encourage the accumulation of points or the achievement of specific levels while social spaces do not have such a goal.

Wang (2020) observes that "virtual reality" is based on the real world, while the latter (real world) is not a representation of anything else. The virtual world has the same physical structure as the real world, precisely because it simulates the real world. What is generally called "virtual reality" is not the integrated simulation system, but the

virtual world produced by the virtual reality system. The system of virtual reality executes sequences of orders and in this way the "virtual reality" is created. Behind this virtual reality lie complex calculations based on advanced models in physics, mathematics and computer science. However, beyond this structure, the virtual world finally constitutes the intentions of its creator and the ability to repeatedly change and control this world (how it will appear, what it will appear, etc.) depending on the desires and circumstances; something that will not happen so easily and simply in the "real" world.

This plasticity can be understood more specifically for the case of the virtual body. According to Stone (1991, as cited in Alexias, 2008), in virtual systems the human-machine connection is characterized by new social forms. Many problems have arisen with the biological body (diseases, sexual dysfunctions), so we place our hopes in the virtual body and in artificial humanoids, which are linked to technological and social progress. Thanks to the "virtualized" body, the body that man now has, can be the object of prediction, control and therefore experimentation with infinite possibilities, as everyone wishes. The basic characteristics of the biological body that are necessary for the interaction between people -body movements, social characteristics (citizenship, race, gender)- are transferred to cyberspace. Green (199, as cited in Alexias, 2008) argues that there are two forms of reality in cyberspace. The individual realizes that the virtual body – their own and that of the others, socially associated with in cyberspace- is a composition of both the biological and the virtual. New social circumstances are related to new body forms; "post-physical" and "post-human" forms of existence (Alexias, 2008).

Avatars

In virtual worlds users have opportunities for social interaction and communication with others via these post-human beings; the "digital embodiments" of the self (Merola & Peña, 2010). In most digital environments, users can create their avatar by formatting it as they wish (in ways regarding height, weight, clothes, etc.) or selecting templates according to their preferences. However, research has shown that is a two-way influence. More specifically, the avatar itself can also influence the behavior, perceptions and attitudes of the user and others through some processes.

The outfit of the avatars and in general the look that a user chooses, play a decisive role in the "avatar-user" interaction. Social norms and the prevailing perceptions of the real world are found to be influential towards the attitudes and perceptions of "virtual bodies" in digital worlds. Also, a user who is going to date in the digital environment will opt for a more "attractive" look, while a user who sees a "black-clad in a hood", they will probably perceive it as "bad" and aggressive (Peña et al., 2009). In addition, Yee and Bailenson (2007, as cited in Merola & Peña, 2010) note that having a short avatar made users were prone to "unfavorable" decisions, while users with tall avatars had more confidence. Thus, when designing avatars, users must keep in mind how they want to act and that the others will evaluate them. If the goal is peaceful

interactions or conflicts, they should choose the appropriate clothing/appearance for that goal. This is due to the stereotypes that prevail in the real world about appearance, clothing, color, etc. which can also exist in virtual worlds and influence the behaviors and perceptions of individuals.

In general, avatars can influence the user either "on their own" or through the expectations of others. The theory of "self-fulfilling prophecy" according to Snyder and Stukas (1999, as cited in Merola & Peña, 2010, p. 6), describes how one's expectations for another person can affect the other person's behavior. In the virtual world, when people see an avatar and have some perceptions/expectations about it and they treat it in a certain way, the avatar will tend to change its behavior to suit the expectations of others. This means that one user can be influenced by their avatar, depending on how others perceive and evaluate it. According to Vasalou and Joinson (2009), users select and design avatars with a meaning and purpose for how they interact with others in the virtual world. If someone decides to take on the role of an "evil", one will use an "evil" appearance and then one's bad behaviors are more likely to be reinforced by the reactions of others.

In summary, it could be argued that the avatar is, in a way, like the costume of a carnival appearance; when we wear a costume, the way we are perceived by others is different, as there is no ability for others to identify us and this provokes a change in behavior. As Frank and Gilovich (1988, as cited in Merola & Peña, 2010, p. 9) and Johnson and Downing (1979, as cited in Merola & Peña, 2010, p. 9) report, "appearance/clothing affects not only the way people perceive others, but also the way they act. The same is true for avatar users in virtual worlds; the effects of the appearance of their avatars may or not reinforce or similar behaviors".

Second Life

The virtual world of Second Life© was introduced to the public in 2003. This world consists of avatars created by users connected with each other via networked computers (Linden Lab, 2013). This is a case of what is called 3D MUVE, meaning a 3D potential multi-user world. SL has audiovisual representations in three-dimensional (3D) spatial level (Flintoff, 2009). There is also a development of "real life" in this virtual world, which includes earth, water and sky (realistic simulation of day-night alternation and weather phenomena).

Users in Second Life are called "residents" and are "uniquely named avatars with the right to connect to the Second Life world, exchange Linden dollars which are equivalent with US dollars ($) and visit the Community Pages" (Flintoff, 2009; Sofokleous, 2013). The company behind the game, Linden Lab, claims that there is no "constructed conflict" or goal. It is a completely "open experience" (Kalning, 2007). It is important that everything in Second Life is not a creation of Linden Lab, but of the

inhabitants themselves. This is also the feature of Second Life that does not make it a game and differentiates it from worlds like World of Warcraft[6] and Sims[7].

Second Life is a case of what we would call a virtual social world. Kaplan and Haenlein (2009), note that unlike virtual game worlds, Second Life has no rules that make users comply with any specific kind of behavior and interaction with each other. There are no avatar categories with specific activities. In Second Life, users have a sense of the omnipotence of a God, as they can create their avatar as they imagine it, change its appearance and engage in any activity they wish, such as drinking, fighting, making love, going to concerts and even flying or teleporting (virtual tourism, e.g., in Virtual Morocco) (Rymaszewski et al., 2007; Kamel Boulos et al., 2007).

Second Life offers the opportunity for educational events (e.g., theatrical and medical-clinical workshops), sales and advertising of products (real and digital). Users can also invest real money in real-estate (Flintoff, 2009; Kamel Boulos et al., 2007). According to the official guide of Second Life (2007), in order to live the experience of Second Life, one must make sure that has a computer that meets the requirements of the game, regarding the quality of the internet connection, the type of system, the processor, the memory card and the graphics card. In the bars at the top and bottom of the screen there are menus with information about the commands that the users can give to their avatar, about the location and the activities it can perform, while maps, messages, friends' lists, flight, photography and building options are provided. The so-called "Knowledge Base" informs about the possibilities of the user in SL (Rymaszewski et al., 2007).

In the context of the game, the user is given the opportunity to become (via the avatar) the founder of a team governed by rules with a democratic perspective. However, youthful recklessness often results in the enactment of monarchy-like laws. Groups are created by two or more residents who share common goals and interests. Their land is purchased by the property owner or offered by team members. It is worth noting that the communities that are created do not have a size and growth limit, while some resemble small nations (Rymaszewski et al., 2007).

The emotional expressions of the avatar can be captured through adjustments of the head, hands and the overall body movement. This can happen for example when the users speak through their microphone as avatara. In addition to human avatars, there is a tendency for non-human avatars - such as animals, robots, as well as "abstract and inorganic representations, such as sculptural or "formless" avatars" (Flintoff, 2009).

A very important feature of Second Life is that the residents do not see their face, which observes the world of Second Life. Instead, the avatar is the point of view through which the resident sees the world of Second Life. In this way, the avatar is the inhabitant; they are not two different entities; the avatar and the inhabitant are one

---

[6] Massively multiplayer online role-playing game-MMORPG
[7] The Sims, life simulation video game

(Harley et al., 2018). Second Life residents often have avatars that represent themselves as they are in everyday life. In any case, the avatar does not accurately represent of the "real world self", as some features may be covered or intensified, and role-playing is only observed during the first period spent in Second Life. In general, users have the ability to create an avatar with their own characteristics, with variations of these or completely different, through which they experience a parallel life with more positive features, forgetting the problems of everyday life (Sofokleous, 2013).

The ethnographic study by Bloustien and Wood (2016) about Second Life revealed that users with disabilities opt for an avatar with full functionality. For older residents the Second Life world is an opportunity to extend their offline lives rather than adopt completely different identities and live a completely different life. The avatar is an extended version of the real body into the context of this virtual world (as mentioned in Harley et al., 2018). The adoption of younger-aged avatars and not so many avatars of the opposite sex or imaginary creatures is a pattern observed by Duchenaut et al. (2009, as cited in Harley et al., 2018). It is also interesting that users experience a lot of emotions through their virtual experience. However, there must be caution as they can confuse the life of the virtual world with their real life, or become victims of pedophilia (Sofokleous, 2013).

A concept map[8] was used in order to form and analyze the theoretical concepts of the study.

Research questions

To investigate the body perception in the virtual world of Second Life, two key questions were posed:

Question 1: What is the perception of the Second Life body by people who have experienced the Second Life?

Question 2: What is the perception of the Second Life body by people who have experienced or have not experienced a similar world to Second Life?

a) How do they perceive the Second Life bodies and

b) how would they imagine their own body in Second Life?

Methodology

Participants

For the 1st question, the sample is consisted of participants who cannot be identified, as it is about users' profiles on a social medium. In terms of gender, nine (9) users claim to identify as men and fifteen (15) as women (Table 1).

For the 2nd question, the sample consists of ten (10) participants in total (Table 2). The sample was collected through non-probability and convenience sampling. The sample is an "ad hoc" sample (voluntary sample, immediately accessible and willing to

---

[8] Using MindMap (accessible at https://www.mindmup.com/)

participate). The average age was 20.5 years. Regarding the gender, five (5) participants identified as men and the remaining five (5) as women. All participants define themselves as "students" except for one participant who, additionaly defines herself as an employee (P5).

Data Collection: Apparatus and Procedures

Data for the 1st question were obtained from comments on eight (8) YouTube videos related to the creation of the avatar as well as experiences in Second Life (Table 1). A search was made based on the phrases: "Female avatar in Second Life", "Male avatar in Second Life", "Second Life", "Second Life avatar", "Second Life Tutorial".

Table 1: YouTube Videos and Users

VIDEO	Participant
Second Life In 2020- https://www.youtube.com/watch?v=s0g0RlJ8dxo	M(ale)1, M2, M3, M4, M7, F(emale)1, F3, F4
How To Create A Second Life Avatar! - https://www.youtube.com/watch?v=Hvb8UGaHacY	M8, F5, F6, F7, F8, F9, F10, F11, F14
Second Life | How To Create A Male Avatar!!- https://www.youtube.com/watch?v=yWAnW9cyjiA	F2
Second Life | Best Male Shapes & Skins | Upgrade Your Avatar 2021- https://www.youtube.com/watch?v=3wAW8v5AbA8	M9
The Truth About Second Life- https://www.youtube.com/watch?v=MWn166zHH7o	F12, F13
Getting Started In |Second Life| The Price To Look Good- Tutorial https://www.youtube.com/watch?v=_EpJ4Buqhbk	F10, F11
Second Life - https://www.youtube.com/watch?v=XQkYBbM9YyM	M5, M6
Had A Baby In Second Life?!- https://www.youtube.com/watch?v=IvQjHK9VNZw	F15

Data for the 2nd question were obtained from semi-structured interviews (Table 2). The interviews took place between April 17, 2021 - May 05, 2021; seven (7) in person and three (3) online by video call via the platform "Messenger". The average duration of the interviews was 37'. Participants were exposed to content from Second Life official profiles on YouTube and Instagram (Figures 1-4), received brief information about Second Life (see Second Life in the Introduction), and then were asked questions (based on the theoretical background of this research) about the body perception in Second Life.

Table 2: Participants of the Interviews

Participant	Age	Gender	Profession/Status	Date	Location	Duration
P1	20	Γ	College student	17-04-21	In person	45'
P2	19	Γ	College student	20-04-21	In person	30'
P3	19	Γ	College student	23-04-21	In person	40'
P4	21	A	College student	23-04-21	Online (Messenger)	50'
P5	20	Γ	College student - employee	21-04-21	In person	30'
P6	23	A	College student	23-04-21	In person	35'
P7	22	A	College student	25-04-21	Online (Messenger)	35'
P8	20	A	College student	28-04-21	In person	30'
P9	21	A	College student	05-05-21	In person	35'
P10	20	Γ	College student	30-04-21	Online (Messenger)	45'

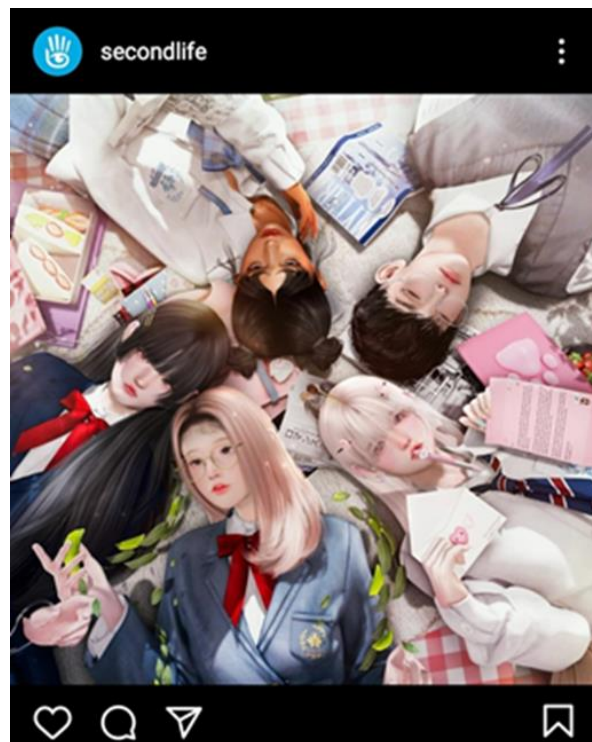**Figure 1**: Instagram of Second Life

Figure 2: Instagram of Second Life
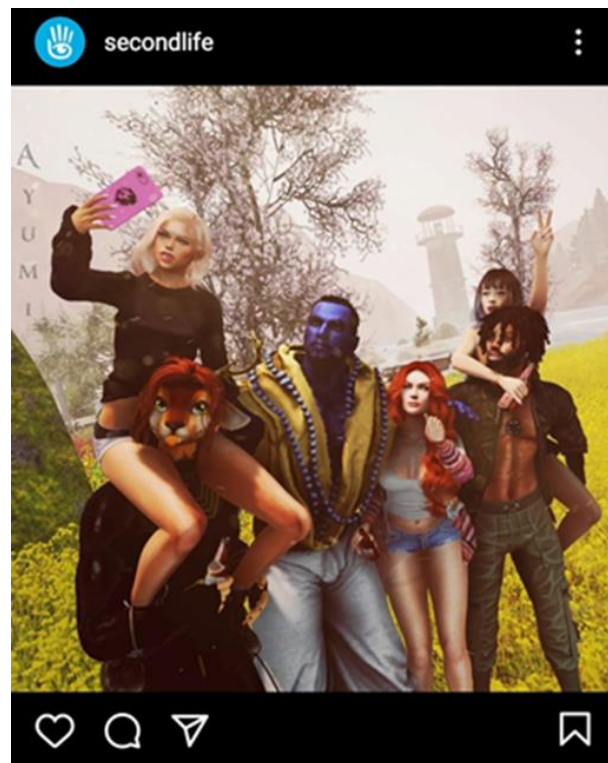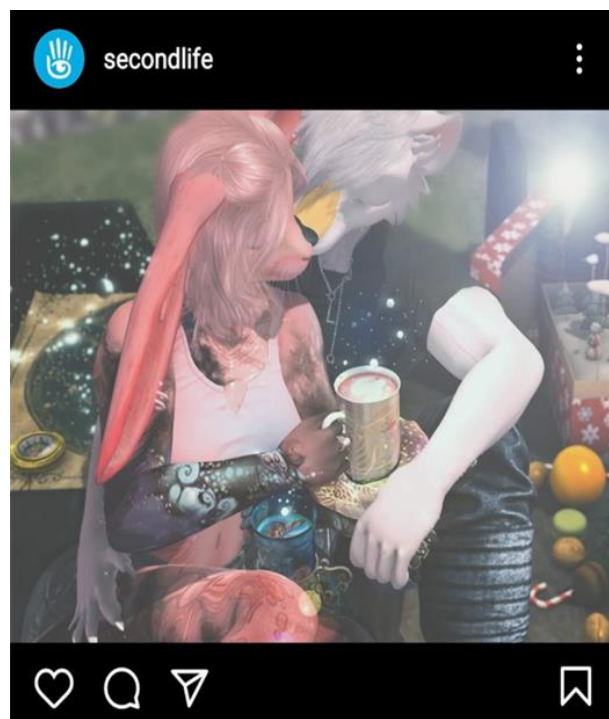
Figure 3: Instagram of Second Life

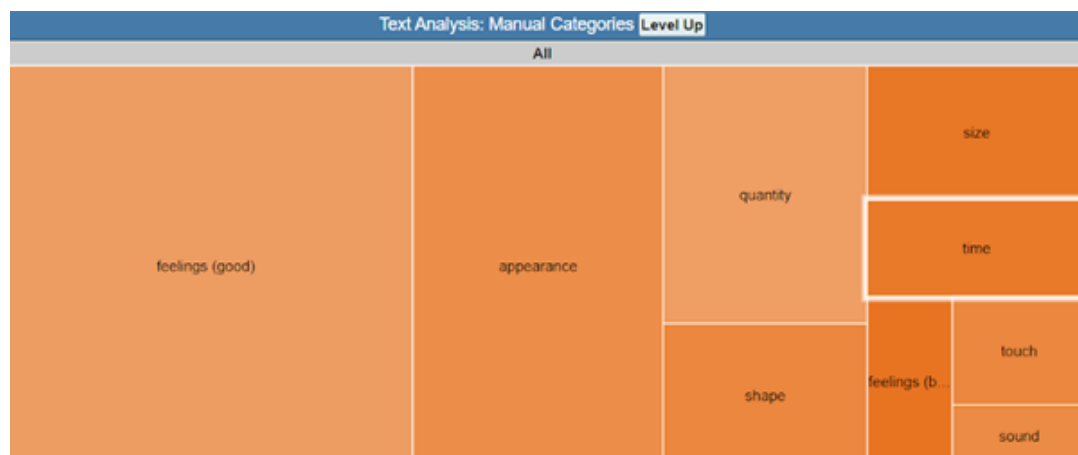**Figure 4:** Instagram of Second Life

Data Analysis

For content analysis we used the following softwares: for the interviews the Altas.ti [9] and QDA Miner Lite[10] and for the comments from YouTube the Netlytic[11] (Figure 5).

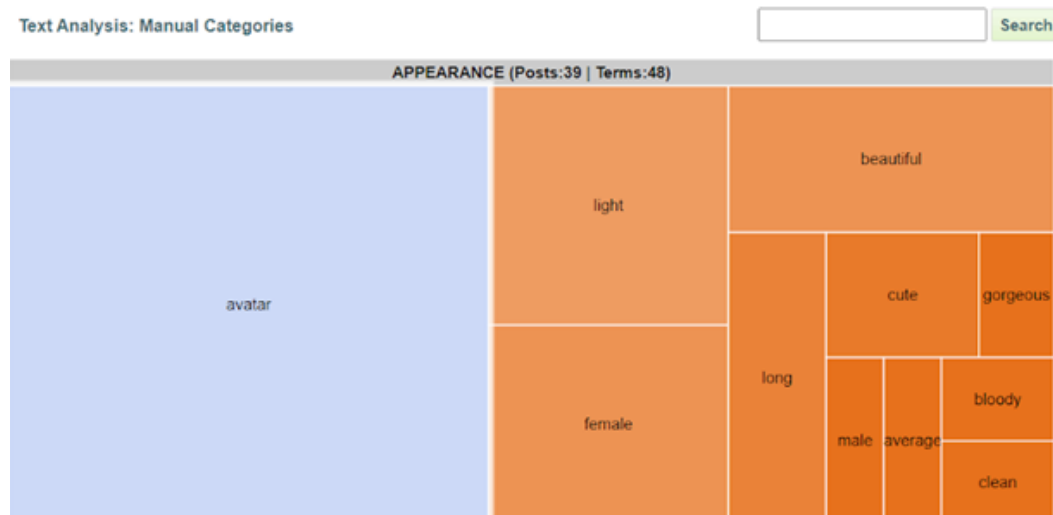**Figure 5:** Netlytic.org (Example of YouTube Video)

a)

b)

c)

Expected Results

1ˢᵗ Question: What is the perception of the Second Life body by people who have experienced the Second Life?

The gender of the avatar seems to be an important issue for Second Life users. F2 commenting on the video "Second Life | HOW TO CREATE A MALE AVATAR!!" writes that the male avatar is "so beautiful and that he will definitely enjoy" the results of his creation. F3 states that her avatar has a "beautiful red dress, blonde hair and eyes with a "frozen look". There are many interesting options for female avatars (F4, M1). However, for some users there is a dissatisfaction regarding the creation of an avatar, pointing out the need to include more female avatars with different skin tones (F5, F6).

The issue of gender "reassignment" seems a pattern in Second Life. For example, M3 moves around the world of Second Life with a female avatar without doing so for a "sexual reason", but because it is a ""Second Life", so why not be a woman in it [since in the first life he is man];". Also, F1 has no problem with her feminine status in her daily life, so she tries the male version of the avatar in Second Life. According to her, it was an unforgettable, fun experience during which she tried to think and feel like a man. She emphasizes that this experience had nothing to do with how she expresses herself as a woman in her daily life outside of Second Life. After all, this role-playing community within Second Life is not so much concerned with the gender of the user in their daily lives, but with what their avatar represents in the Second Life world. Creating an avatar of the opposite sex should not be considered unusual, as we all have a male and a female side (M1). In fact, M4 uses avatars of both sexes and people should not care so much about what players do with their gender choices, as it is a game, an experiment. It is an art form being able to alternate from one sex to the other (F6). However, not using your gender as it is in your daily life is not always such an innocent choice (M5, M6). Interestingly, in the YouTube video "Second Life" a (male in real life) user presents the avatar of a little girl which he has in Second Life and M6 believes that if someone on the internet makes such an inappropriate gender choice, it is for a reason; and it is not a legal one.

Second Life promotes creativity and freedom regarding what one can do with his/her avatar (M7, F7, F9). F13 compares creating an avatar to playing with Barbie dolls and that "Second Life is the potential version of this and more." In fact, F11 and F14 believe that since it is Second Life, then they have the right to try everything, to do whatever they want. After all, for F9, it is so difficult to decide how to shape her avatar, so she is constantly changing her appearance. A positive feature of Second Life is that people with disabilities can actually express themselves in the world of Second Life (F12).

F8 states that creating the desired avatar is generally a complicated process, as she found it difficult to customize her avatar as she wished. M8 faces similar problems; the upper part of the avatar's body is invisible because he "isolated its body" and does not know how to fix the problem. The majority of avatars look the same, as the options provided are only for avatars aged 20-30 (M9). Investing money to create an avatar is

considered something that some users do not regret (M2: 100 euros, F10: 50 $). F11 does not perceive positively financial and technical requirements of creating an avatar: "I wish I had an avatar that looked like this (the avatar in the related video). But I do not have a credit card. I wish people would send me things to make it easier for me to understand what we call avatar: /". Second Life users seem to be interested in details about their avatar features. For example, F10 asks F9 user where she "got her lips". F9 replies that "the lips go with the skin" and that lip gloss is supplied by "Glamocracy".

In Second Life there is the possibility for avatars to create their own avatars through the birth process. In the video I HAD A BABY IN Second Life?!, F15 states the following: "Yesterday I did a lot of bold things in the club and my character decided to get pregnant. I want to have my own children one day. I have "millions" of children at Sims. But it is difficult; most pregnancies need 3 months of "real life" in Second Life. You have to find a father for the child, a doctor".

In conclusion, according to the statements above, the world of Second Life inspires creativity and facilitates the expression of any desire of users regarding the appearance of their avatar.

2nd Question: What is the perception of the Second Life body by people who have experienced or have not experienced a similar world to Second Life?

In order to understand how participants perceive Second Life bodies, it would be appropriate that they first refer to key concepts related to the subject. More specifically, data about participants' knowledge of virtual worlds, Second Life and avatars were required. Finally, they were asked to share their general view of what a user might perceive about their body in a virtual world.

Before getting acquainted with the world of Second Life, participants were invited to express themselves on the subject of virtual worlds. Virtual worlds are defined by participants as environments of real-world idealization, liberation, but also as user-controlling, as places of game and social interaction, imagery, technology and the Internet. They look like video games and social media and they offer users a variety of options. Of course, these definitions come from the 7 participants, as the rest (P4, P5, P9) do not have any special knowledge about the virtual worlds.

The knowledge of the participants is even more limited on the subject of "Second Life", as almost everyone (8 out of 10) hears this name for the first time. Of these, 3 participants (P3, P7, P10) assume that in Second Life you live the real life, "where you do various things there to pass the time", but in the context of an online game. Only two participants (P1, P4) have heard of the Second Life world before and define it as a simulation environment for the experience of a "normal life" that you shape by decorating and interacting with real users (unlike Sims- P4) according to your preferences.

According to what was mentioned above (see Second Life in the Introduction), users are represented by avatars in SL. For this reason, participants were asked about their

general idea of avatars. Participants' statements define an avatar as "a digital representation, an animation of the self", a "hybrid human", a "character in 3D". This "figure" exists so that the user can participate in areas of technology - online or gaming technology- and can take any form depending on the preferences of its creator and represent their offline appearance or not.

That much freedom in creating the avatar can lead to the belief that this creature is our real body. After all, there is the possibility of an appearance just as one wishes for oneself or an appearance that is not usual in "real" life (e.g.: a famous soccer player with a tattoo and an unusual hair color, as stated in the example of P7). This can happen especially due to age (immaturity of a young person compared to an adult), a negative perception of the "real" body in terms of its appearance and need for sexual satisfaction. Factors that can also lead to confusion of "real" and "avatar" body are reduced socialization and acceptance by others in "real life". Finally, the belief that the body of the virtual world is our real body can arise - as claimed by almost half of the participants (4 in 10) - in case someone is addicted to the game where their avatar exists.

       a) How do they perceive the Second Life bodies?

After the first contact with Second Life (through general information, pictures and videos about Second Life), the majority of participants (9 out of 10) claim that they would not partake in this world. The 3 out of 9 say that they would find it (SL) attractive at first; especially at the stage of shaping the avatar character but all 9 agree that they would not opt for it, as there is no specific purpose (quest) and it could be addictive, time consuming and complicated (P7: "you have to devote enough time from your real life to do things in the game"). Instead, one participant (P8) states that he would enter the world of Second Life. He considers that "it is a pretty nice game since you can meet people and make new friends".

Regarding the possibilities of creating an avatar between the virtual world of Second Life and other similar environments, all participants answer that there are unlimited possibilities and freedom in creating an avatar. In Second Life you have the opportunity to (re)form any feature of your appearance and shape it exactly as you wish. In contrast, in other games mentioned by the participants, such as Town of Salem[12], World of Warcraft, Stardoll[13], League of Legends[14], Nintendogs[15] and Fortnite[16], the characters are either given ready (e.g., with predefined "skins[17]") or you make them by yourself but without so many options (as in SL). There were comparisons made between the

---

[12] Online multiplayer social deduction strategy game
[13] Online game that is one of the largest fashion communities in the world
[14] Multiplayer online battle arena video game
[15] Real-time pet simulation video game of the Nintendo company
[16] Survival, battle royale, sandbox game
[17] Virtual goods in video games, such as weapons and character models won in-game or provided while downloading the game

avatar in Second Life and other avatars from P1: "The world of Second Life is more open [compared to Sims]". However, the avatars of Assassin's Creed[18] and Until Dawn[19] are characterized by more realism than the avatar of Second Life, in terms of their appearance and movements, so that "you get the impression that you see a real person".

The options given to avatars [e.g.: to change their appearance and engage in any activity they wish, such as drinking, fighting, making love, having children, going to concerts and even flying or teleporting (in places like Virtual Morocco, but also island sites created by the Second Life users themselves)] are perceived in different ways by participants. Two of them say that in general the whole game is not so realistic, but it looks more like an attempt to imitate and simulate the real world. On the other hand, 6 participants had a positive attitude towards these possibilities and state that all the possibilities seem interesting, attractive, fun and "reasonable" as they are all creations of technology (referring mainly to the teleportation). Two participants had a negative attitude, as they claimed that the above possibilities can easily lead the player to the point of "sacrificing everything he/she could do in real life, as it may give the impression that in Second Life you can easily experience the "reality"; and that seems a bit scary (P4) ".

Regarding whether a message is transmitted through the body of the avatar as effectively as in real life, none of the participants considers that an avatar conveys a message 100% faithfully. They believe that the Second Life avatar conveys messages through its expressions, for some of them to a bigger and for some of them to a smaller extent.

Although the majority of the participants reported that they consider avatar expressions to be quite realistic and that they can convey some key messages sufficiently, it is important that almost half of the participants mentioned the "human contact" factor. Even if an avatar captures a message well, for example: an emotion, you can never really know how the real player behind the screen feels. As P3 states: "A sad person might hide behind a happy and smiling avatar and vice versa". Therefore, for the participants, no matter how well a message is transmitted, the real "truth" is never revealed through the avatar.

Participants' opinions vary as to whether there are body stereotypes in the Second Life world. P1 claims stereotypes about the embellished Korean teenager of K-pop culture (Figure 1) are apparent in the world of Second Life. Three out of 10 participants (P3, P7, P9) believe that in Second Life there are even more stereotypes and discrimination than in real life. On the one hand, some people will have more courage to make a racist comment through an avatar. On the other hand, the fact that the game provides infinite possibilities for ideal characters makes players captive to the standards, passing the message that you have to be very pretty and eccentric in order to be able to do

---

[18] Open-world action-adventure stealth video game
[19] Interactive drama horror video game

things in this game. Two participants believe that since normal avatars are managed by people, perceptions and stereotypes (from the "real" world) will invade the game either indirectly (e.g., behavior) or directly (e.g., appearance). P8 and P10 believe that there are discriminations in the virtual worlds and that this is why most players would choose the ideal character (P10), but at the same time "it has to do with every player you meet" according to P8. On the contrary, P6 believes that in Second Life there are no stereotypes given that people are in a free world (when they are in Second Life), while for P2 body-discrimination in a game is not "equivalent" to the discrimination in the real world.

b) How would they imagine their own body in Second Life?

Participants were subsequently asked to imagine how and why they would take advantage of the features offered in Second Life avatars in order to create their own avatar.

At first, participants expressed the perception of their "real" body. Of all the participants (10), 9 reported that they are generally happy and have a positive perception of their body, although most of them stated that they might like to improve it even more; they would prefer it with some changes. Only one participant (P1) stated that she is not satisfied with her body, as she considers herself overweight.

8 out of 10 participants said that they would like a Second Life-avatar resembling their real body. However, it is interesting that some of them would rather change only the features that they do not like in their real body aiming in some way at the "ideal" body for them as the virtual body may constitute an opportunity to obtain the body that they may not have. It is also interesting that among the two participants who would not make an avatar similar to their real body, we find the only participant who has a negative perception of her body. Finally, it is worth noting that two (2) participants mentioned that they could also create non-human avatars [blue troll (P1) and Scarecrow (P4), like the ones presented to the participants; see Figures 2 & 3,4].

In general, the majority of participants said that even with minor changes, they would portray their real body in the SL- avatar because they are happy with it and think that it is better to look "authentic" even in the game.

All participants reported that their avatar could not affect the perception of their real body. Even if they create the "ideal" body for them through the avatar, they would not want to have it also in real life (8 out of 10) because to them the real body can in no way be influenced by a body in a "game": "[...] when I would not play the game, I would see my real self and not someone else" (P8). As P4 states: "It (the avatar) would be basically an ironic version of the real body (and not a realistic representation of it)". Only two participants stated that they would like to have the ideal body that they

would create in Second Life (e.g., thinner arms) but again they think that the overall perception of their real body would not be affected.

In conclusion, participants would create specific avatars for different reasons. The avatar is a medium for the "ideal" body, for humorous and "troll" reasons, for the fulfillment of some desires (e.g., to become a famous footballer) and for the representation of the real body (to the extent possible). However, in no case would their perception of their real body be significantly affected by the SL avatar.

As mentioned above, the avatar in Second Life mediates -among other things- in the fulfillment of social needs. Seven out of ten participants claimed that the body of another avatar in Second Life would not be a key factor for dating someone. In fact, one of the participants (P1) states it is not only the appearance that counts in such acquaintances, but also the interests and the personality (of the other person). Only 3 out of the 10 participants (P3, P9, P10) stated that they would take in great consideration the body of an avatar, because as they mentioned, in the game the image is important from the beginning. The role of the body in the "real" world has a different meaning for the participants. Regarding social contact in real life, 6 of the participants (P1, P2, P3, P7, P8, P9) argued that the body of others would not be a key factor. Instead, they would give more importance to character and interests. The rest (P4, P5, P6, P10) think that they would observe someone's body to go out on a date with him/her. P10 explains that "... something like this [the appearance of the others] only applies to love affairs and not to friendly relationships".

For daily interactions with avatars in the world of Second Life, approaching people regardless of their appearance, whether they are humans or animals, seemed to be a possibility (P1, P3-P6, P8, P10). Emphasis is placed more on the behavior of others (P1, P3, P4), but also on the way others would perceive their own behavior (P1). On the contrary, the rest of the participants (P2, P7, P9) state that they would associate with avatars based on their tastes for the appearance in real life. Of course, in the case of P7, it is mentioned that "... the appearance of the others would play a role, especially if himself was an avatar of a famous football player", while he would not feel comfortable by exclusively acquainting animal-avatars. Similarly, P4 mentions that "... an avatar with mainly human features is more accessible and not so much the furries[20]".

The avatar would not seem to affect the behavior of most participants (P1, P2, P6, P7, P8, P9) in Second Life. In the case of P1, the creation of the ideal avatar (with reduced weight) would not affect the feelings about herself, while the creation of the troll avatar would make her behavior "reckless". The rest of the participants (P3, P4, P5, P10) claimed that they would feel more confident and courageous in their interactions with other people in SL, while P4 focused on the fact that his behavior would have no restrictions if he had a Scarecrow avatar; in the sense that he would not be interested

---

[20] The furry fandom is a subculture interested in anthropomorphic animal characters with human personalities and characteristics. Individual members of the fandom are known as "furries" (sg. "furry") (see also Roberts et. al., 2015).

in the criticism of others, […] "as [the avatar] is something fake". The participants' answers indicate that the appearance of the avatar-body (even if it is the "ideal" one) could not have as much influence on their behavior and self-confidence as the real body has.

This becomes more apparent in the statements regarding real-life behavior. Six participants (P1, P2, P3, P5, P7, P8) state that they would not be affected by their appearance. On the contrary, 3 of the participants (P4, P6, P9, P10) believe that their behavior would be affected by their appearance, while P9 points out that his self-confidence would be affected only on a personal level, without affecting his interaction with other people.

Investing in additional avatar features (beyond the basic ones) in Second Life is considered a "stupid choice" (P4, P6), an investment in something "fake", as P1, P7 and P8 described it. P5 states that she would invest in her avatar only if she were addicted to the world of Second Life. Only three of the participants (P8, P2, P3) would invest in the appearance of their avatar. In contrast, in real life, investing in the appearance seems reasonable to the 8 participants (P2, P3, P4, P5, P6, P8, P9, P10). Of course, investing financially in the "real life-appearance" seems more challenging to some participants (P2, P3, P5). P2, especially states "[…] and in real life I would probably invest, but I would think about it again and again". Only the P7 seems reserved about excessive purchasing (in real life), except for absolutely necessary cases. In general, participants think that investing in an avatar is completely different from investing in the appearance of the real body. Only P10 notes that, that shopping for avatars is not often taken seriously by players.

Regarding the stereotypes about the body of their avatar in Second Life, participants express interesting views. In particular, 3 out of 10 participants (P2, P3, P10) would feel uncomfortable if someone made a racist comment about their avatar in Second Life, while 4 out of 10 (P4-P7) would not be bothered at all by such a comment; it would be completely unnoticed. There is concern that people who make racist comments in the game will do the same in real life, but since the avatar is something "fake", a "mask", these comments do not matter. In fact, P7 would not be affected at all because he would have the avatar of a famous football player who sends anti-racism messages. On the contrary, the majority of them (P2, P4, P5, P6, P9, P10) would feel bad if someone made a racist comment about their real body, because it is "their own body" and such comments are considered more serious in real life (than in a virtual world like Second Life). Two out of 10 participants would not feel bad about racist comments in real life because they have a positive image of their body, even if their flaws are noticeable. Finally, for P8 the two situations (racism in the virtual-real world) are similar and in any case he would "react".

Finally, the results from the interviews of the 10 participants demonstrate that bodies are perceived differently in a virtual compared to the "real" world experience. Participants believe that there are unlimited options for creating an avatar in Second

Life, especially in comparison to similar environments with avatars. These possibilities are primarily attractive and fun, but also dangerous in the sense that they can distract the player from "reality", but also because they "transfer" discrimination and existing stereotypes to the Second Life world. The transmission of messages through the avatar can technically approach the capabilities of a "real" body, but it never reveals the real feelings of the person behind the avatar.

In order to create their own avatar, participants would choose to portray their own body in the Second Life world for a variety of reasons, but without thinking that this would affect their perception of the "real body" and their behavior and emotion felt within this virtual world. Intimate interpersonal relationships would be more affected by the appearance of other avatars than everyday interactions with other users. Finally, despite the plethora of possibilities for modifying the avatar, most players would not take advantage of it - unlike the reasonable investment of resources for the appearance of the "real" body.

Conclusions

The current study approached the body perception in Second Life using statements from individuals from different contexts (Second Life users and non-users) and under different circumstances (publicly posted statements and semi-structured interviews). If any comparisons could be made, it appears that those who are familiar with this virtual world are more "open" to body experimentations associated with identity experimentations, than people who have never participated in the world of Second Life. For the latter, the Second Life body can be considered as an option for "navigating through a virtual world", which allows a variety of experiences, but cannot replace the "real" body experiencing the "real" world.

In general, this project should be perceived as an exploratory process that did not provide some specific answers, but rather paved the way for new questions. The participants of the research referred frequently to bodies that belong to two worlds - the "virtual" and the "real" one. It would be interesting for this research (with the suggestions listed below) to be conducted at in the future, when perhaps the division between two separate worlds is not so clear and evident (when perhaps there is not even such a view of the world at all). For now, one of the issues raised by this research is the following: Can the body define identity, our relationships with others, our perception of space and time, or be defined by all of them?

Discussion

The qualitative methods used in the research (the analysis of the content of comments on YouTube as well as the analysis of interviews) provide rich data related to the research questions. However, there are some limitations. First of all, the qualitative nature of the research itself is not appropriate for generalizations. These results could in no way be generalized to larger samples and wider populations or other environments. Therefore, at a descriptive level, research data is important, but not for

further generalizations and interpretations compared to data from quantitative research (see Future Research). Another limitation of the study is the fact that it does not include actual Second Life players. Interviews were conducted with non-players and this could limit the validity of the results as a real player might have a completely different perception of the body inside and outside of this virtual world. Of course, this can be counterbalanced to an extent by the fact that the YouTube content analysis included comments from actual Second Life players.

Future research

Despite the limitations, this paper has paved the way for further research and a more in-depth study of Second Life in the near future. More specifically, this research could lead to the design of future quantitative research on body perception in Second Life and other virtual worlds, where interesting quantitative statistical analyses where a large sample and different virtual settings could produce interesting results. Based on comments from YouTube content analysis, additional data could be collected by analyzing the videos that show the Second Life experience and the various features provided to users, as well as related user-comments. It would be interesting to further communicate with the users who uploaded these videos, while at the same time it would be possible to approach Second Life users, by creating an avatar, in order to collect data directly from the SL world.

As the use of social media has increased rapidly in recent years, it would be interesting to conduct a survey in which participants compare the avatar they have in Second Life with other avatars they have on social media; especially in the so-called Meta era. In some social media, users are already given the opportunity to create their own avatar/sticker with any feature and body type they desire while this supposedly could influence to a great extent the real body perception. In the future, social media may have evolved to such an extent that they have become like Second Life avatars providing the opportunity for designing some very interesting studies.

References

Alexias, G. (2011). *Koinoniologia toy somatos; Apo ton "Anthropo Neanderthal" ston "Exolothreyti" [*Sociology of the body: From "Neanderthal Man" to "Exterminator "]. Pedio.

Alexias, G. (2003). To anthropino soma; Apo ti viologia sti dynitikopoiisi. [The human body: From biology to potentialization.] *Epitheorisi Koinonikon Erevnon, 111*(111-112), 327-357. https://doi.org/10.12681/grsr.9229

Alexias, G. (2008). O dynitikos «allos»: to dynitiko soma. Sto K. Koskinas, & S. Arsenis (Epim.), *Dynitikes koinotites kai diadiktyo: Koinonio-Psychologikes prosengiseis kai technikes efarmoges* [The virtual "other": the potential body. In K. Koskinas, & S. Arsenis (Eds.*), Potential Communities and the Internet: Socio-Psychological Approaches and Technical Applications*] (pp. 91 – 115). Klidarithmos. https://media.public.gr/Books-PDF/9789604612109-0417519.pdf

Assassin's Creed. (n.d.). In *Wikipedia*. Retrieved Thursday, 6 May 2021 from
https://en.wikipedia.org/wiki/Assassin%27s_Creed

ATLAS.ti 9. (n.d). [Content Analysis Software]. ATLAS.ti Scientific Software Development
GmbH. https://atlasti.com/

Bartle, R. (2004). *Designing virtual worlds*. New Riders Publishing.

Bell, M. (2008). Toward a Definition of "Virtual Worlds. *Virtual Worlds Research: Past, Present
& Future, Journal of Virtual World Research.* 1(1). https://doi.org/10.4101/jvwr.v1i1.283

Boston Blaisdale Second Life. (2021, January 23). *Second Life | Best Male Shapes & Skins |
Upgrade Your Avatar 2021* [Video]
YouTube. https://www.youtube.com/watch?v=3wAW8v5AbA8

Carmen King. (2020, November 20). *I Had A Baby In Second Life?!* [Video] YouTube.
https://www.youtube.com/watch?v=IvQjHK9VNZw

Castronova, E. (2004). *Synthetic worlds*. The University of Chicago Press.

Combs, N. (2004, June 7). A virtual world by any other name?.*Terra Nova.*
http://terranova.blogs.com/terra_nova/2004/06/a_virtual_world.html

Flintoff, K. (2009). Second life/simulation: Online Sites for Generative Play. In Anderson M.,
Carroll J., Cameron D. (Ed.), *Drama Education with Digital Technology* (pp. 202-221).
Continuum.

Fortnite. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from
https://en.wikipedia.org/wiki/Fortnite

Furry fandom. (n.d.). In Wikipedia. Retrieved on Τρίτη, 25 May 2021 from
https://en.wikipedia.org/wiki/Furry_fandom

Harley, D., Morgan J., Frith, H. (2018). *Cyberpsychology as Everyday Digital Experience across
the Lifespan.* Palgrave Macmillan. https://doi.org/10.1057/978-1-137-59200-2

Internet troll (n.d.). In *Wikipedia*. Retrieved on Saturday, 8 May 2021 from
https://en.wikipedia.org/wiki/Internet_troll

Kalning, K. (2007, March 12). If Second Life isn't a game, what is it?.
NBCNews.https://www.nbcnews.com/id/wbna17538999#.U9uyeEi49yw

Kamel Boulos, M., Hetherington L. & Wheeler S. (2007). Second Life: an overview of the
potential of 3-D virtual worlds in medical and health education. *Health Information &
Libraries Journal, 24*(4), 233-245. https://doi.org/10.1111/j.1471-1842.2007.00733.x

Kaplan, A. & Haenlein M. (2009). The fairyland of Second Life: Virtual social worlds and how
to use them. *Business Horizons, 52*(6). 563-572.
https://doi.org/10.1016/j.bushor.2009.07.002

K-pop. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021
from https://en.wikipedia.org/wiki/K-pop#cite_note-Hartong_2006-1

League of Legends. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from
https://en.wikipedia.org/wiki/League_of_Legends

LexiDeanna. (2021, February 8). *Second Life | How To Create A Male Avatar!!* [Video] YouTube. https://www.youtube.com/watch?v=_EpJ4Buqhbk

Linden Lab. (2013). Infographic: 10 Years of Second Life. [Poster]. https://www.lindenlab.com/releases/infographic-10-years-of-second-life

Merola, N.A., & Peña, J. (2010). The Effects of Avatar Appearance in Virtual Worlds. *The Journal of Virtual Worlds Research, 2*(5). https://doi.org/10.4101/jvwr.v2i5.843

MindMup. (n.d.). [Online mind-mapping application]. Sauf Pompiers Ltd.. https://www.mindmup.com/

Netlytic. (n.d). [Content Analysis Software]. https://netlytic.org/home/

Nintendogs. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/Nintendogs

Peña, J., & Hancock, J. T., & Merola, N. A. (2009). The priming effects of avatars in virtual settings. *Communication Research*, 36, 838-856. https://doi.org/10.1177/0093650209346802

QDA Miner Lite. (n.d.). [Content Analysis Software]. Provalis Research. https://provalisresearch.com/products/qualitative-data-analysis-software/

Reclus-e (2020, January 24). *Getting Started In |Second Life| The Price To Look Good | Tutorial* [Video] YouTube. https://www.youtube.com/watch?v=_EpJ4Buqhbk

Roberts, S., Plante, C. N., Gerbasi, K. C., & Reysen, S. (2015). The anthrozoomorphic identity: Furry fandom members' connections to nonhuman animals. *Anthrozoös, 28*(4), 533-548. https://doi.org/10.1080/08927936.2015.1069993

Rymaszewski, M., Au W., Wallace M., Winters C., Ondrejka C., & Batstone-Cunningham B. (2007). *Second Life: The Official Guide*. John Wiley & Sons.

Schroeder, R. (2008). Defining Virtual Worlds and Virtual Environments. *Virtual Worlds Research: Past, Present & Future, Journal of Virtual World Research*. *1*(1).https://doi.org/10.4101/jvwr.v1i1.294

Second Life (2019, May 13). How To Get Started in Second Life - New User Tutorial [Video]. YouTube. https://www.youtube.com/watch?v=4Y26VOR3ksU

Second Life (2020, June 16). Second Life Destinations - Summer Sailstice. [Video]. YouTube. https://www.youtube.com/watch?v=cAlCsU7Is2g

Second Life [@secondlife]. (2021, March 1). A selfie with friends by Ayumi Vertefeuille is today's #SecondLife pic of the day. [Instagram post] [Instagram]. Instagram. https://www.instagram.com/p/CL4mfbZs2XC/

Second Life [@secondlife]. (2021, March 26). Happy FriYAY! Spend some time with friends this weekend - no social distancing needed in the #VirtualWorld [Instagram εικόνα] [Instagram]. Instagram. https://www.instagram.com/p/CM46paAD1PK/

Second Life [@secondlife]. (2021, March 8). This week for #MusicMondays we are featuring #SecondLife artist Oblee. [Instagram post] [Instagram]. Instagram. https://www.instagram.com/p/CMKvX4agDha/

Sofokleous, I. (2013) *Parousiasi Eaftou kai Dynitiko Soma stous Eikonikous Kosmous –* Bachelors Thesis, Tmima Epikoinonias kai Spoudon Diadiktyou tou Technologikou PanepiInmiou Kyprou. [*Self-Presentation and Virtual Body in the Virtual Worlds -* Bachelors Thesis, Department of Communication and Internet Studies of the Cyprus University of Technology]. Ktisis Cyprus University of Technology. https://ktisis.cut.ac.cy/handle/10488/3160

Stardoll. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/Stardoll

The AriellXO (2021, January 17). *How To Create A Second Life Avatar!* [Video] YouTube. https://www.youtube.com/watch?v=Hvb8UGaHacY

The Sims. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/The_Sims

Town of Salem. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/Town_of_Salem

Until Dawn. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/Until_Dawn

Vasalou, A., Joinson, A. (2009). Me, myself and I: The role of interactional context on self presentation through avatars. *Computers in Human Behavior*, *25*(2), 510-520. https://doi.org/10.1016/j.chb.2008.11.007

Video Games in Skin (disambiguation). (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/Skin_(disambiguation)

videogamedunkey (2016, January 18). *Second Life* [Video]. YouTube. https://www.youtube.com/watch?v=XQkYBbM9YyM

Wang, W. (2020). Difference between the Real World and Virtual World. *Proceedings. 47*(1). https://doi.org/10.3390/proceedings2020047035

World of Warcraft. (n.d.). In *Wikipedia*. Retrieved on Thursday, 6 May 2021 from https://en.wikipedia.org/wiki/World_of_Warcraft

Yorkie (2020, April 1). *Second Life In 2020* [Video] YouTube. https://www.youtube.com/watch?v=s0g0RlJ8dxo

Notes on Contributors

Nikoletta Gkatsonidou is an undergraduate student at the Psychology Department, Panteion University. For her thesis she is investigating the relationship between multisensory perception and autistic traits. Her main interests include Neuropsychology and Cognitive Psychology.

Christos Kortikis is an undergraduate student at the Psychology Department, Panteion University. For his thesis he is investigating the effects of social media on body image. His main interests include Developmental Psychology and Experimental and Applied Behavior Analysis.

Ioanna Vasileiadou is an undergraduate student at the Psychology Department, Panteion University. For her thesis she is investigating the social attitudes towards the importance of the vaccination and their change. She is interested in the field of Counseling Psychology.

Aggeliki Zamaria is an undergraduate student at the Psychology Department, Panteion University. The aim of her thesis is to investigate the social representation of "woman-mother" as viewed by working mothers. She is interested in the fields of Counseling and Clinical Psychology.

Evangelos Lioupras is an undergraduate student at the Psychology Department, Panteion University. For his thesis he is investigating the supporting role of friendship in the reinforcement of mental resilience, positive emotions and prevention of depression. His main interests include Clinical and Positive Psychology.