

Virtual Worlds and Metaverse Platforms: New Communication and Identity Paradigms

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Chapter 7

Verbal and Non-Verbal Communication in Second Life

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ABSTRACT

In the last few years, several studies concerning the advantages and potentialities of using Second Life in education came to spotlight. To identify which type of communication is most common among avatars and to understand if there is any similarity with communication in real life, a case study was developed in order to analyze both verbal and non-verbal communication among Master degree students.

This chapter will explain how this study was conducted, as well as the results and the conclusions drawn from it. After the data analysis we concluded that avatars rarely use kinesic communication - although there is, in Second Life, an inventory full of gestures - using instead verbal communication. In fact, it was very clear that individuals use written code to express their emotions, thus increasing the number of participations. Non-verbal communication had a small role in interaction, proxemics was influenced by space, and finally, appearance didn't reveal the true personality of the user.

INTRODUCTION

Second Life (SL) is known by its potential to enhance social communication, interaction and information sharing. This virtual environment is also interactive and dynamic, allowing users to experience situations beyond one's physical and financial constraints (Appel, 2006, p.4). In fact, several teachers, doctors, architects, businessmen and many others use SL to develop their daily

activities, because it is a realistic and persistent environment, and because it expresses a sense of presence and a sense of immersion. SL also has several advantages for educational professionals, especially regarding content creation, role-playing and socialization.

However, in order to use virtual worlds in classrooms, it is fundamental to understand how individuals relate with each other and what pedagogical strategies are more efficient in those

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environments. To fulfill these goals, the present research was out forward, over the period of a year, aiming to understand the verbal and non-verbal behavior of several Portuguese master students in Second Life.

Words have an enormous importance in our lives because they can express feelings, enlighten, excite. Therefore language can be a great instrument or a hazardous weapon. (Toomey, 2000).

But communication doesn't necessarily mean speaking: pre-historical men used gestures, postures and movements to get in touch with other individuals. Davis (1979) however acknowledges the value of words, adding that words are beautiful, exciting, and important, although also expressing a belief that words have been overestimated since they represent neither the full nor the partial communicated message. Indeed, verbal communication cannot be analyzed without non-verbal communication, because doing so might jeopardize the effectiveness of the whole purpose of interaction. To fully understand the meaning of verbal messages, individuals have to take into account intonation, intention, environment, interaction, interlocutor and non-verbal communication (Streeck, 1993, inLeathers, 1997). As Kendon (1972) stated "*the flow of movement in the listener may be rhythmically coordinated with the speech and movements of the speaker.*" (inWeitz, 1979, p. 89)

Non-verbal communication is responsible, in real life, for 65 to 70 percent of human interaction (Birdwhistell, 1970, inLeathers, 1997). The way we look, the way we place ourselves and the gestures we make are very expressive and say a lot about/of our emotions. These items are studied by several disciplines, namely proxemics and kinesics. Obviously, non-verbal communication is quite different in SL and in real life, but there are some points in common.

Since we have described the two major concepts that underlie our study it is now important to present its main aims which were to identify how individuals relate with each other in SL and

to identify whether there is any similarity with real life interaction, so as to adjust SL classroom strategies to both the teachers' and the students' needs. Furthermore, we also wanted to:

1. Understand the interaction typologies –verbal and non-verbal communication – among students in Second Life and their relevance to education;
2. Understand the impact of interaction between individuals concerning the increase of sense of community;
3. Identify the advantages of interacting in virtual worlds when compared with the advantages of traditional communication means.

COMMUNICATION TYPOLOGIES

Verbal Communication

Language is a tool to accomplish one's goals and success (Ng e Bradac, inSzuchewycz, 1995), because it can develop, modify or overthrow the power someone has. Although it is very important, language is not the only constituent of the communicative process, since the non-verbal acts, such as movements, postures and facial expressions, also express feelings and emotions.

Although it might look simple, the analysis of verbal communication requires the consideration of multiple variables. Since language is full of ambiguities it is necessary to use complementary signs to get the message through (Toomey, 2000). Verbal messages can be used to fulfill four main functions:

1. Give information on people's attitude;
2. Provide personal information about the speaker and his state of mind;
3. Report the intensity of speaker's emotions;
4. Present relational information.

Hymes (1984) and Jakobson (*in*Hébert, 2006) have considered six functions:

1. Referential – it analyzes context and content;
2. Metalinguistic – it analyzes the code and language itself;
3. Expressive – it focus attention on the speaker's emotions;
4. Connotative – it emphasizes the speaker's intention to influence the attitudes and behavior of the receiver;
5. Poetic – it focus on the shape and structure of the message;
6. Phatic – it establishes and maintains interpersonal contact.

Verbal communication is about sharing information, not only regarding the speaker's character, but also his/her emotions, beliefs and attitudes. Therefore, verbal communication is an incredible network whereby messages, means and the communication process itself work together.

To sum up, verbal messages give us information on the participants, space, time and intrinsic meaning. However, each and every message should be analyzed to avoid mistakes and misunderstandings. Speech acts can have different intents and it is, therefore, extremely important to analyze them not only taking into account the reaction they will produce in the receiver but also their communicational expressivity and context.

During the analysis of speech acts we have considered several parameters which helped us to classify each message. These parameters are related to the expression of emotions, the qualitative participation in a debate and the proximity between the intervenients. Some of these parameters will imply gathering specific words and will be detailed in the next chapters.

Non-Verbal Communication

Hickson & Stacks (*in*Leathers, 1997) describe non-verbal communication as a process to manipulate

actions and expectations and to show feelings and beliefs whether they are intentional or not. Leathers (1997) defines non verbal communication as "the use of interacting sets of visual, vocal and invisible communication systems and subsystems by communicators with the systematic encoding and decoding of nonverbal symbols and signs for the purpose of exchanging consensual meaning in specific communicative contexts" (p.11). Therefore, non-verbal communication can be an effective way to explain ambiguous oral messages and to indicate how accurate and cohesive they are.

Non-verbal acts have many functions, namely the reinforcement or replacement of verbal messages and the clarification of some indistinct concepts. They also emphasize emotions and express feelings in a genuine and discreet way. More, these acts control social situations since they can guide one's behaviors and impressions. Finally, non-verbal communication is often quicker than verbal messages:

"The reaction must be quick and reflexive, with no time to ponder or talk. And whenever such situation occurs, the slower and exhaustive verbal codifications are out of the question for practical reasons and are clearly more time-consuming and inefficient than nonverbal reactions" (Reusch & Kees, 1956, *in*Leathers, 1997, p.8).

Given that non-verbal communication has so many functions, it encompasses several disciplines, namely kinesics, proxemics and appearance. Although appearance has a huge impact in everyday communication, in SL is hard to analyze its importance since users can freely edit their avatars. Despite this fact, we will explain, in the following section, each one of these three areas.

Kinesics

Kinesics studies observable, isolate and meaningful movements, such as gestures, facial expressions and postures that occur during interpersonal

communication (Leathers, 1997). According to Birdwhistell, "kinesics is concerned with abstracting from the continuous muscular shifts which are characteristic of living physiological systems those groupings of movements which are of significance to the communication process and thus to the interactional systems of particular groups" (*in*Leathers, 1997, p. 67).

Kinesics analyzes movements taking into account their intentionality, awareness and cohesion within verbal discourse. Through this analysis, the researcher can justify some attitudes, feelings and even the self-esteem of the subject (Leathers, 1997).

Postures are also an important element of kinesics, whether in real life or in Second Life. Schefflen (1964, *in*Leathers, 1997) classifies postures in three different types:

1. Postural movements keep other people away or bring them closer together;
2. Individuals stay near their interlocutors, showing interest in communicating with all participants;
3. Posture indicates haughtiness or modesty.

In fact, postures can influence the way other people perceive us and how they react to our speech, facilitating or hindering the continuity of communication (Weitz, 1979).

Proxemics

Proxemics is the study of movements in a space, of the positioning of objects and of the distance between people (Hall, 1968). To clearly understand this concept, we have to understand the meaning of both space and distance; the first one refers to the location or environment where interaction occurs and the use that people make of it. According to Hall, the organization of space can prevent spontaneous interactions (*in*Leath-

ers, 1997). Unfortunately, educational spaces are organized in such a way that they intimidate students and support distance when they should promote closeness, involvement and interaction.

Distance depends on the affiliation or privacy needs (Leathers, 1997). Collier (1975, *in*Davis, 1979) and Leathers (1997) argue that people come closer to people whom they like and care for, standing face-to-face or side-by-side. The positioning also determines status and hierarchical role; leaders tend to adopt a central position - though this might be a spontaneous attitude.

Davis (1979) also holds that it is possible to foresee some psychological characteristics from the place people take in a conversation; for instance, shy people tend to keep away from other participants. This author adds that a circular disposition is taken whenever there is no clear leadership (Davis, 1979).

In order to analyze proxemics it is important to observe people's movements in spontaneous environments, because spatial configurations can determine human behavior (Davis, 1979). Furthermore, it is essential to observe people's attitudes, since they might express feelings and emotions that would not be told orally.

Appearance

Appearance is also an essential element of non-verbal communication. According to Birdwhistell (*in*Davis, 1979) individuals are influenced by society to look in a certain way. Mass media, culture or religion exerts pressure over individuals, making their desire to fit in more important than their own individuality.

Physical appearance, namely the type of body, weight and height, clothes and accessories also influences others perspective towards us. So, appearance may define social identity: a gothic man, for instance, is easily identified with his group (Leathers, 1997).

WORK PLAN AND COLLECTED DATA

When SL became a famous platform, a group of students and teachers of the University of Aveiro (Portugal) decided to explore this new environment. Because they were studying the use of different technologies in education, especially Web 2.0 tools, SL seemed to be an interesting new platform where they could meet, talk and share information. These meetings, which were always held after working hours, soon drew the attention of other people, which also wanted to learn and speak about the way technology enhanced learning.

In order to analyze both components of communication in the aforementioned meetings we created two main observation grids. The verbal communication grid was actually based on studies by Philips (2000) and Rourke et al. (2001). These authors studied the way people interact in virtual environments like LMS (learning management system). The non-verbal communication grid, on the other hand, was more complex to build since there are many different components, some of which are not considered in a 3D virtual environment, namely facial expressions. Despite this restriction, we have studied and included kinesics, proxemics, intentionality and appearance components in this data collection instrument (Davis, 1979; Leathers, 1997; Weitz, 1979).

Table 1 shows the several parameters and descriptors of the verbal communication grid.

Affective Parameter

This parameter refers to all the sentences in which users express feelings, emotions, beliefs, values or their state of mind. Greetings, verbal reinforcement, expressive icons (☺, ☹, ...) and onomatopoeic words are some of the most common examples of affective elements.

Real Life Parameter

Virtual worlds as well as web 2.0 tools are growing because of their social capacity, since they have the ability to spread knowledge regardless distance. In this parameter we consider all sentences relating to events that occur in real life.

Interactive Parameter

To define the descriptors of the interactive parameter we have used a Philips' study (2000) as reference, because it analyzes the quality of interaction between students in virtual environments like LMS. Although LMS and 3D virtual worlds are very different, participations are quite similar because both use written code, making sharing easier and potentially empowering argumentation skills.

Sentences representing appreciation for the other's point of view or showing reference to a specific subject were classified as interactive. These speech acts not only showed tolerance and respect but also contributed to enhance the communicative process.

This parameter also included questions that present one's point of view.

Table 1. Verbal communication parameters

PARAMETER	DESCRIPTOR
Affective	Expression of emotions Demonstration of users' state of mind Greetings
Social	Presentation of events which take place outside SL
Interactive	Resumption of previous discussion Clear allusion to someone else's topic Questioning others directly Showing one's appreciation for others' opinion
Cohesive	Sense of community Using vocative
Participative	Number of sentences collected Number of sentences on a specific topic Diversity of topics in discussion

Cohesive Parameter

These sentences are intrinsically related with the affective content, since they express the sense of community. Expressions like "our group" or "our point of view", the use of the personal pronoun "we" and others are just a tiny example of this sense of belonging which is increased by familiarity. Once again, greetings, resumption of previous topics, sharing social information and indicating a specific topic were considered cohesive elements. Using the first name to speak to someone was also an expression of cohesion, regardless its common use in SL.

Participative Parameter

This parameter counts the sentences that were written down along the meetings.

We decided to consider the sentence as the unity of analysis, like Henri (1992) did in his study. Participative and interactive parameters, for instance, showed us how important these meetings were and how involved users in this community of practice and learning were. On the other hand, the affective parameter gave us tools to understand the emotions and the relationship between individuals, some of which were conveyed to real life.

Since we had to analyze non verbal communication in real time, verbal communication was studied *a posteriori*, always taking into account the avatar's behavior and his/her non verbal acts.

In fact, one of our parameters was intentionality, which was used to compare verbal messages with non-verbal attitudes (gestures, movements or simply appearance), because they might disclose the true meaning of verbal messages (Davis, 1979).

Although there were obvious differences between non-verbal communication in a real environment and in SL, we have discovered some similarities, namely kinesics and proxemics. Physical features, however, were hard to evaluate because avatars can freely choose their appearance.

The non-verbal grid was divided into four main parameters regarding avatars' behaviors and attitudes (Davis, 1979, Knapp, 1992) (See Table 2).

Kinesics

Gestures are the most ancient way of communication and therefore their relevance cannot be devalued. In real life interaction, non-verbal acts can replace speech. However, in SL, these gestures are especially used to reinforce certain oral messages. This parameter includes both the gestures available in the inventory and the gestures created by SL users.

Physical Features

In real life, appearance has an important role in social relationships, because it shows people's expectations, beliefs, desires, needs... Physical features can influence the personality of an individual and can determine the group to which he/she will belong. Although we might make some assumptions regarding the impact of the avatar's appearance in his/her personality, there is not a clear proof showing this relationship.

Table 2. Non-verbal communication parameters

PARAMETER	DESCRIPTOR
Kinesics	Gestures in SL inventory Gestures created by users
Physical features	Avatars' appearance Sense of belonging to a social group Influence of the avatar's appearance in his/her behavior Identification through appearance Setting one's status
Proxemics	Understanding space and position Organization of a group in a specific space Immediacy or distance between avatars
Intentionality	Expression of emotions Verbal communication reinforcement Identifying if verbal and non-verbal acts are totally out of step

Nevertheless, appearance is the easiest way to recognize someone in a crowd or to define his/her importance in a certain group.

Proxemics

The position people assume in the presence of other people or towards space can have different meanings. In fact, some positions and postures clearly show some degree of intimacy among avatars. Positioning can also reveal someone's status and role in the community, especially when they take a central place.

The last descriptor of this parameter refers to the group's behavior as a collective entity.

Intentionality

This last parameter intends to analyze the relation and cohesion between verbal and non-verbal acts. In some cases, non-verbal acts can show emotions, even though they are not linked to a specific oral message. Concerning intentionality we also evaluated if non-verbal acts were used as a reinforcement of speech.

As we mentioned before, the majority of participants in this study attended a master degree in Multimedia in Education lectured in the University of Aveiro. Despite this fact, the openness of the meetings soon attracted other researchers, students and scholars, which came from different cities and countries. Since the avatars came from different places, these meetings happened in different locations, for example the Island of the University of Aveiro, Portugalis, and the Island of PT Inovação. The topics of discussion were mainly related with education in virtual worlds.

DATA ANALYSIS AND RESULTS

Next, we will present and discuss the information gathered in the six meetings we have observed. In these meetings the number of participants,

mostly Portuguese students, never exceeded forty. Although we have analyzed the information according to a qualitative perspective all data will be showed using graphics. The written messages and the non-verbal acts were all treated with the help of software of qualitative analysis (QSR Nvivo), respecting the parameters put forward in the observational grids.

Verbal Communication Results

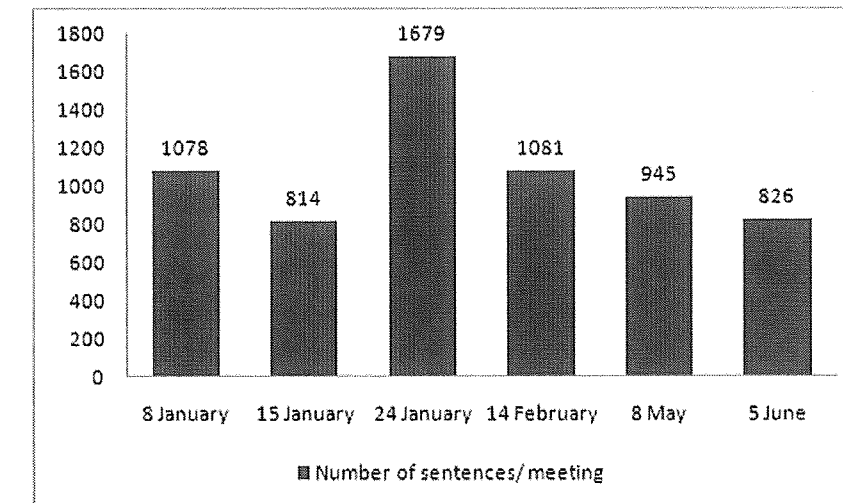
There was an average of 27 users from different educational institutes in the meetings we have attended. In fact, the less crowded meeting was on the 8th January 2008, when users discussed the topic of interaction design. The presence of so many people in these meetings showed the importance of SL and its sense of community. This huge participation can be shown through the number of messages collected, in a total of 6423 sentences (See Figure 1).

The number of messages collected on the 24th January meeting showed that users talk intensely about that specific topic. The two first meetings were about topics related with education or with SL benefits or disadvantages and gathered mainly Master students, as this discussion began in real life classroom. Most meetings were related with a conference on Communication, Education and Training in SL held in the University of Aveiro, which probably influenced this amount of participation.

After collecting avatars' messages we have analyzed them according to the parameters previously presented. Next, we will represent the global analysis, which will respect the order of parameters, because this is the best way to understand and frame some of the conclusions drawn. Since descriptors are a little extensive, we adopted an alphabetic system, in order to represent each one of them:

- A. Expression of emotions;
- B. Demonstration of users' state of mind;

Figure 1. Number of sentences per meeting



- C. Greetings;
- D. Presentation of events which take place outside SL;
- E. Resumption of previous discussion;
- F. Clear allusion to someone else's topic;
- G. Questioning others directly;
- H. Showing one's appreciation for others;
- I. Sense of community;
- J. Using vocative.

These descriptors belong to different parameters, respectively affective (A, B, C), social (E, F, G, H), cohesive (I, J) and interactive. Figure 2 represents the amount of messages in each parameter, being obvious the supremacy of the interactive parameter over others. However, this parameter has more descriptors than the others, which might have influenced this result.

Once more, we want to stress that written messages were analyzed in context to understand the true meaning of that specific speech act. The same sentence can be classified in a multiplicity of parameters, according to its meaning and intention.

Messages are often labeled as interactive or affective. In meetings like these, in which people are supposed to express their opinion, it is normal

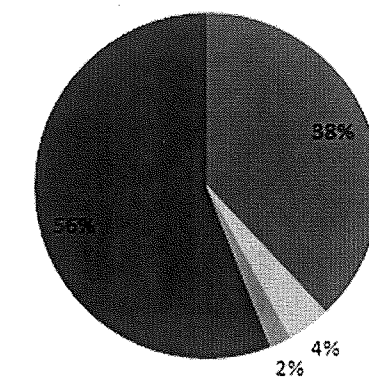
to argue, to expose ideas, to reveal a state of mind or to greet.

Figure 3 allows us to confirm that descriptor E has a significant difference when compared with the remaining descriptors. The use of vocative – descriptor J – is also often used, since avatars need to identify who they are talking to.

Furthermore, it is important to notice that the sense of community was visible regardless the

Figure 2. Percentage of messages per verbal communication parameter

■ Affective ■ Real Life ■ Cohesive ■ Interactive



number of messages. Avatars use words like "community", "all", "people", "group", "folks", as well as personal pronouns ("we" and "ours").

In order to clear up this analysis and given the fact that we have only showed the global results we will specify each parameter by giving some examples.

Affective Parameter

Messages expressing emotions, beliefs, states of mind and intimacy are classified as affective. It is important for us, as researchers, to analyze not only the explicit meaning of sentences, but also the subjective one, because people are not always objective. Despite this fact, there were some speech acts hard to classify due to its multiple meanings.

To descriptor A – "expression of emotions" – correspond all sentences expressing feelings such as:

- [13:23] **Avatar1:** *This space makes me feel safe...*
- [14:05] **Avatar2:** *yet??*
- [14:29] **Avatar3:** *(what a shame...)*
- [15:10] **Avatar4:** *Hallelujah!!!!*

- [15:33] **Avatar5:** *I love it!*

Descriptor B, corresponding to the "demonstration of users' state of mind", gathered messages that use humor, emoticons and expressive punctuation. In order to recognize humoristic sentences, researchers consider the context and punctuation, since there is no intonation available, as it happens in a real life situation.

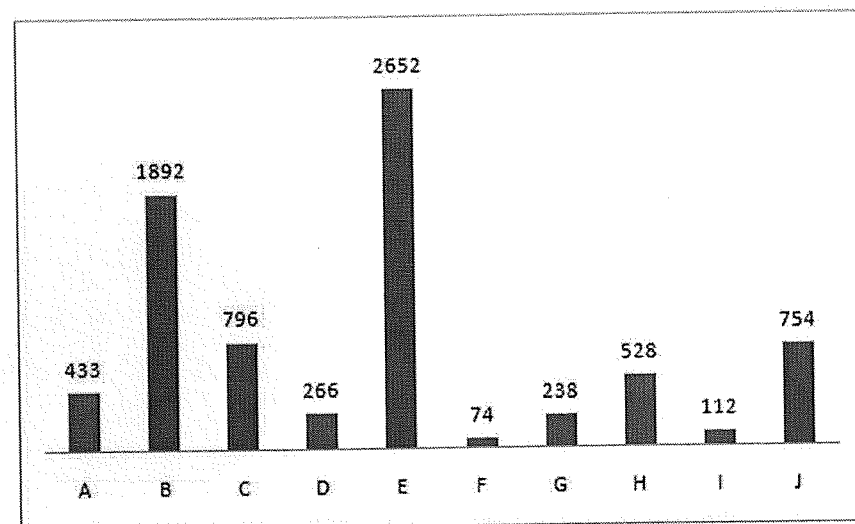
In order to show this descriptor, we have collected the following messages:

- [13:22] **Avatar1:** *lol*
- [14:10] **Avatar2:** *:)*
- [14:20] **Avatar3:** *:D*
- [14:15] **Avatar4:** *heheheheheh*

The last affective descriptor (C) includes not only greetings, but also messages showing personal incentives and support.

- [13:22] **Avatar1:** *good night everybody, sorry i'm late*
- [15:24] **Avatar2:** *C U:)*
- [15:02] **Avatar3:** *good news:D*
- [14:16] **Avatar4:** *go on!!*

Figure 3. Number of sentences per descriptor



As we can see, these messages do not have a direct relationship with the argument. Nevertheless they allow us to deduce the existent relationship between avatars.

Real Life Parameter

This parameter is characterized by messages relating to events that took place in real life and do not influence directly avatars' behavior and experience in the virtual world. We also classify as social all the messages relating to the users' opinion on the importance of topics in their daily life.

Even though there were not many messages of this kind, there are some examples:

- [14:12] **Avatar1:** *I was in DSI until last year...*
- [14:35] **Avatar3:** *I just arrive from BCN.*
- [14:37] **Avatar4:** *Prima is a journal promoted by CETAC.MEDIA (UA and UP)*
- [14:07] **Avatar6:** *I know one's made and sold in a typical fair at Setubal*

Interactive Parameter

This parameter has a large amount of messages, because it refers to argumentative sentences that carry on an argument (E) or bring in a new discussion (H).

The next messages are just an example of descriptor E:

- [14:22] **Avatar1:** *well, at the beginning what attracted me the most on SL, was the possibility of communicate and meet people from other cities and countries*
- [13:22] **Avatar2:** *Metaphor is a challenge to communication...*
- [14:21] **Avatar3:** *In this second stage we want to reinforce the development of areas to support students and to enhance socialization*

- [14:44] **Avatar4:** *I want to show you an experience...*

When avatars use a message to make comments about a certain topic or to mention directly the work or the opinion of someone else, there is a specific reference (F). The sentences below show how interested the avatars are in the discussion and in the resumption of argument.

- [14:42] **Avatar1:** *and there isn't, on SL, the means to fulfill our dreams as Avatar7 says?*
- [13:29] **Avatar2:** *I'll add, Avatar8: The arousing of new era...the dawn of the ancient ways to communicate*
- [15:41] **Avatar3:** *with the goal, as Avatar10 said, of involving more Brazilian people*
- [15:26] **Avatar4:** *in one of the meaning, I believe it was in the first one, Avatar10 raise a relevant question, which I'm about to explain*

Descriptor G includes messages in which avatars show their respect and appreciation for somebody's opinion, indicating intimacy and proximity between the users. The next sentences exemplify this fact:

- [14:52] **Avatar1:** *I agree*
- [13:22] **Avatar2:** *oh Avatar7...great ideia*
- [15:08] **Avatar3:** *exactly, Avatar8*
- [15:24] **Avatar4:** *that's great:D*

The last interactive descriptor does not relate exclusively to interrogative questions, since there are also many declarative sentences employed to stimulate argument and to raise new topics. Here are some examples:

- [14:36] **Avatar1:** *aren't we encouraging controversy by defending the idea that SL is a game?*

- [14:26] **Avatar3:** *when you spoke about Portuguese-speaking community, did you mean academic and scientific one?*
- [14:42] **Avatar4:** *Avatar7, do you want to speak a bit about Avatar8 professional and personal path?*
- [14:14] **Avatar5:** *Can you explain me once again the context, since I didn't understand it quite well?*

Cohesive Parameter

Group cohesion is a very important issue in any social situation. At SL the sense of community (I) is really important and avatars show how deep the relationship that unites them is by using some specific words, such as "group", "our", "community" or "we".

- [14:13] **Avatar1:** *hello everybody*
- [13:24] **Avatar2:** *He!!! I have my family from SL community calling me every where*
- [14:13] **Avatar3:** *Hi, folks!*
- [15:32] **Avatar4:** *I like to see u all together...*

The other descriptor in this parameter is the use of vocative. In SL it is necessary to use the first name so that people know who they are talking to, unlike it happens in real life communication.

- [13:26] **Avatar1:** *Avatar8, this is good or bad, if we're talking about socialization on second life?*
- [14:18] **Avatar2:** *Avatar10, make the introductions*
- [14:20] **Avatar3:** *Avatar11, please turn that voice down*
- [14:33] **Avatar4:** *Avatar8... lead the argue*

In conclusion, verbal communication is the most important mean to socialize and interact in SL. Results showed that 43% of the messages were interactive, while 37% were affective. These

results mean that individuals are participative, interested and active in the debate, choosing to express their opinion rather than just listen to others' ideas. The affective parameter also reveals the intimacy between individuals, which led them to express their emotions and feelings.

Non-Verbal Communication Results

The analysis of non-verbal acts was made in real time with the support of an observational grid. After recording each act, we crossed this reference with the verbal speech in order to analyze its cohesion and veracity. Although this section of communication is qualitative, the results will be presented through graphics.

Physical features are difficult to analyze just through the observation of meetings. As we have mentioned earlier, individuals are totally free to edit their avatars, independently of their real personality. This makes it really difficult to set people's personality or to identify the group to which they belong just by their appearance.

Even though we can't make any assumptions regarding the user's personality or behavior, we can notice that some of them choose an eccentric appearance. Even if there isn't any connection between appearance and behavior, eccentricity can promote their recognition while in a huge group. To corroborate this fact, we have chosen several messages in which avatars talk about some particular features:

- [14:31] **Avatar1:** *I've blue hair, almost green... bad premonition*
- [15:08] **Avatar2:** *and blue eyes...*
- [13:41] **Avatar3:** *I love your cloak*
- [13:42] **Avatar4:** *remembers me Cruela*
- [13:42] **Avatar5:** *phantom of the opera...*

In conclusion, the first parameter of non-verbal communication only allows us to identify people in a group; however, it is impossible to indicate their status or any trace of personality. In order

to get this information we suggest the application of questionnaires.

Kinesics

Users have a huge amount of avatars gestures in the SL inventory at their disposal. Additionally, they can create their own gestures. There are 35 gestures, some of which are different according to gender to simulate several of the non-verbal acts used in common interaction. The creation of gestures was indicative of the knowledge of avatars regarding the use of scripting tools. Besides, it also illustrated their interest in this virtual environment. Although many gestures were used, we've noticed users prefer to express themselves in written code, using emoticons, interjections and idiomatic expressions. From the inventory, it became quite clear that users use "Laugh" the most; however, many of them choose to write it down in the following way: [14:15] **Avatar1:** *heheheheheheh* or "[14:20] **Avatar2:** *HiHiHiHiHiHi*".

Since avatars choose to replace gestures for speech acts, the percentage of non-application is bigger than its use (See Figure 4).

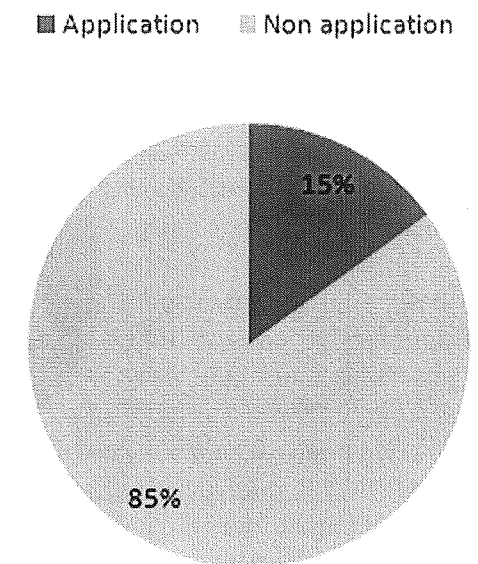
We can point out some reasons to justify this behavior. First, its timing, since there is a time frame between the application of gesture and the speech act that can lead to incoherency and incomprehension of the true message. Second, the lack of knowledge of gestures use; and third, the habit of using emoticons or written sentences to express feelings, emotions, humor...

These three reasons can probably be the cause for the devaluation of gestures, which, in some meetings, were not even used at all. Figure 5 shows a comparison of the six meetings.

It is important to clarify that although percentage reveals a high application of gestures; numbers are quite lower, corresponding to only one dozen of gestures per meeting.

Throughout meetings we have realized that several avatars, especially those with a better knowledge of this particular virtual world, create

Figure 4. Global results for application of gestures



some gestures, namely "All right", "Aahhh!" or "Miauu". However, this fact did not emphasize the avatars' interest on the application gestures. From the 35 gestures at avatars disposal, "Clap", "Chuckle", "Laugh", "Wow" and "Yes" are the most frequently used.

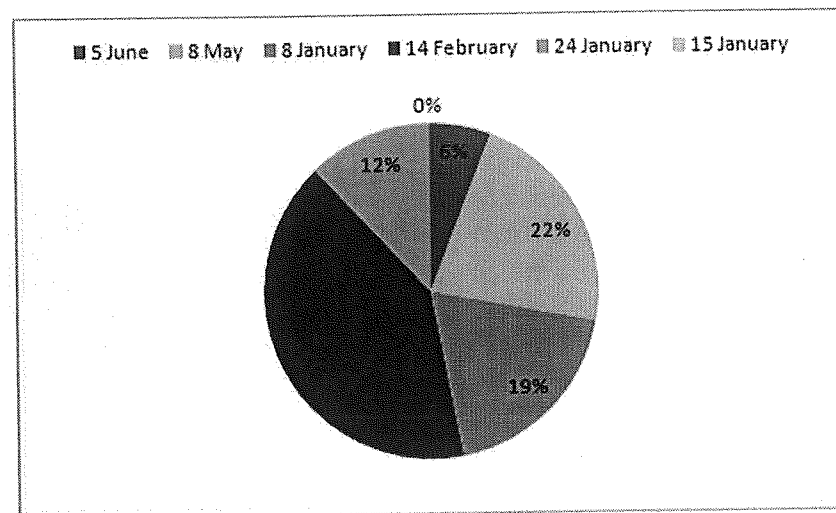
After the comparison between verbal and non-verbal communication, we've noticed that all gestures used by avatars intended to emphasize other people speaking act. In order to corroborate the cohesion between these two components of interaction, we will present the written message and the respective gesture.

At 14:58, 24th January, an avatar used the gesture "Nod" to express his/her agreement to Avatar3's opinion: [14:58] **Avatar3:** *credibility, presence...*

In the same day, at 14:31, an avatar used the gesture "Aahh" to show his/her support to the information given by the slides and wrote simultaneously [14:31] **Avatar4:** *well done.*

In February, an avatar joke about cats, writing [15:05] **Avatar1:** *unless you're a cat.* In response Avatar2 used the sound "Miauu".

Figure 5. Global percentage of gestures per meeting



The final example happened on the 05th June, at 14:20, when an avatar used the gesture "Boo" to emphasize his divergence regarding another avatar's opinion. At the same time another avatar used "All right" to simulate his/her agreement. These gestures were used in response to the following message [14:20] **Avatar5:** *that's a rap... would you want to go to coffee, sit down a bit?*

The application of these gestures throughout all the meetings shows the cohesion and coherence between verbal and non-verbal communication. Curiously, we have noticed that even when the gesture could entirely replace the written code, avatars used rather both of them.

Proxemics

Throughout the meetings we have noticed that avatars adopt a certain position in order to see all participants, even if it means having to change place regularly. Indeed, although real users have a clear perspective of other avatars, they try to take the better place.

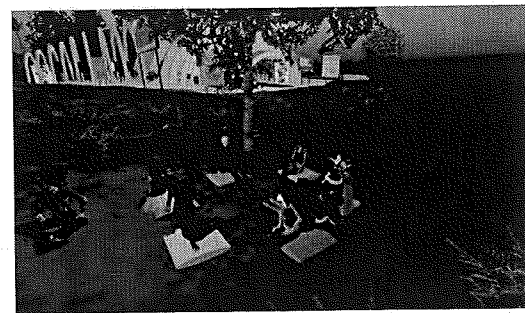
Avatars like circular disposition better, adopting a different disposition only when the space is preconceived. This fact happened in two of the meetings, in which the leader used slides to

expose his/her ideas (See Figure 6). Curiously, avatars said that they rather like to be seated in circular way, like they do in real life:

- [13:47] **Avatar1:** *don't you think we can talk better in orange seats?*
- [13:47] **Avatar2:** *we're in a circle*
- [13:48] **Avatar3:** *I like it better*

The position avatars took in the meetings reveal their sense of community and the intimacy between them. So, if they adopt a circular positioning they will engage in argue actively, unlike what it happens when they sit side by side. Comparing a meeting in which the space wasn't restricted

Figure 6. Snapshot retrieved 08 January 2008



to another one in which it was necessary to look at slides, we have noticed that avatars were less participative in the second case, because their focus was on the slides being presented and not on the discussion itself. Circular positioning also helps to understand the closeness between users and their sense of belonging to a group, as non-verbal theories advocate.

Although the previous items are quite similar in real life communication, we cannot identify how close individuals are by their positioning or their personality. In fact, even when they were apart, avatars participated actively in discussion. However, in some cases avatars took a leadership position, when the meeting was of their responsibility.

In conclusion, proxemics gave us enough material to understand the relationship between avatars and to identify a sense of community and of belonging to a group. Even though there were some similarities with real behavior, namely the circular position when in group contexts, it was difficult to establish a connection between their positioning and the avatars' personality or importance in the meeting. However, in some meetings we have noticed that avatars take a leadership position, acting as moderators.

CONCLUSION

The main goal of this research was to identify which type of communication avatars liked better, so that teachers and other scholar agents could have a deeper understanding of communication patterns that emerge in this particular virtual world. After analyzing the information, we have realized that users communicate mostly through written code.

Despite the success of verbal communication, we have realized that the absence of non-verbal acts, such as postures and gestures, devalue the power of interaction, when compared with everyday life, because a lot of interpersonal communication happens through non-verbal communication.

Throughout this research we have collected 6423 sentences, proving that individuals are really interested in debates and want to share their knowledge and opinions. Even when avatars' intention is to express their emotions, they prefer to use emoticons or written expressions.

Although the affective parameter was relevant to the overall superiority of verbal communication, the interactive parameter gathered much more messages. All the descriptors in the interactive parameter refer to debate, not only with messages regarding its resumption, but also boosting.

Results have showed individuals are active, engage in debates and want to contribute to ongoing discussions. Curiously, users didn't mention many events happening in real life, probably because they see SL as an opportunity to live another life. Results also reveal that users regularly use vocative, because they need to specify the person they are talking to. This discloses a flaw in SL interaction which might be overcome through a more powerful database of gestures and movements.

The cohesive parameter did not give us much information, but we could foresee the sense of community and the union between avatars, when they used specific words or expressions.

In relation to non-verbal results, we have concluded that it is difficult to establish a connection between the avatar's appearance and the user's behavior or status. In order to obtain this information it is essential to apply questionnaires and interviews. Although the majority of the descriptors in the appearance parameter could not be analyzed, observation showed that physical features are an excellent way to identify a person.

The proxemics parameter revealed that when avatars adopt a circular disposition in the group, they wish to share experiences and to point out their equal status. Even when there was a leader or a moderator, avatars chose to use an informal speech.

After the analysis of each type of communication, we have compared results and concluded that there is cohesion between both of them and that,

in addition, non-verbal acts were used especially to emphasize the meaning of the messages.

This research has given us some clues on the impact of these virtual worlds in education, namely on the use of informal spaces to create a friendly environment and to enhance spontaneous interactions. The absence of an authority figure and the use of open and creative spaces also help individuals to talk to one another, exposing their ideas and opinions freely. Despite this fact, we can't firmly say that SL is a useful tool to improve learning and a powerful instrument to use in classroom. If a teacher wants to use this kind of virtual environment, we suggest the implementation of discussion activities.

In conclusion, we can say that verbal communication is the most used type of interaction in SL, in spite of weakening the content of the messages. So, it might be useful to improve non-verbal communication, not only by increasing the gestures available in the inventory, but also by developing new postures and movements.

FUTURE RESEARCH DIRECTIONS

Throughout this chapter we have indicated some future research directions that might give educators and researchers a new background on this particular virtual world.

One of the studies we consider important is concerned with the relationship between avatars' life in SL and users' real life. This could tell us more about behavior, learning and teaching habits, allowing educators to adopt the most useful strategies to achieve their learning goals.

Another important research direction is related with the analysis of these two components of communication in multicultural groups in order

to realize the impact that this interaction has in real and in second life.

Finally it could be helpful to develop a system to improve non-verbal communication, so that avatars can understand the full meaning of messages by intonation and postural movements.

FURTHER READINGS

Exodus to the virtual world: how online fun is changing reality, by Edward Castronova

Castronova discuss the growing popularity of virtual worlds, such as Second Life and World of Warcraft, and why these virtual environments can shift social, political, educational and economic paradigms.

Interpersonal communication and human relationships, by Mark Knapp

This book explains, through the use of common experiences, several principles and theories of interpersonal communication. Its main aim is to motivate readers to understand and critically think about their own relational communication and those of others.

Successful nonverbal communication: principles and applications, by Dale Leathers

In this book Leathers demonstrates the importance of nonverbal messages to the success of interpersonal communication. The author presents nonverbal cues and their functions, as well several tests for measuring and developing nonverbal communication skills.

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KEY TERMS AND DEFINITIONS

Convention: What people say to respect society rules.

Community: Group of individuals gathered to discuss subjects of common interest, to share experiences and knowledge, and to enjoy each other's presence. This community can be a practice or a learning one and it stimulates the interaction and relationship between individuals, regardless of their geographical location.

Immersion: User's ability to control information and objects as he/she does in real life situations. The deeper the users are engaged in this virtual world, the higher their sense of realism is, and so the more they believe they experiencing real situations.

Intentionality: Cohesion between written or verbal message and kinesics and proxemics movements.

Kinesics: Study of observable and meaningful movements happening throughout interpersonal communication like gestures, facial expressions or postures.

Non-Verbal Communication: Communication based on visual, vocal and invisible systems, with the main goal of emphasizing, clearing up or replacing speech acts.

Proxemics: Study of people's positioning and behavior in space. It also studies the distance between individuals during a conversation and the relative position of objects.

Sense of Presence: User's belief that the virtual world is real, because it has some similarities with real life such as gravity or topography. This concept can be linked to immersion, since the user believes that he/she is in a real environment and that he is able to interact with people and objects.

Verbal Communication: Oral language, it is the most common type of communication in an interactional setting, although not the most important one. This type of communication should be analyzed according to the meaning and intention of the verbal acts.

Chapter 8

Virtual Worlds and Reception Studies: Comparing Engagings

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ABSTRACT

Across the various fields, discourse communities, and paradigms studying virtual worlds, there are disagreements about the object of their studies. The nature of what virtual worlds are, and how to study them, are in flux. For some, this flux has benefits. However, the flux is potentially a problem for the study of virtual worlds from the audience and reception studies paradigm. Without knowing what can be labelled as a "virtual world," it is hard to study how people engage with a virtual world and to discuss what is found as ecologically valid. This chapter argues for research studies focusing on how people make sense of virtual worlds when they engage with them, and to compare these situated sense-making processes amongst "virtual worlds technologies" as well as other types of media products. By mapping out and comparing such engagings, we may have a better understanding about what constitutes a virtual world.

INTRODUCTION

As a new computer-based technology, a new communication medium, a new entertaining pastime, a new instructional tool, and a new venue for self-expression, virtual worlds have become

the "object of interest" for a variety of academic fields and public discussion. The introduction of any new media technology, content, or genre often causes the same pattern of questions, problems and approaches from academics and the public (Golub, 2010; Manovich, 2003; Marvin, 1988). The introduction tends to be met with questions over what is the new technology, how does it

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