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From Chess to StarCraft. A Comparative Analysis of Traditional Games and Videogames

Del Ajedrez a StarCraft. Análisis comparativo de juegos tradicionales y videojuegos

ABSTRACT
From their historical origins games have provided us with dramatic models of the fundamental activities of humankind, such as sowing and harvesting (mancala games), war (chess) and construction (puzzles). However, games based on the same activity change significantly depending on the place and time they belong to, and therefore a comparative analysis between traditional games and videogames can give us a valuable and novel insight into the popular culture of our times. What are the main distinctive features used to represent war in military strategy videogames compared to those used in chess? What are the main differences between the most popular videoludic metaphors of construction and traditional puzzles? The aim of this article is to explore questions like these by making a comparative analysis of the underlying meanings of traditional games and popular videogames. The theoretical and methodological framework is based on game history, game design theory and theory of videogame meaning. The findings reveal elements that shed light on the nuances of meaning that distinguish traditional games from popular videogames of the same genre, and show that the analysis model conceived for this study could be of interest for further research. Finally, we reflect on the relationship between the underlying meanings of the videogames analyzed and certain distinctive aspects of contemporary culture.

ABSTRACT (Spanish)
Desde su origen histórico, los juegos han planteado dramatizaciones sobre actividades fundamentales para la humanidad, como la siembra y recolección agrícola (juegos de mancala), la guerra (ajedrez) o la construcción (puzzles), pero los juegos más populares sobre un mismo tipo de actividad varían de forma significativa en función del lugar y la época a la que pertenecen. En este sentido, el análisis comparado entre juegos tradicionales y videojuegos puede aportarnos una mirada particular y valiosa para profundizar en nuestra comprensión sobre la cultura popular de nuestro tiempo. ¿Qué rasgos distintivos presenta en los videojuegos de estrategia la dramatización de la guerra, en comparación con el ajedrez?, ¿qué distingue a las principales metáforas videolúdicas sobre la actividad de construcción de los puzzles tradicionales?... El objetivo de este artículo es abordar este tipo de cuestiones, a través de un análisis comparativo de la significación de juegos tradicionales y videojuegos populares. Los fundamentos teórico/metodológicos del trabajo se encuentran en la Historia del Juego, la Teoría del Diseño de Juegos y la Teoría de la Significación del Videojuego. Los resultados revelan elementos distintivos significativos entre los juegos tradicionales y algunos de los videojuegos más populares, y permiten verificar el interés de un modelo de análisis concebido para este estudio. Finalmente, en las conclusiones se reflexiona sobre la relación entre la significación de los videojuegos analizados y aspectos distintivos de la cultura contemporánea.

KEYWORDS
Games, videogames, analysis, rules, representation, meaning, communication, culture.
Juegos, videojuegos, análisis, reglas, representación, significación, comunicación, cultura.

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1. Introduction

1.1. Approach

In the mid-1960s, football began to supersede baseball as the most popular sport in the United States. Marshall McLuhan reflected on this phenomenon in a passage from «Understanding Media» (1964: 208-212). According to McLuhan, the public's change in preference could be explained by a cultural shift. He pointed out that baseball is a positional game played in turns, and the players' positions and functions follow a clear hierarchy; thus, it is more in accordance with the tastes of an industrial society. However, football is a more decentralized and fluid game and the players don't play such fixed roles, which seems to be more in line with contemporary society. McLuhan's key idea in this short reflection was that games are dramatic models of fundamental questions in our psychological life, and as such constitute cultural reflections or reactions that are closely related to the society in which they have arisen or the one in which they have become popular (McLuhan, 1964: 208-209) (Egenfeldt-Nielsen, Heide-Smith & Tosca, 2008: 28-29).

This idea of McLuhan's is in tune with the pioneering anthropological and sociological theories about games developed by Huizinga (1998) and Caillois (2001); however, despite the valuable intuitions of these researchers the study of popular games as expressive phenomena with deep cultural roots did not start to take shape until the consolidation of the videogame industry in the 1990s in books such as «Video Kids: making sense of Nintendo» (Provenzo, 1991) and «Hamlet on the Holodeck» (Murray, 1997).

More recently, a theory of videogame meaning has been gradually taking shape in doctoral theses and research works such as those by Frasca (2001; 2003; 2007; 2009), Sicart (2003; 2009a; 2009b), Salen and Zimmerman (2004), Maietti (2004; 2008), Bogost (2006), Ruiz-Collantes (2009) and Pérez-Latorre (2010), who have contributed various analysis tools for exploring the relation between ludic structures (game rules, strategic structures, gameplay dynamics) and the discursive potential of videogames, keeping the focus on the ludic dimension. This means taking the ludic structures as the central elements of the videogame language and leaving the narrative and audiovisual aesthetics more in the background as non-specific compositional layers of the videogame that are less distinctive of the medium.

Within this theoretical framework, the aim of this article is to make a comparative analysis of the meaning of traditional games and popular videogames. The basic hypothesis that underlies this work proposes taking up McLuhan's intuitions once again: there are deep relations between popular games and the culture and era of which these form a part, which can be revealed through an analysis of game meaning.

1.2. Universal game mechanics

In this text we present four comparative analyses of traditional games and videogames that represent the same sort of reoccurring game activity, a «game mechanic» in game design jargon. More specifically, a central game mechanic («core mechanic») is an action or combination of actions that the player (or the character/player in the case of videogames) performs repeatedly to provoke changes in the game state and achieve goals (for an in-depth revision of the «game mechanics» concept see Sicart, 2008).

Based on the work of game historians collected and updated by Parlett (1999), it is possible to identify four universal game mechanics in board games that have survived throughout history and that have always been present in games from different places and cultures (Parlett, 1999: 8-9). These universal game mechanics are: picking up/collecting; catching/hunting; configuration; physical skill/racing.

Picking up and collecting is a game mechanic that is represented in the traditional African family of games called mancala (an ancestral representation of sowing and harvesting), and also in games in which players search for «treasure», following clues that have been planted around the house or garden. Hunting and capturing is the game mechanic of classic strategy games such as chess and checkers, hide and seek, and also marksmanship games such as some ball games, slingshot and darts. Configuration is the game mechanic characterized by puzzles, tangram, naughts and crosses, solitaire, and «Connect four», as well as riddles, because in this type of game players need to combine (coordinate, configure) a series of clues in order to discover the hidden information. Finally, physical skill/racing is the game mechanic characteristic of games of athletic skill, rhythm and physical ability, such as hopscotch, skipping and sack races, as well as boardgames that represent races through dice rolls, such as backgammon and parcheesi.

These universal game mechanics can be considered to correspond to certain fundamental activities for the survival and development of humankind (Parlett, 1999: 8):

- Picking up and collecting corresponds to harvesting and stockpiling food and goods: looking for fruit, harvesting crops, fishing, etc.
- Catching corresponds to hunting and war: hun-

ting animals and confronting enemies, eliminating them or being eliminated.

• Configuration corresponds to building and construction: inventing and putting together useful tools as well as constructing houses or other types of buildings.

• Physical skill/racing corresponds to agility: running, jumping, balancing, etc., which is also indispensable for the survival and development of humankind.

In this research we will examine the most significant contrasts between traditional games and certain popular videogames in terms of the representation (indirect, implicit) of stockpiling food, hunting/fighting in wars, building and physical exercise.

2. Method

The traditional games and videogames compared in this research all have a particularly clear and relevant centrality in one of the game mechanics defined above. We chose games that have remained popular through the ages and videogames with phenomenal commercial success. The games and videogames we contrasted belong to the same game genre (and have a particular «family air» in the terms of Wittgenstein), for example chess is compared with a military strategy videogame and not a «shooter» videogame. Therefore:

• For the representation of stockpiling food we compared the traditional mancala games with the videogames «Pac-Man» and «Katamari Damacy».

• For the representation of war we compared chess with the videogame «StarCraft».

• For the representation of building we compared traditional jigsaw puzzles with the videogame «Tetris».

• For the representation of athletic activity we compared the game hopscotch with videogames from the Wii game console.

To keep the comparative study consistent, we applied the same analysis variables to all the games and videogames considered. We used seven analysis variables taken and adapted from the doctoral thesis «Analysis of the Meaning of Videogames» (Pérez-Latorre, 2010). According to this previous research, an activity represented in a game or videogame acquires certain nuances of meaning basically in function of the following aspects:

1) Actions that make up the activity. The meaning of the main activities in this study (stockpiling food, hunting, warring, building, athletic skill) can vary substantially based on the (micro)actions that compose them in the game or videogame. For example, depending on the game the activity of «stockpiling food» could include different (micro)actions, such as cultivating, searching, fishing, stealing, etc.

2) Activity-function relations. The meaning of an action or activity in the game depends greatly on the function attached to it. Using a hammer has a very different meaning depending on whether it has the function/effect of «breaking glass» or that of «building a house». In this sense, we can see that the same action or activity can have different functions/effects in videogames compared to traditional games, and thus project very different meanings.

> In verifying the usefulness of the analysis model presented here we have been able to show that the ludic structures and processes have –similarly to the narrative and visual composition structures– an authentic discursive potential, and the only thing that sometimes stops us from deeply appreciating the meaning level of games is that game science is not as developed as the narration, staging and visual communication sciences.

3) Conditions for performing the action (in the «real» plane). A game action or activity will also gain a particular nuance of meaning depending on the main conditions for success the player needs to comply with in order to fulfill their functions in the game (we are referring here to the player's «real» actions and not actions represented on the screen). For example, the meaning of «hunting» in a game/videogame is very different depending on whether it requires the player to use their analytical and reflective skills or their observational powers and reflexes.

4) Shifts in the game experience towards redundancy versus variability. A game experience to obtain a certain objective can be represented as the only way (redundant) to reach that objective or as one possible alternative in the game from among many others. This

also projects certain shades of meaning onto the action/activity in question, as we will see.

5) Opportunities and risks. The actions in strategy (video)games in particular gain meaning in relation to the combination of risks and opportunities associated with them. For example, the offensive strategy in soccer is associated with the opportunity to conquer «enemy territory» but at the risk of leaving your own «home» unprotected, and the inverse in the defensive strategy.

6) Subject versus environment. A key facet of the meaning of games is related to the dialectics between «assimilation» and «accommodation» that Jean Piaget established in his psychology of learning (see e.g., Piaget & Inhelder, 2007), which relates to the tensions involved in finding the right balance between personal will and adapting to the surrounding environment. For example, the representation of «social life» in dollhouse games has a sweet, idyllic tone due to the high level of control the player has over the development of the game according to their personal wishes (assimilation), which contrasts with the imperative need in sport to adapt to outside circumstances (accommodation), such as rules that impose rigid limitations, the presence of rival players, the need to compete, etc.

7) Field of action. Finally, the meaning of a certain action/activity can also vary substantially depending on the type of space where it is carried out: the shape of the «game field».

The following are the most significant results obtained from the research. Instead of describing how the variables have been applied in each case analyzed, we focus on those that are most relevant in each case; those that shed most light on the essential distinguishing aspects of the meaning of traditional games and videogames.

> Games have always been telling us something interesting about ourselves, about our world and our relationship with it; the problem is, simply, that until very recently we haven't bothered much to listen to them. Now is the time to learn the language in which games speak to us.

3. Main analysis results

3.1. Representation of stockpiling food: Mancala versus «Pac-Man» and «Katamari Damacy»

The seed sowing game or «mancala» is the most popular traditional game in Africa and parts of the Middle East and Asia (Southeast and Central Asia), and there are historical records of this family of games from the 6th and 7th centuries A.D. (Comas, 2005: 30). The mancala game that is played most in Europe is called «awalé». Symbolically it is a representation of agricultural sowing and harvesting. The game is played on a game board with two rows of pits. A certain number of counters (seeds, pebbles, beans) are placed in each pit. The players take turns to «sow» the seeds by moving seeds one at a time into the following pits sequentially. If the last seed in the move lands in an opponent's pit and makes a total of two or three seeds in that pit, this player can pick them up and keep them: they have harvested a crop. The player's goal is to harvest as many seeds as possible.

In the world of videogames, one particular Japanese company, Namco, has created the two videogames that are the clearest metaphors of stockpiling food: the popular «Pac-Man» (1980) and the cult videogame «Katamari Damacy» (1998). As we all know, the «Pac-Man» videogame consists in the character/player moving around a series of mazes trying to eat all the pac-dots in each level and at the same time avoid the enemy ghosts. «Katamari Damacy», on the other hand, the extravagant successor of «Pac-Man» in contemporary videogames, is a surreal «simulator» of a dung beetle: the player controls what is initially a small ball, onto which they need to progressively attach as many objects as possible and make the ball grow to a certain diameter as they move through everyday environments such as houses, gardens, city streets, etc.

There is a fundamental difference in the meaning of «awalé» and that of its main videoludic heirs in relation to the (micro)actions that make up the metaphoric activity of stockpiling food. In awalé this activity is represented as a process that extends from «sowing» to «harvesting» the crop: after making some calculations, the player sows some seeds and then harvests the crop. However, in «Pac-Man» and «Katamari Damacy» stockpiling food is not represented as a pro-

gressive organic development, but rather the opposite, as the player only participates in the very last part of this process: consuming.

In addition, a characteristic of awalé is that the seeds are continually passed from one player to the other. However, in «Pac-Man» and «Katamari Damacy» the elements that the character/player harvests belong to «others» or to «nobody», and there is no process of exchange or alternation in the possession of objects as occurs in awalé.

In awalé, making calculations is a fundamental condition for success, as well as having a balanced crop, since to be able to harvest a crop, the pit cannot be empty or have only one seed, and nor can it be too full (with more than three seeds). «Pac-Man» and «Katamari Damacy» are also very different in this respect. In both, speed takes the place of making calculations as the fundamental condition for success: Pac-Man must skilfully race through the mazes to avoid being trapped by the ghosts, and the protagonist of «Katamari» has a certain time limit in each level for their ball to reach the necessary size, a Sword of Damocles that stamps a stressing rhythm onto the game experience. Likewise, instead of the quantitative equilibrium of awalé, the Namco videogames endorse unlimited accumulation, whether it be pac-dots («Pac-Man») or objects («Katamari»). Both videogames can be considered popular culture symbols of compulsive consumerism, reaching the level of surrealistic hyperbole in the case of «Katamari Damacy», in which the player can end up trying to «consume» telephone boxes, trucks and buildings.

The most significant contrast in the degree of variability in the game experience is between awalé and «Katamari Damacy». While awalé follows an essentially redundant and ordered dynamic in which the sequences of making calculations, sowing and harvesting are repeated in a similar, systematic way, «Katamari» is characterized by a gameplay that is unpredictable, fluid and always surprising. This is because the objects the player can harvest in «Katamari» (from hamburgers to dogs and ice creams to fire extinguishers) are randomly scattered in the game landscape, and there is no set path to follow to harvest them. This harvesting style seems to evoke the contemporary experience of our daily harvesting/consuming in the digital era. With the almost unlimited capacity of our digital «warehouses» and «shelves», who can resist relaxing their selective criteria a bit in the harvesting experience? In this sense, «Katamari Damacy» is to a certain degree a fun ludic parody of the new style of harvesting in the digital era.

Finally, if there is a similarity between the three games it is the limited diversity of the types of actions the character/player can perform: calculate, sow and harvest, in one case, and move/race and take/consume in the two videogames. However, while in awalé this seems to transmit/foster a certain constancy and methodical attitude, the general tone of the Namco videogames seems to express obsession and «monomania», evoking the idea of a consumer fever.

3.2. Representation of war: Chess versus «StarCraft»

It is difficult to say something about chess that has not been said before on innumerable occasions. It is one of the great universal references of popular culture, and originated from the Indian 7th century game Chaturanga. But maybe we can still discover something more in the metaphoric identity of the game if we compare it to one of its most popular successors in the videogame world: the science fiction military strategy videogame «StarCraft» (Blizzard, 1998), one of the best-selling videogames for personal computers in history.

The game is set in the 26th century, when three races from different planets fight for survival and supremacy of the universe: the Terrans, humans exiled from the Earth, the Zerg, an insectoid race, and the Protoss, a humanoid people with highly developed technology and extraordinary psionic capacities. Taking control of one of these races the player attempts to reach different levels in the strategic game.

An essential condition for success in «StarCraft» is the necessity for speed. «StarCraft» was one of the videogames that popularized real-time strategy games, in which the «noble» but also «rigid» image of war in turns, characteristic of chess, disappears, and speed in decision-making and taking action is almost as important as the actual tactical/strategic plans.

The actions which constitute the war in chess represent a face-to-face, direct and honorable battle between two armies, which takes place in a kind of idealized «bubble» in which no element that is external or parallel to the battle is considered. Conversely, in «StarCraft» the war becomes something more than a battle: to be victorious it is essential to control and intelligently exploit the deposits of the last remaining natural resources in the galaxy: «kristalis» minerals and «vespene gas».

Thus, the strategy in «StarCraft» is as much about dominating and controlling the energy sources that appear scattered on each game map as it is about the battles. What appears to be simply a means to an end

(controlling minerals and «vespene» gas) may actually be the key purpose of the game. This typically videoludic characteristic of the strategic war game is not part of chess, and clearly has interesting connections with the contemporary world, in which control over energy sources such as petroleum has become the cornerstone for understanding the new wars.

In addition to the fight for domination over the natural energy resources, «StarCraft» is also characterized by other actions that go beyond the pure combat moves of chess: spy tactics to obtain information and the race to develop technology.

Chess is the paradigm of games of «perfect information», in which all the information is available to all the players in conditions of equality. In «StarCraft», however, this is very different: the player cannot broaden their range of vision in the game field until they have carried out explorations or launched spy ships to try to gain information advantages over their rivals. Thus, backstabbing becomes part of the game. This is totally unlike the informative transparency of chess, in which although the opponents obviously try to surprise each other, their cards are always on the table.

In «StarCraft» there is also a race to develop technology, and it is crucial for success to upgrade buildings and the soldiers' equipment.

Finally, the idealized equality in chess of the potential of the opposing armies is completely subverted in «StarCraft». In the Blizzard videogame, the player who controls the most natural resource deposits and who is able to exploit them most skilfully can build a far more powerful army than their opponents. Sometimes the battles in «StarCraft» have a clearly foreseeable outcome: an army can be so powerful that it can crush another army in a matter of seconds. On these occasions strategic ability (in the battle) becomes almost ridiculous. It does not matter how good an army general the player is, they cannot even face their enemies until they have understood that the war in «StarCraft» is also, and most importantly, fought in other areas, in the control of the energy sources, information access and the race for technological evolution.

The true war in «StarCraft» effectively takes place before and away from the battlefield, in fact where it is usually said that contemporary wars are fought.

3.3. Representation of building: jigsaw puzzles versus «Tetris»

Although people have played with jigsaw puzzles since the beginning of the 20th century, they were first manufactured in series when they began to be used for educational purposes (to teach geography in British schools) around 1962. More than twenty years later, in 1985, the electronic game «Tetris», designed and programmed by the Russian computer scientist Alexey Pajitnov, revolutionized the concept of the jigsaw puzzle in the collective imagination.

In their discursive projections, the traditional jigsaw puzzle and «Tetris» differ from the very outset in the first steps of the game: in jigsaw puzzles, the player picks up the pieces that they want and begins fitting them together without any pressure; the builder in «Tetris», however, is in a non-stop world without choices, as the pieces never stop falling in an incessant rain from the top of the screen. The player cannot choose which pieces they would prefer to fit into place, the only alternative is to try to delay the inevitable arrival of chaos as long as possible.

Another vital difference between the two games lies in the definition of the objective. For the jigsaw puzzle, completing the one possible construction/image means success, but in «Tetris» there is no one single construction that is equivalent to victory and the pieces do not form a predefined image. Therefore, there is a clear contrast between the construction understood as a great, unique work, in traditional puzzles, and the construction understood as multiple works that incessantly and almost unavoidably supersede each other, in «Tetris». This also represents a contrast between the «romanticism» of the jigsaw puzzle and a certain «tragic realism» of «Tetris», for which the jigsaw puzzle's dream of a final perfect order is a utopia and the player can only try to forestall chaos.

This divergence between «romanticism» and «tragic realism» is accentuated by the fact that the person doing a jigsaw controls the time factor, while in «Tetris» the pieces fall faster and faster so that the player must adapt quickly to the external condition of a time limit.

Unlike in jigsaw puzzles, constructing in «Tetris» is not represented as an activity controlled by humankind (the player), but rather as an unbridled force that advances at its own will, a limit situation that can only be alleviated briefly.

The main condition for success in «Tetris» is to put off the arrival of chaos, and thus the player is constantly trying to slow down the growth of the constructions before the highest point touches the top limit of the screen, in which case the player would lose the game. This suggests an ideal of sustainable growth.

Finally, the two games also differ in the role visual perception plays as a condition for success. In jigsaw puzzles detailed observation has an essential value; however, in «Tetris» detailed vision is not relevant.

The recognition of abstract structural patterns is what commands the most attention in the player's visual experience in the videogame. This could be associated with an underlying dialectic between a global vision that is also abstract («Tetris») versus a local vision that is closer to empirical reality (in jigsaw puzzles).

3.4. Representation of athletic activity: Hopscotch versus Wii

There are many traditional children's games that encourage physical exercise and the development of skills without actually involving chasing and catching. These are games of athletic, perceptive and rhythmic skills such as sack races, skipping and hopscotch.

If there is one videogame design company that has been interested in taking these types of traditional games from the street to inside our homes it is Nintendo, specifically with the Wii game console, with videogames like «Wii Sports» (Nintendo, 2006), «Wii Play» (Nintendo, 2006) and «Mario Kart Wii» (Nintendo, 2008).

Evidently the change in context, from outside to inside, leads to a certain attenuation of physical ability as the key condition for success and an accentuation of the player's perceptive agility and reflexes as metaphoric activities of the physical effort of the character who represents the player on the screen («avatar»).

However, the integration of physical activity into videogames has allowed it to enter worlds full of variability and surprises and leave the everyday places where traditional physical skill games are played: the streets and parks. Thus, the games of the physical skill mechanic have penetrated the territory of fantasy and been released from «realism».

There are two emblematic characteristics in the Wii videogame design that should be highlighted: transparent learning and dynamic adjustment of the difficulty. In the first case, learning the game rules is made easier due to the player's intuitive understanding of how to handle the Wii Remote, an interface that can be used very freely since it has movement sensors. In the second case, a game-difficulty design model automatically moulds the level of difficulty to the player based on the ability they show (Salen & Zimmerman, 2004: 222-223). These two Wii design characteristics together evoke an idealized and to a certain degree pleasurable/hedonist representation of physical/athletic exercise. Clearly, children playing traditional games, like hopscotch, sack races and skateboarding, have to adapt to the inflexible rules, the unchangeable characteristics of the game field and inevitable rivalries without depending on an automatic adjustment of the level of difficulty or other such design elements.

Finally, we need to add that the popular physical/-perceptive skill games of the Wii console are strongly promoted to be played in groups, together with the whole family or with friends, through a marketing line called «party games» (e.g., «Mario Party 8», Hudson, 2007). As these games are designed to be played with others, playing alone is moved to the background in favor of a more festive feel for the physical skill game mechanic.

> We have seen that what is behind some of the fundamental trends in game design are the social and cultural characteristics of the era. Therefore, in line with what McLuhan stated for his time, games and videogames can and should be analyzed as dramatic models of essential aspects of our lives, deeply rooted in the culture they form a part of.

4. Final considerations (Discussion)

It is perhaps not strange to observe that contemporary culture, essentially Western society, is characterized by distinctive traits such as compulsive buying, amassing wealth, completing tasks very quickly, stress, fluidity over rigid orders, prioritizing results over the process, conflicts for the control of the world's energy sources, formidable technological development, the key importance of information and access to it, the multiplication of buildings and out-of-control urban growth, the problem of sustainable environmental management, a «global» but also more «abstract» vision of reality, and a sedentary lifestyle.

What could seem surprising, however, is the extent to which these values are represented in the most popular videogames of our times, and in fact constitute their

main distinctive characteristics in comparison to their game ancestors: board games and street games.

We will conclude this study with two key considerations:

First, we have seen that what is behind some of the fundamental trends in game design are the social and cultural characteristics of the era. Therefore, in line with what McLuhan stated for his time, games and videogames can and should be analyzed as dramatic models of essential aspects of our lives, deeply rooted in the culture they form a part of.

Second, in verifying the usefulness of the analysis model presented here we have been able to show that the ludic structures and processes have –similarly to the narrative and visual composition structures– an authentic discursive potential, and the only thing that sometimes stops us from deeply appreciating the meaning level of games is that game science is not as developed as the narration, staging and visual communication sciences. Games have always been telling us something interesting about ourselves, about our world and our relationship with it; the problem is, simply, that until very recently we haven't bothered much to listen to them. Now is the time to learn the language in which games speak to us.

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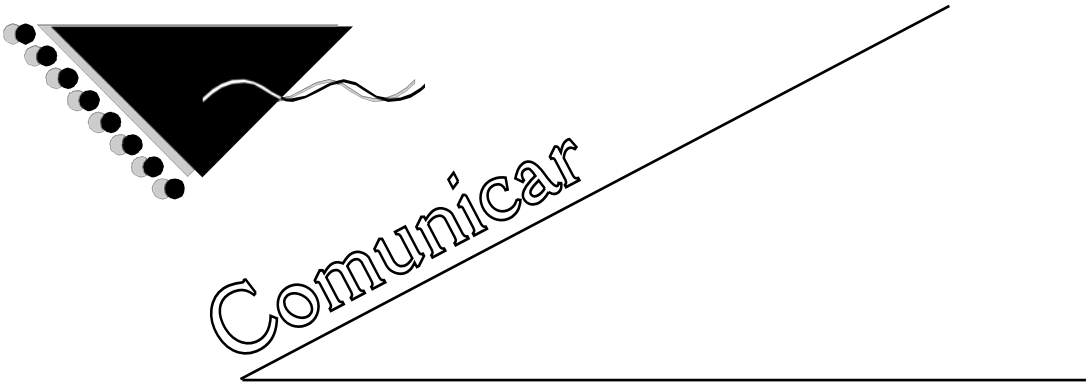

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