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ALL OF US, PLAYERS

Pathways in the diffusion of digital gaming: relocations, pervasiveness, gamification

Edited by the Editors at GAME

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JOURNAL ESSAYS

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Homo ludicus

The ubiquity of play and its roles in present society

In the last decades new technologies, the rearrangement of living and labour time and other less visible cultural factors have brought some significant historical modifications to the traditionally separated area of the ludic. New types of games have emerged and the threshold between play and reality has been redefined to include aspects of social life that seemed to be unrelated to playing activities.

PLAYING THE GAME

Firstly, in the area of ludic practices, of games that are played, new or previously marginalized models of play have surfaced. Their fast growth and astonishing pervasiveness helped transform the very idea of what a game is. A good example is the remarkable phenomenon of the so-called casual games, games that can be played on any smart phone and literally fill the empty spaces of contemporary living. It is sufficient to note that in little over five years, one of these games, *Angry Birds*, created by a small Finnish company, was downloaded over 500 million times all around the globe.

I have chosen not to mention the older and more studied phenomenon of video games, since this journal is specifically devoted to the enquiry of this media form. Let us just note that the video game industry is the fastest growing sector (9% every year, even in times of crisis such as this) within the cultural industry, its revenues ($56 million in 2011) being exceeded only by those of the film industry.

It can also be said that a consistent part of the large amount of hours spent browsing the Internet in western countries is devoted to the use of social networking websites such as Facebook. This massive participation partly translates into proper ludic activities (as in the case of the mega-game *Farmville* or events such as flash mobs) while at times shows features that we can provisionally define as "semi-ludic". In fact, the whole communication style used in social networking websites is based on an ironic and detached tone and on rules that seems to mimic those of a board game.

Another fast-growing phenomenon is that of theme parks, whose prototype is Disneyland, founded in 1955 as a conflation of fable and game. Walt Disney's

biographer claims that when he had the idea for the park, his collaborators tried to dissuade him by arguing that no one would drive a long way to see where Mickey Mouse lived since everyone knew that Mickey Mouse did not exist. (Eliot, 1993, p. 98) This stance underlines the obviousness of the distinction between reality and fiction. Disney's winning intuition, though, was that his audience was developing a demand for threshold experiences, for areas of common life married to imagination, for shared ludic experiences where they could collectively play with mass culture mythologies.

At the same time, we have witnessed the wide diffusion of games that only recently reached a level of unforeseen popularity. I am referring here to the practice of surfing (born between the 1950s and the 1960s) and its more recent variants such as skateboarding or snowboarding: different forms of what Roger Caillois (2001)defined as games of vertigo or *ilinx*. These ludic behaviors were literally invented (although according to a vague traditions, surfing was already practiced by Hawaiians at the time of Captain Cook's expedition) and have quickly generated their own bodily techniques and mythologies that readily translated into metaphors. Some of the early theorists of the digital revolution of the 1990s resorted to surfing for their similitudes.

Finally, we cannot forget the transformations that well known forms of play underwent in the last decades by means of technological, social, and cultural shifts. Gambling, for example, grew exponentially. According to *Azzardopoli* (Poto, 2012), a study conducted by the Libera association and published in January 2012 , in Italy in 2011 the total expense for gambling was over €85 billion, of which over €15 billion (a little under 20%) went into online gambling.

By combining these and other possible examples, we can describe a process in which ludic or semi-ludic forms of different origins (though increasingly web-based) "colonize" different areas of everyday living.

LUDIC METAPHORS AND APPLIED PLAY

The extension of playfulness beyond the area of played games also touches on another aspect that we can define as the game metaphor. Referring to a toy found across different cultures, Jurij Lotman wrote: "To understand the 'secret of the doll', we need to distinguish between the primary idea of the 'doll as toy' and the secondary, cultural idea of the 'doll as model'" (1980. Curator's translation). Such a secondary cultural function is today found in a growing number of games and toys that are used as metaphors and models. Think of the use of teddy bears that bestow a loving and moving aura upon improvised commemorative altars. Or the diffusion of sport-related metaphors such as the team metaphor used in a subtly authoritarian way ("if you don't do what we say, you are out!") in many companies.

Such richness in symbolic potential derives from the fact that play is the perfect situation-creating machine, both in the sense of building imaginary –

though consistent and regulated – universes, and in the sense of exploring and rewriting everyday experiences from an unexpected perspective. The exploratory and creative nature of play is often paired with its apparent harmlessness. Games and play can be used as metaphors, both rich and unobtrusive, and this feature is becoming a defining trait of our times.

If the expressive function of the game metaphor has a long history, there's a newer phenomenon to account for: that of the ludic attitude and proper games being invested with an operative function, used to simulate specific situations, to distribute roles, to elicit new forms of cooperation. In this case it seems appropriate to think of applied play. This might be another sign of the fact that we are exploring an unknown territory, a vast liminal space between pure play and serious life. This is one of the typical signs of a new ludic system, the habitat of the *homo ludicus*.

Applied play: listing the applications of games and play would be an enormous and incomplete endeavor. Examples would span from the playful attitude of erotic websites, where ludic tones are used to dampen and at the same time test explicit sexual communication, to the military sector. In a rather worrying article, William Langewiesche (2011) describes in depth the job of pilots of unmanned drones that remotely fly planes in Afghanistan from a secure location in New Mexico: killing people. Video games that represent war have become war themselves. Who is simulating what? And then there's the phenomenon of gamification: applying the features and often the rules of collective and institutionalized games to contingent situations. For example, within companies and organizations, games (board games used as formative tools or computer games applied to management techniques) allow employees to rehearse their roles before taking them or test projects before deploying them. This same dynamic is at work in scientific research.

The ludic attitude is progressively making its entrance into areas of common living where its presence would have been deemed as irreverent or misplaced until a few years ago, from mourning to war, from management to science. This phenomenon generates a paradigm of playfulness used to organize and think about various aspects of existence through a movement of *trespassing.* This seems to contradict one of the defining features of human play: that of being situated within a frame that separates it from what is real, serious, tangible. *Play*, according to Caillois (2001) "is essentially a separate occupation, carefully isolated from the rest of life (. . .). [The] game's domain is therefore a restricted, closed, protected universe: a pure space" (pp. 6-7). The formation of an area between the ludic and the real erases this closure, these protections, and allows a constant dialogue between the ludic and the "serious". This is one of the defining traits of online communication: the levels of communication and metacommunication are not only constantly interwoven, but reciprocally provide meaning, framing each other. The amount and nature of the transitions

between openly playful and more 'serious' situations describes a wide gray area, a liminal zone between proper play and real life.

The progressive substitution of games with playfulness, of the *ludens* with the *ludicus*, the "de-framing" (as opposed to en-framing) of game and its re-framing within different and partly arbitrary borders are found in many aspects of everyday life.

WHAT GAMES ARE WE PLAYING?

Among the trends of our society, which ones could help us explain this *new ludic system*?

The first hint comes from the cornerstone author for the discourse on games and play in the last sixty years: Roger Caillois. His four-headed theoretical model is well known: on one side stand competition (*agon*) and gambling (*alea*), games with non-negotiable rules. On the other, those games whose rules are less rigid and explicit: the imitation or disguise (*mimicry*) and the game of vertigo (*ilinx*), where the player firstly puts their balance and bearing at risk and derives pleasure from keeping them, and secondly aims – at least temporarily – at losing themselves, only to find themselves again. Discussing regulated and unregulated games, Vygotsky (1994) claims that while older children's and adult's games have explicit rules and hidden imaginary scenarios (think of war-like competitive team games), younger children's games contain explicit imaginary scenarios and hidden rules.

Caillois' assumption is that every society employs all four models of play, but only the first two are ingrained into an adult, modern ludic disposition, arising – with great differences throughout different societies – in the last two centuries. Vertigo and imitation are often deemed as child's play, indign of adults. Nevertheless, these ludic forms are revamped in the space of vertigo of the funhouse, where adults can act like children.

Is it only a reviviscence? Some signs tell us that we are witnessing a significant historical mutation, comparable to that of the advent of the industrialized world. At that time, the most "anarchic" forms of play (the ritual of disguise during the carnival, organized forms of trance and vertigo, etc.) became marginalized, made unacceptable for adults and confined to the magma of child's play. In the last decades, these seem to find acceptance also among adolescents and adults. This resurfacing is one of the traits that define the new ludic system.

In this sense, the diffusion of surfing and games that are derived from it (in particular skateboarding, with its urban subculture often looked upon with suspicion by adults and authorities) highlights a new trend towards games that defy vertigo and require specific bodily techniques to maintain balance in challenging situations. More extreme forms of games of *ilinx* can be ascribed to the same trend. Bungee jumping, white water rafting, high diving and other practices are niche activities, but have gained a symbolic value for a large number of followers. This is evident in their massive presence on the Internet and in the media.

Most of these followers are male, but a growing number of females are joining the ranks. Another interesting phenomenon is that of the consumption of spectacle. The experience of viewing has been characterized for a long time by a rigid division of labour: on one side the professionals that appear on the scene in disguise, wearing their costumes and make up, acting in the role of someone other than themselves. On the other, the audience, in more or less normal attire, follows the story represented on stage or screen and processes it inwardly.

With the phenomenon of cult a new and eminently ludic form of aesthetic enjoyment was born. The viewer or listener symbolically "wears" the object of love and admiration. They build a provisional identity around it and craft a role – or is it a proper mask? – within an uninterrupted role play.

One of the defining moments of the emergence of this new aesthetic taste is the transformation of a film screening into a carnival where the wall separating the audience and the actors in their costumes is banished. This is the case with the late night screenings of *The Rocky Horror Picture Show* in 1970s California, where an audience in drag started a dialogue with the characters on screen, anticipating or modifying their lines. The choice of the movie, though partly trivial, was certainly not random. The ludicization of the show was married to the explicitation of a spectacularized transgender sexuality. This encounter signals one of the moments of convergence between the path of 20th century sexualization – which was then in its liberation phase – and the emergence of playful practices. There remains a question to be answered: why? What are the causes of this mutation in the order and dynamics of institutionalized and recognizable models of play?

The most plausible answer is that in the previous phase of the ludic paradigm, that of the period of industrialization, the division between labour and play, between the *homo economicus* and the *homo ludens* required, at least for adults, a rigorous definition of playful behaviors and their confinement in a defined and stable space-time, so as to exorcise at least in part the anarchic component of play. The confinement of unregulated forms of play to childhood has for centuries served the function of splitting human play in half.

Today, the fall of the rigid division between the space-time of labour and that of play is both an essential premise of the new ludic system and a consequence of its preeminence. This leads to a second process: the delegitimation of the barrier between the games that are acceptable for adults and those that are not. The former phenomenon lead to the formation of a vast area of semi-ludic behaviors, while because of the latter, play as adaptive resource and play as unsolvable paradox tend to overlap. Both phenomena help shape the new character of the homo ludicus.

PLAYING WITH MACHINES

We should not forget that another defining aspect of new ludic system is that it does not solely involve humans. Analyzing the diffusion of playful practices

and game related metaphors, we often seem to forget a significant phenomenon that Bruno Latour (1992) helped us understand. Our society is not composed solely of humans but of humans and machines, with a growing population of thinking machines. The new ludic system is also a way of adapting to this environment and to its challenges; in fact this is one of the assumptions of human-machine interaction.

The evolution of computer science has proved that computers can be playing machines rather than calculating devices. My evidence here is not only the symbolic relevance of a typically ludic test, the well known game of chess won by IBM's Deep Blue against world champion Garry Kasparov in 1997, that media (but not Kasparov!) interpreted as a proof of artificial intelligence having exceeded human intelligence. That game of chess was but the outcome of a long process: the auroral phase of computer science had been characterized by the constant testing of the human-machine relationship through increasingly complex ludic challenges. Some of these experiments bore computer games as collateral result.

Machines were not playing, though. Machines don't play by themselves. Ludic tests performed on computers verified machines' functionality, but for humans constituted an exploratory activity into unknown ground. What does it mean to have a machine as play mate? An excerpt from Giambattista Vico's *Scienza nuova* (1977) seems fitting: "it is typical of children to handle inanimate things and, while playing, talk to them as if they were alive; [in this way, according to Vico, they act as poets, for] the most sublime task of poetry is to give meaning and passion to meaningless things" (pp. 262-264. Curator's translation). In the frame of play it can be normal to have a dialogue with things, and through imagination – the common ground between play and poetry – it is possible to give *senso e passione* to objects such as computers.

Through what we call new ludic system we are learning to accept and explore the reality of a society made of humans and machines that hasn't been understood by common sense yet; machines that pretend and ask us to pretend. The new ludic system would not exist without thinking machines, to which we owe a great variety of playful practices, from video games to casual games, to those peculiar games that are social networking websites. On the other hand, using these thinking machines the way we have grown accustomed to would not be possible without the new ludic system. Through it we are afforded the practices and basic metaphors we use to confront machines with which we build a reciprocal relationship (we interact). It provides us with models we can use to configure apparatuses whose complexity is steadily growing. Metacommunication in this case consists of "let's pretend you are a mind that works like mine and that my mind looks like you".

FROM MANY TO MANY

Behaviors that merge real play and interpersonal relations are particularly common on the Internet. This gray area has overcome the almost absolute separation between the two that used to exist. The Internet is not the only habitat of the homo ludicus, but certainly constitutes a very welcoming environment. Why?

Technical advancements in communication during the industrial era were focused on one-to-many communication or, more specifically, from one broadcaster to a mass of receivers. Newspapers, cinema and, later, television are good examples of this dynamic. In the same period, one-to-one communication was also pursued with the invention of the telegraph and the telephone, up to the era of the mobile telephone. The Internet has enhanced both types of communication (think of online journalism and e-mail), but also laid the foundations for another model: many-to-many communication. In this model a variety of subjects are on the scene at the same time as issuers and receivers. The main ancestor of this kind of communication can be found in rare and peculiar forms of face-to-face communication: specific public ceremonies on the one hand, festivities on the other. This last case is in itself close to the ludic world, especially in its manifestations that, with Mikhail Bakhtin, we can call the carnivalesque (1984).

Social networking websites allow a lasting communication from many to many, a dialogue that can alternate between ludic, informative and affective tones. This exchange is simultaneously stimulating – for it promises unexpected encounters – and reassuring, since it guarantees a peer status to all its users. An exchange like this can be both festive and serious.

In an earlier paragraph I introduced the notion that social networking websites present some features that link them to board games: they are platforms that allow users to aggregate on a voluntary basis and ask them to accept common rules without any institutional authority enforcing them. They are, to their participants, shared worlds. The history of these websites is made of successes and unforeseeable flops, partly explained by management mistakes or perhaps luck, but mostly linked to an aspect that once again refers to the ludic world: the metaphor they use. Facebook took as a model, as guide-metaphor, school friendships and the yearbook, with its constellation of names and faces of old schoolmates. LinkedIn is modeled after work meetings and the business card or curriculum vitae model. Second Life, an unforeseen flop in this area, was conceived as a virtual space, with avatars representing the participants and with a visually complex world. It is likely that the success of Facebook is due both to a simple and captivating metaphor and to its more informal, less committing, nature. In this case, the distinctions between the ludic and the ordinary are being exceeded by the vast area of the semi-ludic, where a playful model (voluntary, regulated, shared) acts as a ground for non-ludic social relationships.

WHAT IS THE PURPOSE OF PLAYING?

We should always keep in mind that by definition play has no purpose. In this sense, analysing the rise of the ludic paradigm in our time by reducing play to a series of principles that can be used in different situations means denying what play is and refusing to confront it. This is instead what we have to do, because the new ludic system could not be conceived without the anarchic component of human play; it could not be conceived if we discard what is unique to human play: homo ludicus is asking us to consider the homo ludens.

Through the contribution of Jerome Bruner (1972), in the 20th century we understood that play, a peculiar activity of the human being, is essential to the process of evolution, but denotes a model of evolution that is different from that of the other species. Play is born out of the incompleteness of humanity, out of us being "The animal not yet properly adapted to his environment" (Nietzsche, 1907, p. 82). The ludic paradigm plays with this incompleteness, at the same time integrating and exalting it. Play allows us to explore the world only if we are able to invent it, and vice versa.

Here is found the unyielding duplicity of play, its capacity to offer itself as inexhaustible resource and, at the same time, its paradoxical nature. If play is one of our most precious assets, this derives from the fact that it is an almost indefinable faculty, whose logic (or un-logic) is completely different from the ordinary logic. If the paradoxical nature of play does not weaken its richness it is because, in a peculiar way, the ludic experience becomes, as it is lived, an essential part of our growth, even as adults. We will be able to count on it even in the most challenging situations. Or maybe, especially in the most challenging situations.

RESOURCE

Caillois (2001) wrote that play is a "primordial resource" (p. 11) for every culture. But we must add, it is the same for every single individual. Play generates a background (of accumulated experience and available imagination) that plants roots in the subject from their early life and keeps living with them, a resource for culture, but most importantly for evolution. We only have partial control over it, since it is not buried and repressed as the Freudian unconscious, but at the same time is not a part of our structured knowledge. It is a resource that spontaneously resurfaces, often unforeseen, and can be used only by those who don't apply it to a purpose. This is what makes the ludic experiences of childhood ever-living ones. Here is found the wisdom of Cervantes' phrase "we should never let go the hand of the child that we once were" (cited in Witkowski, 2011, p. 85. Curator's translation).

The child we once were keeps teaching us how to defy vertigo, whether it is born of keeping balance on a wooden board, facing the sea, or being stuck in urban traffic. That same child teaches us the pleasure of simulation and the subtle but strategic distinction between simulation and lie. At the same time, that child teaches us that there is nothing more serious in an unserious activity,

since no rule is more sacred than the one of the game that we voluntarily accepted. Other teachings that come from play and elude Caillois' taxonomy can be found in building and disassembling, hiding and finding (ourselves), and the peculiar play that revolves around the metamessage "this is not play". Finally, some teachings are derived from the games that we learned as adults, from chess to poker to volleyball. These should not be considered as sources of structured abilities or knowledge, but recognized as experimentation that reemerges from our experience in behavior and imagination, ongoing explorations.

Play as a resource becomes increasingly more precious when we face situations that require unplanned adaptations, especially if this adaptation concerns the very evolution: these extremely mutable environments force us to use imagination. This is even more true in our contemporary world, where constant change is the most evident feature of living. But beware: play as a resource is not properly at hand, since it is not a toolbox. It is a resource that is presented to us when we live and act, often in an adventitious fashion, together with its close associate: imagination.

Play is adaptation, but not only to the environment in which we live, but following the intuition of G. H. Mead, it is also adaptation to an environment that is not there (2001); one of its typical features is that it is connected to a specific here and now but can transcend it, escaping the bounds of the real and inventing alternative worlds better than any other human activity. This conflation of fantasy and adaptation weakens the interpretations of play as escape from reality. It is certainly typical of play to take a distance from everyday living to create fantastic situations, but at the same time it is in its nature to act the opposite way: taking us back to real life through uncommon paths.

Lev Vygotsky reports a fascinating case of two girls playing at "being sisters" (1978, p. 94), their only rule being to behave in the most similar way, separating their world from the outside, building a stereotyped world based on the perfect simulation of sisterhood. Only… they were sisters. They were "playing at reality", comments Vygotsky's, highlighting the constant dialogue between play and experience.

Another charming episode is reported by G.K. Chesterton: "I remember a Battersea little girl who wheeled her large baby sister stuffed into a doll's perambulator. When questioned on this course of conduct, she replied: 'I haven't got a dolly and baby is pretending to be my dolly'" (1910, p. 178). A deep interpretation of this passage invites us to ask ourselves what the doll stands for, since it is the imitation par excellence of the human body, the first nucleus of a second world built by child's imagination; a *second world,* a duplicate. Then, we read Chesterton's anecdote and realize once more that simulation is not a one-way street; it can lead from life to its double, and back. Simulation can both duplicate and invent its own universe, a real universe.

PARADOX

Play-as-resource cannot be separated from the other side of the ludic activity: play-as-paradox. The possibility for play to emerge from our everyday living, suggesting behaviors and giving meaning to what we are living, its nature of situation-creating and world-generating machine, its applicability to different non-ludic systems, all derive from its anarchic nature when compared to the ordinary logic. This is also a matrix for paradoxes. I am going to discuss some of them.

Play is and needs to be free, but it regulates itself through binds that we define as rules in structured play, but that are present also in more free form play. From children waving their arms around to the games of vertigo of the adolescents.

Play is eminently defined by the fact that "it is not for real" by metacommunication that separates the ludic from the real, not necessarily in the terms of the true/false opposition, but in those of real/not real. On the other hand, nothing is more real than play to a children playing, and the same goes for adults committed to structured games.

Play is discovery and invention at the same time; its explorative nature is not born out of an investigative activity, but of a creative one. According to Vygotsky and Luria (1994), the child does not discover the names of objects, but through play she finds "new ways of dealing with them – and that is what gives them names", so adaptation is obtained through imagination rather than adhesion.

Play highlights the physical presence of objects and at the same time can do without them. A child playing can be amazed at the beauty of a toy – a brightly colored prop sword – but is perfectly capable to dispose of it and start a duel with a stick or, if even that is not available, their own arm. In the same way, a stage director can work with elaborate scenes or amaze the audience with an almost empty scene.

Play is based on a regularity that implies repetition; few traditions are more stable than those based on play. The fascination of children for repetition is a ludic mechanism in itself, and allows them to be amazed at fables told over and over with the exact same words. At the same time, according to Isaac Babel (2002), "[Children] shudder at the smell that new things give off, like dogs at the scent of a rabbit, and experience a madness, which later, when one is adult., is called inspiration" (p. 605-606). There are few experiences that allow for novelty to be metabolized in the way play does.

According to Caillois (2001), play is entangled in mystery, its deep essence cannot be grasped, but "is nearly always spectacular orostentatious. Without doubt, secrecy, mystery, and even travesty can be transformed into play activity, but it must be immediately pointed out that this transformation is necessarily to the detriment of the secret and mysterious, which play exposes, publishes and somehow *expends*" (p. 4). To Caillois, who has certainly absorbed some concepts from his friend Bataille (1992), play makes mystery into a value that should not be preserved, but used. From this we can infer that play becomes

wealth if one is prepared for maximum *expense*, if one can avoid greed. This is also true of gambling.

And finally, I will say this again: play is *necessary*, it is an aspect of the adaptation process that makes the child properly human; but it is really a game only if it is *unnecessary*.

In human play, the adaptive potential is bond to the ability to derealize oneself. Adaptation only occurs through the *invention* of a world and derealization is essential to give meaning to the real. If we don't consider this, we might give a reductive explanation to the current expansion of the ludic system. Games are not techniques, even when they make use of sophisticate machines; they are ways to give meaning to techniques, to re-invent them beyond their first invention. Games are not tools and if they are a part of human adaptation it is because their contradictory nature makes them more flexible than any other human activity, with the possible exception of imagination, a close relative of play.

APPLIED PARADOXES, PARADOXICAL CONSEQUENCES

The anarchic and paradoxical nature of play is an essential part of what I have defined as the new ludic system. In many ways it constitutes its deepest foundation. Even "applied" play, if it aims at exploiting the real potential of play instead of limiting itself to a superficial analogy, consists into bringing the complexity of the playing activity into real life.

Let us consider the presence of teddy bears, balloons and other toys in a growing number of funeral rites or in what American culture defines as makeshift rituals. It seems that their purpose is to conciliate the unconciliable – rituals and informality – while communicating a message of authenticity. They are transitional toys in the sense of the word proposed by Winnicott (1971) (the teddy bear is coupled with the separation from the mother) or at the very least toys that bridge two worlds, like balloons that fly out of the hands of children, symbolically marrying the heaven and the earth. They symbolize separation and at the same time help accepting it.

They carry a metacommunication whose meaning is not "this is not for real", but "I am putting myself into play, differently from what I would do in a formal and unauthentic ritual such as a funeral". Still another paradox, since mourning and play seemed to be two unconciliable worlds. This is often reversed into an icky ceremony (think of applauses, inspired by TV rather than games, that welcome coffins); informality can become no less repetitive than traditional sternness, only without solemnity. Nevertheless, this seems to be one of the few effective ways to deal with a collective and personal emotion, where mass participation (the souvenirs left by thousands of people after Princess Diana's death are one of the points of origin of these new rituals) does not oppress the subject, but grants her a space hardly found in other expressive forms: a funeral from-many-to-many.

Let us shift to the casual game *Angry Birds*, where a flock of birds are shot through a sling towards an army of green pigs in increasingly difficult levels. The interest of the company that produced the game is not in selling it – in fact, it is free – but in the fact that exasperated players often buy (using real money) their way to the next level. The idiocy of the situation is not extraneous to the success of the game; in fact, it is a defining part of it. It creates a frame, a metacommunication that the player engages with herself and with anyone watching them: "it is just a silly game". This apparently makes the bubble in which they are immersed less dangerously autistic and facilitates the possibility of playing the game in short bursts, something typical of casual games. The result is that one of the most popular cultural products on the planet is a surreally idiotic challenge.

The role of play and games in war technologies – such as those described by Langewiesche – is even more surprising. On the war front there are weapons without soldiers; on the other side of the world, there exist soldiers that "play" and kill. The instrumental function for which the techniques and language of video games are employed is evident: controlling the theater of war is made easier through a clarity that would not be possible in reality, where the confusion (both of the mind and of the senses), fear and emotion of real combat are inevitable But if we stopped at this instrumental aspect we would have missed the most important evidence. What kind of soldier is this soldier ludens? He is a war professional in a culture that cannot make violence acceptable. The paradox of play frames the very nature of the military action: is it a game that has devastating effects or is it war turned into a game? Is this the first non-violent soldier of human history? The most peculiar effect is that this is for sure a bureaucrat-soldier. Langewiesche (2011) reports that "to shoot a missile, for instance, the pilot has to navigate through an unending sequence of menus and click the mouse more than seventeen times. Other menus control switches and systems and even to actually fly a keyboard is used". And when the action is over, the soldier needs to "fill a large amount of forms". Goodbye play.

Resource and paradox. The rise of the homo ludicus is happening in a fragmentary, complex and contradictory way. One of the tasks at hand is perhaps that of going beyond the brilliant intuitions of Mead, Vygotsky, Piaget, Bruner, Bateson and Caillois. In a book that still today provides astonishing arguments, the young and invaluable thinker of the 18th century Novalis asks whether beside logic we should build a *fantastic*. This would be an anti-scientific science explaining the processes of imagination and invention like logic possesses those of rational thinking. One of the most urgent scientific goals of this century is to build a ludic, a way of thinking about play that could provide the foundations of the *fantastic*.

(The translation of this article was curated by Riccardo Fassone and Adam Gallimore)

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Ludic interfaces

Driver and product of gamification

The recent success of non-standard and playful interface devices like Wii Remote, Move, and Kinect is an indicator of a process that demonstrates that ludic interfaces might be the core driver for a transformation in the sector of video games cultures and beyond. Yet, ludic interfaces are drivers—as well as driven by social developments known as the ludification (Raessens, 2006; Fuchs & Strouhal, 2008), or the gamification of society (Schell, 2010; Bogost, 2010; Ionifides, 2011; Deterding, Khaled, Nacke, & Dixon, 2011). The interfaces hold up a mirror to social processes that are reflected within recent interface design. The changes we are about to see are of relevance to age and gender-related issues, to the attitude and the style of the gaming community, and to a gamification of non-gaming cultural groups and settings. Ludic interfaces demonstrate how playfulness is about to intrude systems, devices and relationships that were once governed by determinism, control, and straightforward teleological thinking.

It is not so much computer hardware or the computer's software, and to a disputable amount only the user, that determines direction and pace of gamification, but in the first instance the interfaces that mediate in between human and machine. The interaction of (wo)man-machine systems is at the core of a "co-evolution" (Grunwald, 2002) of human-machine systems. Gamification processes that alter the mode of this very interaction between humans and machines are indicators—on a superstructure level—of how basic relations amongst humans are changing. It seems therefore not sufficient to study the effects of gamification on an object level by investigating images, sound, and the textuality of games, nor does it seem sufficiently encompassing to study playfulness as a subjective property of the player individual. We suggest studying gamification at the point where game and players meet: the interface.

Historically, this approach responds critically to earlier theoretical positions within Game Studies that grasped video games from an object-based viewpoint (the video game image, the video game text, the video game algorithm) (Aarseth, 1997; Bogost, 2006) or from a player-based viewpoint (types of players) (Juul, 2003; Strouhal & Fuchs, 2008; Newman, 2001). We suggest here

that video games can best be understood by an analysis of the interface (Fuchs, Mañas & Russegger, 2011).

One of the questions that arise from such a methodological framing is about which instance in the game-interface-player system owns ludicity. Is it the game where playfulness resides? Is it the interface? Or is ludicity encapsulated within the player's attitude? The questions posed here are of relevance for the young medium of computer games, they are however related to a discourse that is known as the expressionist-arousalist dispute in musical semantics. The old question of whether the musical piece owns an emotional quality that expresses the composer's feelings or whether emotions aroused in the listener are owned by him, or herself, has been dealt with by musicologists like Davies (Davies, 1980, 1994) and Kivy (Kivy, 1980, 2002) amongst many others. The problem reappears dressed in new clothes within the medium of videogames. It would be too early for the assumption that we can unfold the discourse by proposing an expressionist or arousalist theory of ludicity. Games inhabit a media-specific context, that is different to the musical context. As a consequence a theory of gamification would have to embrace game-specific foundations to arrive at valid assumptions on what happens with games and what games are about to effect on non-gaming sectors of society.

GAMIFICATION, LUDIFICATION, UNAWARE GAMING AND LUDIFIZIERUNG

Johann Huizinga's suggestion that play was an essential—if not a primary condition—for the development of culture, has been stated in prominent form as early as 1938 (Huizinga, 1938), and been rephrased and modified by Caillois (Caillois, 1958), Sutton-Smith (Sutton-Smith, 1997) and others. The notion of a "gamification" or "ludification" of our society became however popular less than a decade ago. The view of games as the lead medium that drives our social development has only emerged recently. Our society is not any longer mainly influenced by the products and decisions Hollywood makes or by the formats and content the television industry imposes upon us, but by innovation and ideology that stems from video and computer games. If one wanted to describe gamification as the penetration of our society with methods, metaphors, values and attributes of games—as I suggest here—then ludification would be the infiltration of society with play-related aspects, i.e. methods, metaphors and attributes of play[1]. What is a ludic method? Let us for example assume that an airline has flights for sale. Let's furthermore assume that these flights are not sold at a fixed price, but that the airline offers to sell the flights according to a pricing scheme that is regulated on the following basis: the earlier you buy the flight, the cheaper it is. The later you buy the flight the more expensive it gets. If you try to buy your flight too late, i.e. after all the other players in the game have already bought their flights, you cannot buy the flight at all. This is a rule-set that works as the basis for a method to exchange services against money, and it is a rule-set that fulfills all of the criteria for a game[2](the magic circle included,

1. These preliminary proposals for a definition of gamification and ludification stem from considerations explained in detail in an unpublished hand-out for a lecture on Mediated Reality by the author, University of Potsdam, 2011.

2. A set of rules, a set of players, competition or strife towards a discrete outcome, a starting point and an end of the game.

because the method only works inside the magic circle. You would not be able to buy potatoes on the basis of the airline's ludic setting). That is what I would like to call a *ludic method*. A *ludic metaphor* is a literary figure of speech that is built upon connotations to the semantic field of games and play. If I call a non-mandatory university lecture that students can select at will, a "wildcard" module, I use the notion of the wildcard metaphorically and I create connotations to card games, poker, sports, aso. A game-related constituent, to finish with this, could be a pawn, a token, a dice, or the graphic layout of a board game. A *ludic attribute* would be the property of such a constituent, e.g. colour-code and typeface associated with a roulette table. If a spreadsheet that is used in work-related processes is adopting the attributes of game-related objects, and appropriates—to stick to the example—the look and feel of a roulette table, we might talk about the gamification of a software product. Accordingly we might talk about gamification of cultural processes or social activities. There is a massive amount of activities that are shaped according to gaming cliché or gaming tradition: university ranking tables, employee of the month contests, user-interfaces for company webpages, academic assessment regulations, aso. Jesse Schell goes as far as stating "…every second of your life you're actually playing a game in some way" (Schell, 2010). Even if one does not want to follow him there, it will be possible to detect gamification at many occasions in the sense that Deterding, Khaled, Nacke, and Dixon define it. They talk of gamification as "the use of game design elements in non-game contexts" (Deterding, Khaled, Nacke & Dixon, 2011). This definition is assuming that a design process and an intended transfer of design elements take place when gamification happens. I prefer to speak of the "penetration" of society or the "infiltration" of social sectors, to point out that ludification and gamification happen most often unconsciously and that they spread like wildfire. To paraphrase a statement of William S. Burroughs that he made on the nature of language, one might say that "Gamification is a virus"[3]. Penetration, infiltration and viral behaviour are features that point out that gamification might not always be valued in a positive manner. Ian Bogost became provocative in that regard when he sarcastically stated in a Gamasutra feature: "I had been trying to ignore gamification, hoping it would go away, like an ill-placed pimple or an annoying party guest or a Katy Perry earworm" (Bogost, 2006). Of course Bogost knew that this pimple would not go away.

In the German-speaking academic world the notion of *Ludifizierung* has been used in a way that is not synonymous to ludification. Authors like Böhm place Ludifizierung in close vicinity to pedagogy. Their research is a dialectical investigation into "Pädagogisierung des Spiels" and "Ludifizierung der Pädagogik" (Böhm, 2007, p. 225). In other words, they observe the ludification of pedagogy just as one side of the coin that says on the other side: let us turn play into pedagogically relevant activity (*Serious Games* as it is called now). The reason why German theory is so much concerned with pedagogy when talking about ludification lies in the history of Game Studies there, that is heavily influenced

3. Original quote in Burroughs, W.S. (1962). *The Ticket That Exploded*. Paris, France: Olympia Press.

by German idealism and in particular by Friedrich *Schiller's Letters upon the Aesthetic Education of Man*. In the 15th letter he states: "For, to speak out once for all, man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays"[4] (Schiller 1795, transl. Harvard Classics, Letter XV p. 9, 1909). For Schiller education was inextricably connected to play.

There is another notion introduced by Markus Montola, Annika Waern and others that holds a close relationship to gamification and stresses the fact that we do not always notice when we are gamified or when the software we use is gamified. This is the notion of *unaware gaming* (Montola & Waern, 2006). The authors suggest that we often play, even if we do not consider it as being involved in a game. This is an interesting counter-strike to the theoretical approach that proposes that gamification is consciously consumed. The concept of unaware gaming leaves it open whether the process of gamification leads towards increased usability and user-friendliness or whether gamification could under certain circumstances be considered as ideology.

LUDICITY IS A PROPERTY OF THE GAME

Much of the rhetorics the games industry uses is based on the assumption that there are applications or devices that are playful per se. *FarmVille* or other add-ons to facebook and similar social media tell us that the application is fun to play. The smiling faces on the package of a *WiiRemote* controller want to tell us that by using the controller we will encounter a joyful playtime. Playfulness is marketed as a property of the game itself. The reification of playfulness as a property of an object is of course a seductive suggestion. It suggests that everybody can buy pleasant ludic experience by buying the object. But can an object of any kind be playful?

At first glance it seems that objects do not have a potential for playfullness *per se*. A wooden stick can be a toy. A stone can be a toy. A cunningly-designed toy can be a toy—or it can in praxi not be a toy. It depends on whether the object is used playfully or not. It is not a property of a stone or a stick to be a toy, as anything can be played with. It seems to be rather the application context that makes an object a toy in a given situation and at a given moment. Take a handful of LEGO bricks as an example and drop them in a 1970s European child's bedroom. Then take the same bricks and place them in an Egyptian temple in 2000 BC. Finally, try placing the LEGO bricks in front of the curator of a contemporary design museum in central Tokyo. What you will find is that the bricks will be used as a toy in one of the cases and as a sacred object or a piece of design history in the other cases. It seems that playfulness can never be owned by the object alone.

LUDICITY IS OWNED BY THE GAME-DESIGNER AND COMMUNICATED VIA THE GAME

It seems therefore reasonable to locate the ludicity not in the object itself, but in the intention of a designer who expresses his or her ludicity *via* an object, a

4. In the German original: "Der Mensch spielt nur, wo er in voller Bedeutung des Wortes Mensch ist, und er ist nur da ganz Mensch, wo er spielt".

piece of software, or a device. This model of understanding how ludicity comes into play is close to the concept of expressionist theory in music, where musicologists like Bouwsma (Bouwsma, 1950) and Meyer (Meyer, 1956, 1973) proposed a transfer mechanism of composers' emotions into musically communicated emotional patterns. Musical expressionist theory was criticized for not taking into account any misinterpretations or deliberate deconstructions of musical meaning and musically mediated emotions by the listener (Fuchs, 2010b). The same criticism would hold true for a ludologist, expressionist approach. Even if the game designer wants to convey joy to the player, the emotion felt could be sadness, frustration or anger instead. It is well known that America's Army did not succeed in delivering the message or the emotional bias intended to be received by all of the players (Wilson, 2008; Huntemann & Payne, 2010). Ludicity might be a designer's state at a certain time in the design process, but who tells us that this will be picked up by the user in the end? If a playful state is felt by the game designer, ludicity might be his, but we can not expect that the game is able to transfer the existential orientation or mental state.

IT'S THE PLAYER, WHO OWNS LUDICITY

Let us have a second look at the LEGO bricks mentioned above. It looks as if the very same bricks can carry a higher or lower degree of playfulness in different contexts and for different recipients. Therefore, it seems reasonable to locate the ludicity not in the object itself but in a potential user at a given time and space instead. It has been suggested by Salen and Zimmerman (Salen & Zimmermann, 2004), who themselves refer to Bernard Suits (Suits, 1978), that we can assume a *lusory attitude* as the main driver for playfulness *vis-à-vis* a toy or an object of any kind. In musical semantics a related approach is known as *arousalism*. According to that it is the recipient and not the performer or composer that creates and owns affects, emotions, and connotations. In its most radical form arousalists believe that the whole universe of feelings and ideas is constructed in the head of the listener, with no signifying based on the sign-signifier relationships intended by the author. In musical semantics this approach would find it difficult to explain why most of the listeners read similar emotions, and even musicologists that are often called arousalists, prefer to declare themselves as "almost-arousalists" like Jerrold Levinson (Fuchs, 2010b) or "weak arousalists" like Aaron Ridley (Beever, 1998).

In Game Studies, an arousal approach would be equally problematic. What is a toy if objects are assigned ludic potential exclusively by their user? If a toy is an object that can be played with, a stone is also a toy. By taking a user-centred approach in the style of Salen and Zimmerman and extending their notion in the direction of intentionality, one would have to say that an object becomes a toy when users decide to play with it. Does this imply that objects that are not played with cannot be called toys? That would indeed make the LEGO bricks in the design museum non-toys. A consequence of such an approach would be

a split in the world of LEGO bricks, with some of them being toys at a given time and others being non-toys.

We seem to be caught in a dilemma! If we suggest that playfulness is owned by the object, we cannot explain how stones and sticks can sometimes become toys. If we suggest, on the other hand, that playfulness is constituted by the player's attitude, we declare that everything on this planet is a potential toy. There seems to be a way out, however.

THE INTERFACE IS THE ULTIMATE LUDIC DEVICE

In order to understand the potential of interfaces for any human-machine interaction, it makes sense to look at games as a rich field of interaction set-ups and concepts. We conceive a game as a system of rules, a player, physical or virtual objects to play with, and a regional and historical context to be played in. When we try to find out what's in a game, we might look for meaning on different levels of the game. We could find meaning in the rules and the development of moves within the rule system. We could alternatively search for meaning in the role the player adopts in the game. In particular, the player's position in a socio-historical context could be interpreted as the meaning of the game. However, another approach is to interpret the interface between man and machine, machine and machine, or woman and machine as the crucial element in the production of ludic experience and ludic meaning. We want to call these approaches:

1. ludocentric,
2. role-based,
3. socio-historical, and
4. interface-led (Fuchs, 2010a).

Ludic interfaces lend themselves to shifting focus from rules and roles to processes of the deconstruction of rules, roles and socio-historical settings. For this reason game art often focuses on the interface or on an apparent lack of interactivity within the interface provided. Both approaches, i.e. the deconstruction of interfaces and the destruction of meaningful interface functionality, are artistic strategies to criticize commercial interface design and to suggest provocative alternatives to middle-of-the-road interface standards. Ludic interfaces and zero interfaces contain artistic statements intended to oppose ideological concepts in HCI (human computer interaction) and to set free playfulness in the process of (wo)man-machine communication (Fuchs, 2010a).

It seems that interfaces always have a ludic potential because they are pivotal points between two systems. This seems to be the position where slack, to-and-fro or "Spiel"—as Gadamer calls it (Gadamer, 1977)—can take place. This is especially true with regard to computer-based interfaces. An essential quality of the digital medium is its ludic potential. Not only can it connect anything to anything, if the necessary interface protocol is developed, but it also makes everything that is translated into its language highly malleable. Ludic interfaces

appropriate what today's computer games, artistic experiments, interactive media, media conversion, social networks and modding cultures have at offer. The new and innovative types of interfaces might influence how gender-related, age-related, and ethnically specific play can develop new forms and hopefully emancipate from mainstream commercial gaming.

CONCLUSION

Our interest in the ownership of ludicity is motivated by the question of how gamification works, and by the related question of what instance in the human-interface-machine system is most vulnerable to infiltration by gamifying processes. Gamification spreads from entertainment to war, from war to work, and from work to the web, and back. The critical investigation of the potential ownership of ludicity by toys and games, or alternatively by the player has demonstrated that the interface in between game and gamer is most likely to be infected by the virus of gamification. It seems that a society is best prepared to be gamified if the lusory attitude of the whole society is on a high level. It is not the playfulness of the individual gamer or of a group of gamers that gets gamification going. By assigning lusory attitude to a social setting or a social group—and not to an individual player—one clearly escapes the dangers that the notion of lusory attitude holds when interpreted on an individual player level (Salen, Zimmermann, 2004). Salen and Zimmerman leave it open where the attitude comes from and hint—without stating it explicitely—that there might be an instinctive drive to play, not unlike Friedrich Schiller's *Spieltrieb*[5] (Schiller, 1795). Schiller's concept of an instinctive drive is not far from Suit's, Salen's and Zimmerman's lusory attitude. Both suffer from the same problem: Where does the drive come from? Societies are historically constituted and therefore do not follow any preprogrammed drive. We will therefore have to find the mechanisms that make certain historical states of society or sociological settings receptive to play and receptive for gamification. A preparedness for connecting any social activity with game-related rules, behaviour and paraphernalia is the breeding ground for gamification on a wide scale.

As a consequence, societies with high lusory attitude will turn anything into games or into toys. This is where it becomes apparent that talking about Gamification is talking about core driving mechanisms of a society or predominant social groupings within. Gamification is a trend of dramatic changes that take effect on technology, work, war, sports, politics aso. Our hypothesis is that interfaces tend to turn into playful objects of their own, to successfully follow the trend of gamification. And in using these ludic interfaces, we increasingly turn work, war, sport and health into gamified processes.

5. Schiller's *Spieltrieb* should not be interpreted in a Freudian way. Schiller uses drive or Trieb in the way Leibniz understands it. For Leibniz Trieb is a substancial individual force that is in accordance with reason.

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Apocalypse postponed

Discourses on video games from noxious objects to redemptive devices

Over the last decade, a new narrative has emerged in favour of the medium of the video game. Games are now being described as a series of practices which improve our mental and physical skills (see Johnson, 2005, or the marketing and reception of Nintendo's 2007 game *Wii Fit*); they are targeted to a mature audience, and are no more associated with antisocial teenagers (see Prensky, 2006); they are capable of unprecedented aesthetic achievements (see the reception of games like Rockstar Games' 2011 L.A. *Noire*); and their consumption allegedly reveals a seemingly never-ending user growth, making them a globalized, pivotal media for the solution of social and political issues on the scale of the whole planet (McGonigal, 2011).

Such a narrative does not match the description we got used to. Video games used to be noxious objects, encouraging antisocial behaviour and constituting a danger for the health. They could even frame the minds of potential serial killers, as in the Columbine case. They used to be aesthetically poor experiences and confined, for their consumption, in the arcades or in the teenager's bedrooms.

In this paper we will highlight some examples of how the descriptions of video games have changed in terms of alleged positive or negative effects for the individual and society, with reference to health, psychological and cognitive aspects, and cultural and aesthetic relevance.

We argue that many of the new discourses on games as positive media are not more fair and lucid than those that ostracised video games in the past. It is however worth asking how these discourses emerge and are structured, despite their inconsistencies, as they reflect wider trends of spontaneous consensus between industries, audiences and institutions, and make us aware of the risks that the critical function of research may be distorted by such trends.

NOXIOUS DEVICES: FROM COLUMBINE TO OSLO

In the early 2000 the "Columbine incident" controversy was raging. Video games, as well as satanic rock and youth subcultures, were on the list of what was to blame. The massacre at the hands of two students, Eric Harris and Dylan Klebold, at the Columbine High School in Colorado, United States, on

the 20th of April 1999, has been interpreted and commented in many circumstances in regards to the negative effects of media. In reconstructing this story, video games often appeared as one of the favourite hobbies of the two killers, thus suggesting a direct connection between video game playing and homicide tendencies (Brown, 1999).

Baker and Petley addressed in *Ill Effects* (1997) the process by which rock and other media were targeted as bearers of antisocial and noxious effects on youth. The authors recognized how these media were being depicted as bearers of noxious influences on youth and the audience in general, or as instigators of violence and bad behaviour. In the second edition, published in 2001, video games were considered in their functioning as scapegoats for morally and politically relevant themes on the agenda of the media. The authors would describe gaming as a practice which was being stigmatized like witchcraft.

By that time, the authors reported that there had been "very little research into the players of video games of a kind that escapes the clutches of the 'harm' brigade" (p. 16), and that "at the heart of this 'effects' tradition stood the figure of the 'child': innocent, vulnerable, corruptible by the violent or corrupting medium" (p. 11). In fact, in 2000, American senator Joe Lieberman publicly stated that violent media played a negative role in influencing children, and were indeed "part of a toxic mix" that has actually now turned some of them into killers"; the speech was reported in *The New York Times* (Rosenbaum, 2000).

Sue Howard (1998) argued in *Wired-up: Young People and the electronic media* that "the construction of the 'child' that lies behind these anxieties is essentially an idealized and romantic one", while media "are often demonized—they are rapacious, corrupting, exploitative and in need of regulation"; also, "ironically . . . the media themselves are largely responsible for perpetuating these constructions" (p. ix).

Similar arguments were pivotal in the field of psychology and psychiatric research, as well as for parental organizations. Pamela Eakes of the Mothers Against Violence in America argued that "violent video games are an ideal environment in which to learn violence", as they reward the player "for violent behaviour", and are "addictive"; "kids want to play them for hours to improve their playing skills, and repetition increases learning" (Eakes, n.d.).

Barrie Gunter (1998) reported how "throughout the 1990s, increasing numbers of newspaper headlines have highlighted scare stories about 'violent and horrific video games', invariably leading to 'a call for tighter censorship' at the hands of 'concerned lobbyists'" (pp. 7-8).

These arguments were consistent with theoretical approaches that would deal with the potential for video game to have violence effects, including the Catalyst Model of aggression (which implies a combination of genetic and environmental factors like stress and antisocial personality)[1], and most notably the General Aggression Model (GAM), which asserts more vehemently that physical arousal is likely to be affected by simulated violence (Kooijmans, 2004).

1. A recent take on this model is discussed in Ferguson et al. (2008, pp. 311-332).

The negative bias and scepticism towards video games seemed to permeate all sectors of public discourse. US President Bill Clinton said in his President's Radio Address (April 24th, 1999) following the Columbine High School shooting in Littleton, CO, that "as Hillary [Clinton] pointed out in her book, the more children see of violence, the more numb they are to the deadly consequences of violence"[2].

Whenever games were not used as witches to burn on the stake of the political agenda, they were simply overlooked, and seldom deserved a mention as relevant social objects, even in the academic or intellectual field. In 2001, media scholarship had barely tackled the whole issue of video games, while an author and intellectual like Ray Bradbury could get away with the whole issue of gaming by stating to an interviewer that "video games are a waste of time for men with nothing else to do. Real brains don't do that" (Hibberd, 2001).

Critical counter-arguments, however, were also circulating. To our knowledge, only a few works concerned about video games as cultural objects in their own right.

In the second edition of *Ill Effects*, published in 2001, the editors included a new paragraph dedicated to video games, arguing that "one of the striking new features has been the emergence of fears about computers and, especially, video games" (p. 16), but choosing to point the reader "towards the good work that has become available" on the medium: "a flush of important research in recent years... scattered in many places" (p. 2), yet a starting point in the process of questioning the dominant and apocalyptic paradigm.

By the time the authors of *Ill Effects* were writing, an article by Steven Poole was still one of the few example of a positive argumentation on games. Poole (2000) defended the position that the video game as a medium was actually forging "a new generation of techno-savvy . . . who are rightly sceptical of passive acquiescence to what the television screen autocratically delivers"; for the author, games were actually "designed so as to exploit the virtues of the screen's plasticity and infinite representational possibilities", thus challenging "the pernicious, isolating effect of passive television screen culture". Steven Poole would again be one of the discordant voices on video games narratives, as he would go on to critique a now notorious claim by Jane McGonigal on games' potential to change the world (Poole, 2012).

Today, it would seem as if negative takes on games had been paralleled significantly, or even outstripped, by rising narratives on games as beneficial objects. While claims of negative effects rooted in the area of psychology, pedagogy and law have never actually disappeared[3], they are now matched by a larger number of pros and cons approaches. In public debates in the mainstream media, positive and negative effects are seen at least as equal possibilities.

This discursive transformation could be exemplified by looking at the reactions to the recent Oslo murders, which seems to echo the more notorious case of the Columbine tragedy. In the wake of the Oslo massacre, a great deal of atten-

2. President's Radio Address (1999, April 24).

3. See for instance Anderson, Gentile & Buckley (2007).

tion has once again been drawn to the killer's consumption of media, and specifically of allegedly harmful video games[4]. As a consequence of the attention which surrounded the tragedy, the debate on movies, games and literature as a possible "bad influence" or *reinforcing factor* has been re-heated. Unlike in the Columbine case, however, claims on the negativity of games were mostly brought forth by politicians and died out. The media focused most of their attention on the ideological reasons and on the deviant personality of right-wing activist Anders B. Breivik, rather than isolating video games as the only cause that fostered this outcome. Also, the academic and scholarly sectors were quicker in addressing these narrative by criticizing the equation between games and violence.

One such response, among the many others, was delivered by Christopher Ferguson, himself a clinical psychologist. Ferguson (2011) argued rather bluntly that "video games aren't to blame for this tragedy [because] people really want to know what kind of boogeyman" they can place the blame on, "and video games are still the top choice when it comes to any type of tragedy" (paragraph 2). This kind of critique, from the very field in which games used to be analysed as bearers of psychological effects, is consisted with a different sensibility for which gaming now being recognized as a bona fide cultural phenomenon, no longer reducible to the occasional scapegoat of the cyclical media panic agenda, but at the same time notorious for having been exploited for this purpose.

While the Oslo controversy would fade much sooner than the Columbine case in the palimpsests of the news, its analysis was also less rooted in a sociological analysis of media effects and more on the personality of the killer. The process by which games were to blame for social disruption did not hit the zeitgeist like it used to. By 2011, an increasing number of publications and statements in favour of digital gaming as a cultural products had also been produced since the previous decade. While the previously dominant discourses on games as noxious objects seemed to arise mostly in the field of psychology, psychiatry and cognitive studies, a new narrative claiming games as redemptive devices emerged in the area of media studies, drawing on a similar claim for psychological, cognitive and medical evidence.

REDEMPTIVE NARRATIVES AND THEIR DISCONTENTS

In recent years, digital gaming has been discussed as a medium which improves our mental and physical skills. The alleged effects of gaming on children are once again at the centre of the argumentations, but these times, these effects are seen as beneficial for health and from a psychological and cognitive perspective.

The argument according to which repetition increases learning, which we have previously noticed in the narratives of the harmful effects of games, will bring Prensky (2006) to completely opposite conclusions: according to the author, games can train us for cognitive abilities, useful for work and research. The very same features of video games (fast response, complexity, cognitive demand) that were seen as alienating and correlated to attention deficit disor-

4. On 22nd July 2011, Norwegian right-wing extremist Anders Behring Breivik was responsible for bombing government buildings in Oslo that resulted in eight deaths, and the mass shooting at a camp of the Workers' Youth League of the Labour Party on the island of Utøya where he killed 69 people. Already highly controversial movies like the 2007 Legendary Pictures' 300 were apparently among the favourites of the fanatic's anti-Muslim ranting, while the game Call of Duty: Modern Warfare 2 (2009) was openly described in his manifesto as one of the best military simulators and a part of his training.

der were thus hailed as a testing ground for the development of future quick and powerful social and technological skills. Steven Johnson (2005) proposed to consider new media audiences as constantly undergoing a *cognitive workout* which is making everyone smarter; for Johnson, popular culture is "altering the mental development of young people today" in a good way, that is "enhancing our cognitive faculties, not dumbing them down" (p. 12).

According to this narrative, television series, video games, the Internet and many media where a large audience is involved are now requiring more and more intensive concentration than in previous years. However, it is not only at the level of content that this intellectual work is happening. It is not a matter of displaying good, instructional messages. According to Johnson it is the complexity of the plots, the number of variables and rules in a game and the high intensity of engagement with the communities of fans that are responsible for the increased brain activity and, therefore, level of intelligence.

Johnson is on a similar line to Henry Jenkins, who also acknowledged the potential of fan-based communities in promoting more active forms of media reception (Jenkins, 1992, p. 343; 2006a, p. 308; 2006b, p. 279). The active element, however, is presented in much more positive terms by Johnson, who insists on the 'positive' effects of any form of engagement of the audience.

Video games are also often discussed as targeted to a mature audience and no more associated with antisocial teenagers. This appears in a large number of statistics and market surveys that have been published in the last decade.

Johnson (2005), Prensky (2006), and McGonigal (2011) base this alleged revolution largely on facts and numbers, as if a qualitative change could be justified or even determined by statistics. These surveys appear to be, in most of the cases, funded by the game companies and publishers. The numbers in support of the growth of gaming are questionable. However, the reality of these numbers is not the point we would like to make. Above all, their use is disputable as we believe that to determine a form of causation between surveys on video game audiences and the positive effects of the medium is a biased approach. An often quoted survey is the one provided by the Entertainment Software Association, which claims that, in 2010, the average video game player is 37 years old, 42% of players are women and 29% of gamers are aged over 50[5]. These numbers are presented as successful facts, which testimony for some sort of maturity of the video game medium. McGonigal (2011, p. 3) insists on this point. She bases her argumentation on the Newzoo Games Market Report 2010, which states that nowadays "in the United States alone, there are 183 million active *gamers* [and that] globally, the online gamer community—including consoles, PC, and mobile phone gaming—counts more than 4 million gamers in the Middle East, 10 million in Russia, 105 million in India, 10 million in Vietnam, 10 million in Mexico, 13 million in Central and South America, 15 million in Australia, 17 million in South Korea, 100 million in Europe, and 200 million in China" (p. 15).

5. See http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf

These numbers or even higher figures cannot constitute, in terms of logic, neither a sufficient nor necessary condition for claiming in favour of the psychological and social effects of video games, let alone any aesthetic value.

The beneficial effects of modern or contemporary games (as opposed to the older ones) also appear to be rooted in an evolutionary narrative according to which their increased complexity, variety and aesthetic and informational content would translate to an increased possibility to enhance the player by training, educating or socially engaging him or her. This is maintained by Johnson (2005), who points out his evolutionary view in the introduction to his text where he claims that, against apocalyptic views, there is instead "a progressive story: mass culture growing more sophisticated, demanding more cognitive engagement with each passing year" (p. xi). Data analysis is then used to demonstrate the increased complexity of plots and narratives in popular TV series, thus basing on numbers and facts the evaluation of the complexity of the product, and the required intellectual activity from the side of the viewer.

Once again these takes from the academic community seem to be rooted in a more general discourse games, one that is now positive, and also regards to their growing reception as works of art. According to emerging discourses, video games are finally capable of aesthetic achievements, as games such as *L.A. Noire* (2011), *Heavy Rain* (2010) or *Alan Wake* (2010) would seem to demonstrate to a part of the gaming audience, and most notably to mainstream journalists, the general public, or critics from the film industry.

The case of *L.A. Noire* is very significant in this respect. *L.A. Noire* has been recognised for its aesthetic value at the Tribeca Film Festival, an event addressed to film. This event has been discussed by video game critics as a proof of the reached level of aesthetic value of digital games. However, it should also be noted that the game was presented as a sixty minutes movie, thus misunderstanding its ultimate nature as an interactive form of entertainment. In fact, what was celebrated was actually the aesthetic similarity of the game with films. Rather than for pushing the quality of video games a step further, *L.A. Noire* has been hailed for replicating the language of another form of expression[6]. This is a demonstration that video games are increasingly celebrated through values, discourses and mythologies borrowed from other media, without taking into account the actual gaming practices. Games appears to be legitimated as a cultural product mostly, if not only, when they are capable of replicating the aesthetics of more established practices (cinema, mostly, and novels in terms of narrative). This undermines the argument that digital games are becoming socially relevant in their own rights.

Last but not least, according to these redemptive narratives video games now also appear to be relevant for social and political issues in the Western societies, for underdeveloped countries and for the whole world. They are described as capable means of propaganda and activism, as the rise of *serious gaming* would

6. For a study in the reception of *L.A. Noire* in the mainstream and specialized press and the narratives that surrounded the game see the essay by Carbone (2012).

seem to imply a committed use of the medium, which would give way to its exclusive employment as an escapist medium[7].

In this milieu, even more extreme claims are now being made. Jane McGonigal's controversial text *Reality is Broken* (2011) represents the peak of this narrative of redemption. Her work supports the idea that reality is "broken", that is: unsatisfying, alienating, unproductive, and ineffective; and that video games can "fix" it, by introducing collective participation under the regime of play into social issues, thus making it rewarding, socially viable, productive, and accomplishing. Games can "change the world". In other words, by engaging in their logics and accomplishment system, we have a chance to be trained in using these very tools and solve global issues involving environmental sustainability, social disadvantage, economic inequalities, famines.

McGonigal and her followers, however, seem to underestimate the role that they play in pretending to shape reality as a game. The assumption behind this approach to problem-solving is that problems appear as linear, crystallized narratives. It is because of this that they can be fixed, once and for all. There designer mentality at work here believes in the creativity of the individual to persuade the masses to fix a problem, and to show how to do it, for general and perpetual benefit.

Choosing and framing the problem and its solution, in such a perspective, are left in the hands of the game designer. Thus, the collective participatory effort will be spent to achieve the designer's ideals. If we leave out the bombastic and exaggerated tones of McGonigal's rhetoric and the alleged and unverified evidence for these claims, we can see that a similar approach would in fact address a social issue by persuading the largest possible number of people of its relevance, and then design a structured activity where everyone could participate to its solution. Such a mentality, however, reflects a ultimately naïve conception of "reality" while imposing a mastermind over it. On a broader scale, the 'grand narrative' of user redemption and beneficial interactivity can be considered as part of a series of larger discourses about creativity fostered in neo-liberal industries, and permeating every field from software engineering to web design. To fix the world by means of design, emancipating the user and promoting her/his freedoms, are all *topoiwe* have already heard of [8].

GAME THEORY IS BROKEN

Although it would seem as if the perception of video games in the agenda of media, critics and researchers had become largely more positive than in previous years, we argue that this change took place at the price of no critical improvement or better understanding of the medium. It would seem in fact as if many takes on video games were simply reversing the polarity in favour of a naive perception of the interaction between humans and media.

(Baker & Petley, 2001) criticised the moral panic instigated by the tendencies to trivialize and simplify the relations between media and supposedly

7. Examples of this are video games designed with a strong political commitment, such as those developed by Molleindustria http://www.molleindustria.org/en/home) and Persuasive Games http://www.persuasivegames.com/).

8. To expand on this subject would utterly exceed the purposes of this essay; we would like however to point out that these complex issues have been extensively debated in *The Cultural Industries* (Hesmondhalgh, 2002). Hesmondhalgh debates the principles underlying the creative culture, and we can clearly see them reflected on concepts of the video game industry such as the independent game designer, allegedly emancipated from the mainstream industry.

passive users: by ossifying the concept of violence into a general and universal concept, the approaches that relied on outdated effects paradigms were misunderstanding the diversities of the individuals in their sociological, cultural and psychological backgrounds.

Not much seems to have changed in many of the more radical positive approaches to gaming. In some of these discourses this change seems to be similar in concept while reversed in polarity, and only partially based on facts, or on an exaggerate description of these. Just as the negative descriptions of games used to, so the positive narratives assume the effects of digital gaming abstractly as a technology, without considering the multitude of uses, interpretations and social interactions that emerge in private and online playing (massive or not).

In fact, these processes seem to partially echo the previous reception of other popular media and practices, and their similar transition from causes of media panic to conversely integrated practices. According to Barrie Gunter (1998), concerns such as those we have highlighted "reflect similar public outcries which accompanied the growing popularity of early Hollywood movies in the 1920s and 1930s, horror comics in the 1950s, and television in the 1960s and later" (p. 7). The redemptive discourses on games share with the more apocalyptic visions the same technological determinism and a tendency to describe the medium as if its consequences could be predictable, either bringing disrupting and corrupting or bearing unquestionably positive meaning and effects.
Most of these redemptive narratives appear to be based once again on the same starting point, that is the growth in terms of numbers of the video game industry, which we have previously highlighted in its use by McGonigal (2011). However, the growth of the market or any other statistical fact does not prove to bring to a further and more accurate understanding of the industry and its consumers. More importantly, an increase does not entail, logically, an improvement in the social, aesthetic and even medical potential of digital gaming. In fact, such a revolution appears to be only partially based on facts, as most of the positive arguments appear to re-frame the understanding of the video game culture at a discursive level.

A critical position of this kind of argument is maintained by Aphra Kerr (2006), who challenges the numbers in support of the wide distribution of digital gaming as an important justification for the *redemptive turn* which occurred in the last decade. The diffusion of video games appears to have caused a major awareness and familiarity with the medium among its consumers, to the extent that this has brought to the demand of new solutions and applications, including the artistic, political and salutary ones. Kerr discusses about the role played by narratives of production and consumption and by the imagined consumers in shaping the actual development of digital games, stating that although the game industry has experienced a steady growth, the revolutionary claims are not supported by the evidence of the market surveys. The growth may be less impressive than what many statistics report and not as regular in every region.

Moreover, Kerr debates the focus on the *prosumerof* video games as a new figure in the industry, and as a key concept for the nexus between the growth of the market and the social potential of games. The combination of the roles of producer and consumer in the video game industry has often been considered as a sort of revolution, rich of political connotations. The consumer, in this view, can take control of the software and even subvert, violate, change its meanings[9]. However Kerr (2006) notices that this rarely happens, and draws on Henry Jenkins to argue that the interactive audience may be more a marketing concept and less than a 'semiotic democracy'" (p. 121). She concludes stating that digital gaming can also be detached, and that even if some players might enjoy to modify a game, on the other hand "for some digital players it may be pleasurable to play exactly according to the given script" (p. 124). What Kerr points out is that we should be aware of revolutionary statements. Practices of consumption cannot be understood by market researches in all their multifaceted aspects. Much more moderate statements are needed, if we want to provide a reliable account of the state of the industry.

Johnson, as well as McGonigal and Prensky, appear to have a less moderate position. Interaction, engagement and participation are universally re-shaping the players (or may change the world). Such a profound discursive transformation could be explained by means of historical, social, technological and anthropological causes. Rather than arguing on these overwhelmingly complex causes, we would like to focus on the dynamics at work in the construction of these narratives.

A careful examination of the discourses that led us to consider digital gaming as a revolutionary medium shows that there is a general detachment between the facts about the market and the claims made in regard to it. This change is not determined by the growth of the industry or any other statistical factor but, being a discursive change, it is mostly the spontaneous convergence of a variety of professional, social and individual needs for legitimization, often delivered as transposition of narratives appearing in other industries. There are of course more sceptic views. Dyer-Witheford & De Peuter (2009) agree that video games can prove effective in training the next generation of cognitive workers, however this perspective is understood for its political implications: "a media that once seemed all fun is increasingly revealing itself as a school for labor, an instrument of rulership, and a laboratory for the fantasies of advanced techno-capital" (p. xix). Dyer-Witheford & de Peuter also provide a good overview of the evolution of game criticism, highlighting the passage from condemnatory to celebratory positions. They also state however that a more critical perspective is now emerging. Such a critical position tends to understand the medium for its political ideologies and its potential for new democratic interventions. We believe that this position tends, as argued by Bart Simon (2011), to polarise the political proposal in an "us versus them" rhetoric. Dyer-Witheford & de Peuter provide a very good account of the problems of video game

9. These forms of control from the side of the consumer are not necessarily of an oppositional kind, but might also aim at forms of emancipation—as in the case of independent gaming—or engagement with the original brand/product, as in the case of fan-based productions or games based on consumer-produced content such as *Second Life* (2003) and *Minecraft* (2011); for more on this subject, see Galloway & Alexander (2006); Sotamaa (2009); Ludovico (2004); Küklich (2005); and Dyer-Witheford & De Peuter (2009).

criticisms and the economic, cultural and political implications of the industry. However, starting from a feeling of disappointment towards video game criticism which is similar to ours, they offer a not less polarised and deterministic view. While having the merit of being much more self-aware, this critical perspective is still not, we believe, what might frame radically different and better discourses (and subjectivities) surrounding video game culture.

Apart from similar exceptions, the positive, apologetic and redemptive take on video games appears as the ultimate reversal of the narrative of games as escapist and corrupting agents, as they now would seem invested with the duty of engaging with and saving reality. We believe however that in such an optimistic perspective much is lost. Reality might be broken, and in need to be "fixed", but video game theory does not appear in better conditions. In fact, rather than dissecting these narratives, video game scholars have often accepted them with gratitude, as a form of positive sanction on their work. We believe that a more neutral and lucid understanding should be provided.

THE LOST GAME: WHAT IS LEFT FOR THE GAME SCHOLAR?

The role of the scholar seems to demand a certain awareness, in so far often lacking, of the role the observer has in shaping the object of discourse. The accounts of video game culture often appear to be unaware that the narratives they present produce the object of discourse as well as its subject.

As a consequence, we are left with the responsibility of stepping back, and consider with more lucidity the position we take, the discourse we replicate and reinforce, and the role we play in their framing. The reception of extreme redemptive thesis such as those presented by McGonigal has enjoyed, we believe, a worryingly uncritical bias even in scholars who were craving for self-legitimization through the acknowledgement of the medium of video game.

In this paper we have presented a historical overview of its apocalyptic descriptions and the revolutionary *redemptive turn* which, in approximately the last decade, has attempted to subvert the earlier disparaging accounts of gaming.

We have outlined three paths in this re-evaluation of digital gaming: a sanitary concern and later approval of video games, an aesthetic underestimation and later appraisal of contemporary productions, and a social and political stigma which later turned into an alleged potential for new forms of activism and grass-root organization. We have argued that these changes have little to do with historical facts and are in actuality discursive formations surrounding video game culture. This discursive level appears to be a much more solid ground for understanding video game culture than the defective facts and evidence often presented in support of the revolutionary statements. Video game criticism should understand the relation between digital entertainment and society in a much more profound way, escaping recycled mythologies and critiquing ideologies in their basic assumptions. What is at stake in this alleged revolution is actually the loss of critical awareness. Video games are not, unfor-

tunately, better understood in this more contemporary view. They are instead implicitly considered as parasites of other media, trivialized into marketing talk or invested with delusional claims on radical socio-cultural changes. This redemptive revolution does not acknowledge historical, social, or psychological complexity. It is far and opposite from elevating video games, and should be confronted by a critical and self-aware engagement in the understanding of the medium. Apocalypse is postponed, and so should be redemption.

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Gamification is broken

An interview with Steven Poole

Steven Poole is the author of *Trigger Happy* (2000. New York, NY: Arcade Publish), *Unspeak* (2006. New York, NY: Grove Press), and *You Aren't What You Eat* (2012. In press). He has written extensively on books, culture, and videogames for *The Guardian* and other publications.

Q. In a recent article on *Edge*, you criticized Jane McGonigal's take on videogames as socially redemptive devices[1]. To us, her book seemed to be one of the peaks of a rising change in the social perception of gaming. Games have emerged as an unquestionably positive activity: they can be art, they are beneficial to the individual on a cognitive or psychological level, and they can serve socially relevant issues. You seem to share with GAME a more moderate position on these issues. Can you tell us more about this with regard to your article?

A. Two of my columns for *Edge* magazine last year were about "gamification", which in general means the application of videogame mechanics and reward-systems to real-life activities. The first pointed out that an uncritical newspaper report about a "gamification" of the London public-transport system made it obvious that the real interest for those making it was the opportunity to sell advertising in the virtual space overlaying the real one. When I turned to Jane McGonigal's book, *Reality Is Broken* (2011), it seemed to me strangely complacent. The author claims that "reality is too easy," which is why we need to erect game-like obstacles in it; but of course reality is not easy for many people. McGonigal also claims that large-scale social games could help solve problems such as global warming and world poverty. Though she has done some very interesting work (and made some very interesting games) herself, these claims are so hyperbolic that they are surely counterproductive, as well as tending to trivialize the very problems that "gamification" will allegedly help solve.

Q. The rising discourse about games as an absolutely positive medium seems to contradict a previous perception of gaming as a negative activity. Games used to be a health hazard, they were incapable of aesthetic achievements, or they promoted antisocial behaviour. In an article you wrote in 2000 for *The Guardian*[2], you were amongst the very few who were able to criticize such a narrative.

1. McGonigal, J. (2011). *Reality is Broken*. New York, NY: The Penguin Press HC.

Do you still subscribe to your previous comment in relation to that particular historical moment? Do you think much has actually changed since then?

A. *Trigger Happy*[3], the book I published in 2000, was in one sense a manifesto for treating videogames as a new artform, and so part of it (as with that article) was necessarily devoted to rebutting the prevailing negative mainstream view of them. But back then, even other thinkers who recognized the aesthetic interest of videogames were too often thinking in terms of other media, so I needed also to challenge the assumptions behind phrases like "interactive storytelling" or "interactive cinema", which thankfully one doesn't hear so often any more. (It would be nice to suppose I played some small part in destroying their popularity).

In a way a lot has changed since I published that book, in ways that I hoped it would change: videogames have attained more of a mass cultural acceptance (they are now afforded long reviews in newspaper culture sections, for example, rather than buried away in the geeky tech supplements). In another way, though, nothing has changed, in that the old "But is it art?" question keeps coming round (see the Roger Ebert kerfuffle of recent years[4]), even though the answer, or so it seems to me, is very simple. Every new artform in history is art, but not in the way that people have previously thought of art. That is why it's new. And that's why there will always be a reactionary cadre of people who say "But this is not art!", as they did of novels and cinema in their turn. Sure, it's not art as you know it. Any definition of "art" is just a post hoc account of what all the different forms might have in common. When a new form comes along, you have to revise that account.

My own view remains that videogames are, indeed, an artform, capable of tremendous things, but also capable of lazily recycling political and cultural ideologies. The interest for me, in my monthly column, is in analysing individual works, or trends across certain works. It no longer makes sense—if it ever did—to make grand claims about "videogames" in general, in the same way that you can't really say anything interesting about cinema in general or books in general.

Q. Polarized takes on games seem to have emerged in recent times from the academy, while your position, which is much more aware of the implications of the relationships between technology and culture, comes from the journalistic field. Do you believe that in the understanding of digital games there has been an overlapping of academies and specialized journalism, and that the latter is somehow more conscious of the general developments of the narratives regarding video games, to the point that this view is somehow more cautious than the academic one?

A. When it first began to become respectable to write about videogames in the academy, you could see that many people were just importing the trendy new thing (videogames) into a pre-existing media-theoretical practice and lexicon, which didn't seem to me very fruitful. But these days I think it's less than useful to think of a dichotomy between journalism and the academy, since so many of the best writers on videogames straddle both fields, and often the

2..Poole, S. (2000, November 4). Zones of pure play. *The Guardian*. Retrieved from http://www.guardian.co.uk/technology/2000/nov/04/games.dumb

3. Poole, S. (2000). *Trigger Happy*. New York, NY: Arcade Publish.

4. Ebert, R. (2010, April 16). Video games can never be art. *Chicago Sun-Times*. Retrieved from http://blogs.suntimes.com/ebert/2010/04/video_games_can_never_be_art.html

third field of game development as well. Indeed, one of the thinkers on videogames I admire most right now, Ian Bogost, is an academic, a columnist, and a game designer himself; and Clint Hocking is a very thoughtful writer as well as a designer. If academics nonetheless still sometimes make grander claims about videogames than journalists in the specialist press (e.g. *Edge*) do, I think that has more to do with the pressures and incentives of university employment and trade publishing than with anything inherent to an "academic" as opposed to an unaffiliated critic's point of view.

Q. Do you think thus that we could speak of an actual change in the social perception of gaming in a wider sense? Do the clashing perceptions of games as either redemptive or noxious run as parallel or at the expense of each other? Do you think that the reasons for such discursive changes might really have to do with revolutions in the medium of the video game? Or rather, do they reflect social and generational shifts?

A. I seem to perceive the grand "redemptive" narrative of videogames as coming mainly in books—such as *Reality Is Broken and Fun, Inc.*[5], and the contrary "noxious" narrative as perpetuated still by the gutter press. I don't think there is much interaction between the two, and I think most people who take a close critical interest in videogames are sceptical of both. But there is a generational difference to the extent that the very idea of taking a close critical interest in videogames, which would have seemed like a juvenile waste of time twenty years ago, is now considered perfectly respectable by people who have grown up with them, and observed their evolution into a greater variety of complex and interesting forms.

Q. In the recent past, claims have been made by new disciplines for the study of videogames, such as "ludology". Do you think this could be explained mostly by the urges and necessities of academics and their professional context, and that this replicates in the academic field a larger tendency of the gaming community to niche into its own culture? Instead of claiming a radical specificity for games, should we not consider them in their relations with other arts and as a specific facet of a broader and far-reaching landscape of leisure and entertainment? This would imply thinking that some of the already established approaches (e. g. the "humanistic tradition") could still prove more fruitful, historically savvy, and mature reserve of intellectual tools than the ones which have tried to break apart to claim recognition—especially in times in which Roger Ebert has not retreated from his claims.

A. I think we need to keep both views in a productive tension. On the one hand, games draw from and are influenced by other art forms, such as cinema, painting, comics, architecture and literature, and certain aspects of the critical tradition in those media can certainly be applied interestingly to games. On the other hand, it would be wrong to assume that those critical tools can exhaust the possibilities of games, because games are something radically new in art: not because they are "interactive" (a word whose use can be confusing, since

5. Chatfield, T. (2010). *Fun Inc.* London, UK: Virgin Books..

all art is interactive), but because they change depending on what the user does. That's what the ludologists (or latterly, say, the procedural rhetoricians) rightly recognize and insist upon.

Q. Regardless of those who consider games from a critical perspective (and of prejudicial opinions), it would seem as though the response of the mainstream media was largely adjusting to an unconditioned bias. However, this could hardly be seen as a necessarily more critical or mature approach. The mainstream journalist, or even the one from the specialized press, often buys into an absolute praise for games that boast big production values or intercept gamers' need for social legitimization. It is our opinion that games like *L.A, Noire* [6] have been unconditionally hailed as a turning point for the history of gaming despite their being far from perfect and not bringing any actual revolution. In fact, claims of "modern games" as being capable of art are based very often on the disdain of the "old" and therefore inept ones, with no historical consciousness of what constitutes a good game in its own right.

A. I agree. To me it's obvious that *Defender* [7] is a better game than *Red Dead Redemption* [8]; but also that *Shadow of the Colossus* [9] is a better game than *Joust* [10]. There is still too much of what I have called "cinema envy" even among the self-appointed defenders of videogames today: an assumption that the closer a game imitates some version of the "cinematic"—e.g. *L.A. Noire*, *Heavy Rain*[11]—the better it is, and the better it will serve as a kind of ambassador for videogames in general to a non-specialist audience. But the danger here is that, if you show someone what is essentially a very badly scripted CGI movie with a few menus or button-prompts thrown in, the person can justly respond: "Well, if this is the best that videogames can do, they are juvenile rubbish, just as I thought all along!" (I think this is basically what happened with Ebert.)

Q. Much has been said about the so-called "gamification" and worldwide popularization of video games. Has gaming become a pervasive activity that extends far beyond a particular subculture? Can you tell us something about this while keeping in mind what we have so far discussed?

A. It's obviously not a "subculture" when you take into account the millions of people who play games on Facebook and smartphones. You could say we're living in an age of ambient play.

6. *L.A. Noire*, Rockstar Games, Australia, 2011.
7. *Defender*, Williams Electronics, USA, 1980.
8. *Red Dead Redemption*, Rockstar Games, USA, 2010.
9. *Shadow of the Colossus*, SCE, Japan 2005.
10. *Joust*, Williams Electronics, USA, 1982.
11. *Heavy Rain*, SCEEE, France, 2010.

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Computer games as a tool for language education

When it comes to examining the diffusion of videogames, and of computer games in particular, outside of a recreational context, the use of this peculiar tool for schooling is certainly one of the most interesting subjects an educator could hope for. In fact, owing to data collected by myself and a growing number of researchers in the field of education (Egenfeldt-Nielsen, 2006; Felicia, 2009; Wastiau, Kearney & VandenBerghe, 2009; Minoli, 2009; Lombardi, 2012), teachers are actually intrigued by the educational potential of digital games, but have no idea how to harness this latent power and/or can't work out how to accommodate the medium specificities in the school curriculum.

Still, the potential for learning is evident. It would not be incorrect to claim that every fraction of a second of gaming requires the player to learn something, whether hand-to-eye coordination or virtuoso-like skills of key pressing, or even game-related information: learning is definitely not a side effect while playing videogames. So far, however, the relationship between education and digital gaming has mostly been represented by *edutainment* titles, whose underlying pedagogical model hardly fits any learning practice in school (Gee, 2007; Egenfeldt-Nielsen, 2007), and whose gameplay is normally trivial and "primitive" (Prensky, 2006).

The purpose of this essay is to provide a schematic overview of alternatives to edutainment for language education. Firstly, educational theories and approaches will be identified in order to find operational principles for building a *ludic methodology*. As the guidelines are formed, the reshaped role of the key factors (learner, teacher, object, setting) in teaching and learning processes will be discussed, as will, of course, the enrichment brought by computer games when used as educational tools.

BEHIND EDUTAINMENT, BEYOND EDUTAINMENT

In the USA, the country that produces and consumes the majority of edutainment titles, the market for edutainment hit its peak during the late 1990s, and had a $495.8 million revenue in 2000, gradually dropping to $152 million in 2004 (Egenfeldt-Nielsen, 2007); meanwhile, as the Entertainment Software

Association states, the real annual growth rate of entertainment digital games sales in North America has been 16.7% for the period 2005–2008 and 10.6% for the period highly affected by the economic crisis between 2005 and 2009, resulting in a contribution to the U.S. GDP of $4.9 billion (Siwek, 2010).

Statistical and economic data demonstrates that edutainment sales are dropping, while the gaming market keeps on flourishing. Egenfeldt-Nielsen (2007) ascribes this trend to a growing critical knowledge in buyers that educational games should not be focused on the needs of teachers and parents, but rather on children's preferences as players: the play experience needs to be a genuine and fun one, as well as educational, and not just a collection of drills hidden behind an exposed façade of playfulness. Egenfeldt-Nielsen states:

> children, too, are probably too smart to be cheated by the discount games that edutainment often are. If we look at the computer game titles that generally dominate the commercial hit charts, it is clear that these are not discount games, but are the result of state-of-the-art expertise in all the areas necessary to make a game....[E]ducational software lacks the coolness of the games industry, the state-of-the-art technology, the constant innovation in gameplay but perhaps, most importantly, the basic desire to produce entertaining products beyond anything else. (Egenfeldt-Nielsen, 2007, p.41)

In terms of game design, edutainment titles are in fact hardly video games at all (Paciaroni, 2008), since they lack or fail to respond to the fundamental rules of gaming suggested by Crawford (1984) and Salen and Zimmerman (2004). Such an abrupt decline of popularity, though, should not be attributed to poor game design alone: at an inner level of analysis, the learning theories that constitute edutainment's intended educative basis have proven fallacious; most educational games do not promote meaningful learning (Novak, 1998), and are instead focused on rote learning, mechanical training, drill-and-practice tasks, and instilling knowledge into the learner's mind—practices that reveal a particularly evident reference to the core of a behaviourist theory of learning .

TOWARDS AN INTEGRATED APPROACH TO LANGUAGE EDUCATION

The main principle of *behaviourism* is, approximately, the creation of learning habits achieved by an alteration in learners' behaviour, thanks to practice, repetition, and reinforcement: through reiterated routines and practice, learners are eventually conditioned to respond in a determined way to a certain stimulus. It's a kind of learning that can be defined, in reference to language especially, as *parrot-like*(Lombardi, in press)—mechanical, impersonal (as it does not relate with prior personal knowledge), focused on automatic reactions alone, neglecting reflection and lateral thinking, as well as parameters such as personality and affectivity.

Of course, it may work, and it surely does[2] in some respects: memorization is still a kind of learning, and a popular one in schools, which many times fails in educating pupils in critical learning. One may even argue that, in the classroom, learning by heart (too) often equals learning per se.

1. It may be worth pointing out that obviously not every edutainment game is characterized by the behaviourist "repetition-reward-reinforcement" pattern, but still the tendency is predominant. A few examples: *Castle of Dr. Brain* (Sierra, 1991) *Math Blaster* (Knowledge Adventure, 2005) and, for language "learning", *English Training* (Plato/Nintendo, 2006). Classical educational computer games based on alternative pedagogical theories are *The Oregon Trail* (MECC, 1974), *The Incredible Machine series* (Sierra, 1992–2001) and, for language education, the *DARWARS Tactical Language series* (2003–2011; see Johnson, Marsella & Vilhjálmsson, 2004; Johnson, Vilhjálmsson & Marsella, 2005; Johnson, 2007).

2. *"The behaviourist approach has proved fairly effective within the area of health… Researchers studying health games have strengthened the support for learning from video games by comparing directly with other media forms"* (Egenfeldt-Nielsen 2006, p. 192). Behaviourist edutainment does in fact teach something: mostly information, good advice, "bits" of knowledge. In language education, though, chunks of vocabulary or grammatical automatisms are simply accessorial knowledge, definitely far from the desirable aim of communicative competence.

Still, when it comes to language education, recent literature severely criticizes behaviourist approaches or methods: effectively learning a second or foreign language does not mean putting new labels on known objects (Martinet, 1960) and memorize them, or practising linguistic notions until they become a second nature; it rather requires opening up to a whole new grammatical, socio-pragmatic, paralinguistic, extra-linguistic, and, most of all, cultural apparatus. A broader approach should then be preferable. In foreign language teaching a suitable reference model is the *integrated approach* (Bosisio, 2005; Lombardi, in press): a "background philosophy" in which constitutive elements—those proven to be effective in teaching practice—are selected from traditional approaches and integrated into a malleable set of teaching recommendations, thus creating a potential range of working operational instructions and classroom techniques, from which the teacher can choose, from time to time, the most appropriate.

The approach suggested by Egenfeldt-Nielsen (2006, 2007) for learning history through digital games definitely follows these dictates, and can easily, and most of all effectively, be applied to second or foreign language teaching and learning.

The theoretical principles that feed an integrated approach that includes computer games among its techniques should, first of all, be looked for in a *socio-cultural educational theory* (Wertsch, 1991), from which the broader process of using video games as a tool for learning, by stressing the role of context, actors (both learners and educators) and their mutual interaction, experiences, and culture ensues. A *constructionist* approach (Papert & Harel, 1991) should then be taken account of "the construction of knowledge, as meaningful through orientation in a social context, becomes paramount.... Instead of conceiving content, skills and attitudes as residing within the user, knowledge is transferred to culture, tools and communities" (Egenfeldt-Nielsen, 2007, p.88).

Computer games are also decidedly virtual locations for real *situated learning* (Lave & Wenger, 1991; Wenger, 1999); hence, abstract and de-contextualized learning objects are again thrown aside in favour of cooperation and co-construction of knowledge, usually within a community of practice.
Key elements of affective humanistic approaches to education, as well as communicative and constructivist approaches, will also be taken account of in building a coherent methodology, that is the fulfilment of the integrated "philosophy".

PRINCIPLES OF A LUDIC METHODOLOGY

As previously stated, in order to come into effect, an approach has to take shape within an appropriate methodology. A methodology can be defined as a collection of principles and actions that intend a didactic purpose (Balboni, 1999; Bosisio, 2005). Besides being coherent with the reference approach, it has to constitute a guideline for teaching techniques—in this case, techniques that use computer games as an effective tool for (language) learning.

It should consequently not come as a surprise that the most suitable methodology for reaching such objectives is usually referred to as ludic methodology. Ludic here is a key adjective: it does not merely mean "playful", it also involves the philosophical and anthropological concept of *ludicity* (Caon & Rutka, 2004; ConceiçãoLopes, 2005, 2008; Rutka, 2006; Lombardi, in press), that is the social phenomenon—"indicating a quality and a state that are not just characteristic of childhood, but that are shared by all age groups" (Conceição Lopes, 2005, p.3) — derived by a *play* situation (Huizinga,1939), an intrinsic attitude characterized by gratuitousness, liberty, enjoyment, creativity, and a relationship with the world around oneself.

Learning, therefore, should not be *fun*(if it is actually fun, as in games, much the better): learning should respect this fundamental stateof humankind, which since the early childhood stands up as the main resource for discovering, experiencing, growingup (Bruner, 1983) — the cornerstones of education in its broadest sense.

A ludic methodology for language learning features a particular attention to the following (Freddi, 1990; Caon & Rutka, 2004):

- *Learning contexts*: widespread ludicity is peculiar, as I have said. A proper, ludic learning environment, though, should also consider social dynamics, relationships in the peer group, promote cooperation, and, where possible, co-construction of knowledge, starting from the learners' actual communicative needs—on the pattern of *Community language learning* (Curran, 1976).
- *Centrality of learner*: "learner" is not an abstract concept, it means "person in the process of attaining a goal". Its personality, its emotionality, its affectivity, its socio-pragmatic and communicative needs, its choices, as well as sex, age, learning style, and so on, must be taken account of. In this *play* of constantly evolving educational processes, the learner *plays* the leading role, with correlated "rights" and "obligations"—as in video games, he or she is the protagonist.
- *Meaningful learning* (Rogers, 1969; Ausubel, Novak & Hanesian, 1978; Novak, 1998): with the learners as the centre of the educational process, learning objects should be linked to their prior existing cognitive structures and incorporated into prior knowledge, thus creating the optimal conditions for significant learning.
- *Multi-sensuous engagement and motility*: learning is certainly not an exclusive right of sight and hearing. Among the teaching techniques that involve video games for language learning, the most intriguing ones use TPR-like structures (Asher, 1977) in combination with Nintendo Wii, Microsoft Kinect, Sony PlayStation Move (Lombardi, in press);
- *Pluriculturalism and cultural relativism*: a methodology that promotes language education can not evade focusing on the fact that every language, and therefore every culture, has equal standing, and can not be judged

by a "monolithic(ultur)al" viewpoint. The interest for linguistic and cultural diversity must then be encouraged—and digital games are one of the most powerful tools when it comes to discovering and spreading such values[3] (Zanoli, 2010; McGonigal, 2011; Lombardi, in press).

THE "EDURECTOR" METAPHOR

Adopting a language-teaching methodology also generally means rethinking the role of the main factors that characterize a teaching act; therefore, *learner, teacher, object* (language) and *setting* should be strongly taken into account, especially when applying a ludic pattern. As for the learner, its central, active, pro-active (if possible), collaborative, and responsible role has already been mentioned above. The context, or setting, will be discussed in the next section, as it involves a few issues of a technical and organizational nature.

With reference to the teacher, it seems almost self-evident that a classical *magister ex cathedra* model may not be particularly productive here: the ideal transmission of knowledge from one single source to the pupils' minds is neither learner-centred nor motivating or engaging at all. A much more appropriate figure would be that of a facilitator of learning (Serra Borneto, 1998), mediating the knowledge, assisting the student, promoting resources, and so on. Even more pertinently, the role of the teacher could be reshaped as an *edurector* (Lombardi, in press); obviously an amalgamation of *educator* and *director,* the metaphor outlines the portrait of a teacher who:

- Directs the "players" (i.e. looks after students), supports their motivation, points their attention towards elements of significance, watches over involved social dynamics, holds the reins on the group, suggests and organizes activities, and shares with "actors" the responsibility for the fulfilment of established didactic ends.
- Educates, and must therefore be aware that a teacher's final task is not *just* to teach (a second or foreign language), but rather to actively contribute to the development of a human being, to accompany a project of life: *non scholae sed vitae*.
- Promotes values, instead of mere information.

An *edurector* who encourages the use of computer games as a tool for approaching a foreign language should furthermore become a *tecno-educator,* that is a promoter of an effective use of technologies, in order to avoid their dangerous trivialization: he or she is called to advisedly educate to digital games, and not just teach with these instruments.

With regard to the object of teaching, that is language in its broadest sense, the role of digital games is extremely flexible. In fact, video games are an undeniable source of language (usually in the form of text and/or audio), and the characteristics of said language are the most varied: text is functional during gameplay, in the interface above all; text represents the narrative component of the video game; language may be reduced to a minimum; or it may be the

3. Dozens of examples could be adduced as evidence; a personal anecdote, though, may be here more significant. While playing *The Secret of Monkey Island* (LucasArts, 1990) for the first time, I stumbled upon an obstacle quite early in the game. A troll, guarding a bridge (cultural reference, by the way), refuses to let my character, *Guybrush Threepwood, Mighty Pirate™, get across*. He demands, as payment, "something that will attract attention, but have no real importance". I had to solve the puzzle by trial and error, because I could not figure out a logical solution. I finally succeeded by feeding the troll the red fish I held in my inventory. Still, the solution made no sense to me, and I felt like something was lost in translation. After about ten years I came across (while playing another computer game) the idiom "red herring", which obviously means "misleading clue"—and that's when I finally got the joke: the fish was actually a red herring! In the Italian translation, the linguistic-cultural reference is completely lost, and the enigma is likely to be perceived as pointless. Curiously enough, I had later the chance to read a paper by the Spanish writer Fernández-Vara (2009, pp. 316–324), in which she points out the same cultural slip; she states: *"We solved it by trial-and-error, and we did not quite understand why … Cultural differences surface very quickly in linguistic translation; in this case, it explains why my brother and I had problems with the troll and fish puzzle. In the Spanish version, when we looked at the fish, the description said 'Parece un arenque' (It looks like a herring). Later we saw that the fish was also red. As you read this, you have probably realized of the joke, another example of how puzzles can be based on metaphors. The troll wanted something that will attract attention, but have no real importance: a red herring, literally in this case. But 'arenque rojo' does not have the figurative sense it has in English, so the puzzle remained cryptic. The puzzle with the troll and the fish makes perfect sense to me now, but only after playing the game in English".*

fulcrum of the user-machine interaction; plus, it is naturally the main communicative resource in online gaming.

Much obviously depends on the genre of the video game; beat 'em up games usually (not always, though) show a mostly pragmatic use of language, while adventure games or RPGs tend to store in language, in the interaction among characters, vital information for the development of the game itself.

The choice of a computer game for language education, therefore, must be advisedly weighed up by the teacher-edurector, not just depending on content or vehiculated vocabulary (i.e. the error of edutainment), but also on communicative functions and notions (Wilkins, 1976), on the degree of language authenticity, on the cultural extent of the game, on its appeal and significance to learners. Video games are not meant to be used, again, as a mean to *teach* language, but rather as an *approach* to a foreign language, which can be discovered, used and experienced, in the direction of a desirable *learning by doing*, instead of just memorized and "learnt".

SETTING ISSUES: PREROGATIVES AND PROPOSALS

A digital game, being a tool for language discovering and handling, is probably best used in teaching techniques, as it can under no circumstances be a standalone activity, but rather integrated into a continuum whose objective is to motivate to learning.

Motivation is, and has to be, the first phase in a learning unit—and a tricky one: getting off on the wrong foot likely means facing a rise of the affective filter (Krashen, 1982, 1985), to witness the fading of intensity and persistence in will, and finally, in this context, to dissipate ludicity. Placing computer game-based techniques in such a crucial position, therefore, must be done accurately: most amateur attempts are believed to have failed because of an excessive trust in video games being motivating tools per se (Egenfeldt-Nielsen, 2007; Felicia, 2009; Wastiau, Kearney & VandenBerghe, 2009).

The choice of an appropriate game should consider with at least two fundamental principles of the motivation phase:

- *Exploration*: video games take the concept of exploration itself to a new level of meaning, compared with other tools and traditional media, by allowing first-person action and participation, as well as control on, and freedom of, movement in the digital environment—that is an experience as close as possible to the learner's ego (Titone, 1973).
- *Culture*: explicit grammar does not usually motivate students in learning a second or foreign language, or at least not as much as the cultural substratum (Brooks, 2000) of the language does (Porcelli, 1994; Byram, Morgan, 1994; Hinkel, 1999). Computer games make it possible not just passive observation, but to temporarily live a simulacrum's "existence", and experience a new environment (Bittanti, 2006), as

> well as depict a new point of view on the world, characterized by different patterns of thought, of behaviour, of life (Jedlowski, 1994).

An alternative approach, embraced by Squire (2004) and Egenfeldt-Nielsen (2007) in projects concerning learning history through computer games, can be effectively applied to the context of language education (Zanoli, 2010; Lombardi, 2011). Some video games, in fact, may also be used as a support for learning, as a *reinforcement*—the last but one phase of a standard learning unit, preceding evaluation. In this peculiar position, they are used to organize and systematize the linguistic-communicative structures that have been previously practised, by putting them to work in a simulated situation, which is perceived as real and meaningful (Lombardi, in press).

One question is now likely to arise: in light of what has been debated up to this point, is the classroom an effective and meaningful environment for the use of educational computer games? Or does the nature of digital gaming itself rule out the institutional paradigm as we know it?

The answer is, of course, twofold. Schools may, in fact, provide a concrete ludic environment, as they naturally assemble a community of learners (each of whom brings to the peer group his or her own personality, habits, knowledge, experience, culture, emotions) and at least one (language) educator. On the other hand, video game play sessions hardly fit into school schedules, and the classroom architecture often prevents such activities, not to mention the fact that schools may (or usually) lack the sufficient technological equipment. Moreover, the idea of acknowledging games in general, and computer games overall, as educational instruments still meets with opposition among principals, teachers, parents, and students as well, who are normally used to considering digital gaming as a leisure activity, and may distrust their educational value, as Egenfeldt-Nielsen (2007) points out.

Leaving computer games in their "natural" setting (i.e. at home) may solve some of these issues, but poses a different set of problems, such as the absence of the main fulcrum of extrinsic motivation (which is still a powerful boost for learning), the teacher; the lack of a linguistic-communicative backup; the solitary fruition; the perception of gaming as homework—peculiarities that not only change the process of applying educational technologies to language teaching, but also automatically alter the results, and may therefore affect the much praised effectiveness of the activities.

This dichotomy may be solved with the adoption of a *blended* setting. Such tools could be used, when necessary, both in the classroom and at home, with different instructions and teaching purposes. In this way, video games have the opportunity not to alter their educational characteristics according to the teaching situation, which would cause an unpleasant loss of meaningfulness, and instead be employed only when they can effectively reach their target.

CONCLUSION: PLAYING WITH THE FUTURE OF LANGUAGE (TEACHERS) EDUCATION

So far, digital gaming has been classified in the paradigm of language education: as a teaching technique, an experiential tool for learning, or—an opportunity that school should not neglect—as a remedial activity for underachievers. It is still one option among many, however, and probably not the easiest one to set, as debated above. Therefore, a language teacher could easily wonder why he or she has to strive to become an edurector, to look for appropriate video games, to overcome technical difficulties, and so on. The answer: because it can prove successful (Felicia, 2009; Wastiau, Kearney & Van den Berghe, 2009; Lombardi, 2012; Lombardi, in press), provided that the teacher knows *how* to harness the educational prerogatives of digital games.

Edurectors, thus, may or may not be *gamers* themselves; the familiarity with the tool, as Egenfeldt-Nielsen (2007) states, helps a great deal in involving the pupils, but may cause the teacher to fall on presumptions, to take necessary steps for granted, and to finally frustrate the students by leaving them behind in their wave of enthusiasm; unfamiliarity instead usually makes it harder to make the first move towards educational gaming, but allows the teacher to actually learn with the students—but still, edurectors should be taught the advantages of ludic language teaching, the assessment and choice of suitable games, the organization, administration, and evaluation of gaming activities and "debriefing" sessions, as well as the ability to promote 'healthy and safe gaming habits' (Patricia, 2009, p. 4)—that is the education to the medium. A teaching profile is, in fact, something that can't simply be improvised; teacher education has to be consequently rethought and reshaped in order to undertake such a "methodological challenge" (Caon, 2006).

International documents and guidelines—for example the *European Profile for Language Teacher Education* (Kelly, Grenfell, 2004), and the A.N.D.R.O.M.E.D.A. project (Bosisio, 2011)—have already urged the integration of media education into language teacher training curricula; it would now be worth wishing for the next step to be taken: the definitive inclusion of video games into a number of teaching tools for language teachers to be employed in all grades of school, according to needs and specificities. The goal would be to eventually overcome the distrust towards the medium (Egenfeldt-Nielsen, 2007; Lombardi, 2012) and realize that "games are, in the end . . . teachers. Fun is just another word for learning" (Koster, 2005, p. 46).

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Scienze cognitive e game design

Progettare dinamiche di gioco non finalizzate a un obiettivo

Stiamo vivendo gli anni della gamification: game designers e teorici del game design dibattono sui modi di trasporre meccaniche di gioco in servizi, applicazioni e marketing tools non strettamente legati al gioco. La gamification è finalizzata a determinare nel giocatore/utente un comportamento. Nella retorica che supporta la gamification traspare una visione del gioco fortemente orientata al *reward*, cioè alla gratificazione in termini di premi e obiettivi. Senza dubbio esistono casi studio che supportano questo approccio anche nel game design tradizionale (cioè non social games, mmog , o *advergame)*: pensiamo, come casotipo, a *Peggle* di PopCap che fa sostanzialmente della gratificazione l'attività principale di gioco.

La letteratura che tratta la teoria e la pratica del game design, spesso, riflette questa visione insistendo sul forte legame tra meccaniche e obiettivo di gioco. Esistono però esempi che non si adattano a questo modello: pensiamo ai giochi di Tale of Tales come *The Path* o *Graveyard* nei quali l'esperienza del gioco è, per dichiarata intenzione degli autori, avulsa dall'obiettivo apparentemente espresso dalle regole. Anche nel trattato/manuale *Rules of Play* di Katie Salen e Eric Zimmermann (2003) si parla di *meaningful play* in senso assoluto, a prescindere dal raggiungimento o meno degli obiettivi di gioco.

È ragionevole pensare, quindi, che alcuni designer di giochi possiedano conoscenze empiriche su come rendere avvincente un loro prodotto al di là degli obiettivi di gioco. Il nostro articolo suggerisce che questa modalità di progettazione, che deriva le meccaniche di gioco (implementate) dalle dinamiche emergenti (progettate), sia fortemente collegata alla traduzione di schemi e modelli mentali, fenomeni psicologici e teorie del comportamento in dinamiche di gioco. La nostra teoria è che un gioco sia avvincente quando l'esperienza di questo tipo di dinamiche avviene, sul piano cognitivo-psicologico, in maniera analoga a quella delle illusioni ottiche sul piano percettivo, cioè quando esiste un contrasto tra aspettative e realtà conosciuta.

Nell'articolo descriviamo quindi, con esempi, come alcune dinamiche cognitive possono essere applicate nel game design, generando attività di gioco dove la gratificazione non deriva dal raggiungimento dell'obiettivo ma

1. Giochi multi-giocatore online massivi, in inglese massive multiplayer online games.

dall'esperienza del contrasto tra i propri modelli mentali e quelli impiegati dal gioco. L'ambizione è quindi formalizzare in sapere trasferibile quello che è, oggi, una cultura empirica esclusivamente connessa all'esperienza del singolo.

IL RUOLO DELLA MENTE

Vilayanur S. Ramachandran e William Hirstein in *The Science of Art* (1999) descrivono una teoria neuroestetica della bellezza legata a ciò che la mente trova "interessante" e catalogando le modalità in cui uno stimolo evoca un'esperienza artistica (o meglio, estetica) attraverso otto leggi. Tra queste, di particolare interesse per questo articolo è quella del *problem-solving percettivo*: secondo questa legge è più gratificante la scoperta di un oggetto/caratteristica in seguito a un'attività impegnativa, ovvero quando la scoperta non è ovvia ma richiede, appunto, un *problem-solving*. Questa idea non è certo sorprendente, ma è fondamentale nella definizione di ciò che è bello e ci aiuta a comprendere il motivo per cui consideriamo le illusioni ottiche interessanti. Le illusioni ottiche sono fenomeni per i quali la misurazione fisica di un valore (colore, luminosità, continuità di un segno) non corrisponde a ciò che viene percepito. Le illusioni sono un esempio di eventi o artefatti che sono interessanti poiché ci parlano del modo in cui li percepiamo, cioè in generale del modo in cui la mente conosce il mondo che la circonda. Allo stesso modo crediamo possano essere interessanti artefatti progettati conoscendo le teorie che descrivono i modi in cui la mente comprende e l'individuo agisce, perché, di conseguenza, permettono agli utenti di indagare i motivi dei loro comportamenti in un ambiente interattivo. D'altronde, quanto riscontrato da Ramachandran e Hirstein sull'emozione che deriva da immagini ambigue è certamente estendibile ad altri tipi di esperienze, comprese quelle della dinamica di interazione: apparentemente, la parte di cervello che trasforma segnali percettivi in emozioni è indifferente al canale sensoriale dal quale arrivano gli stimoli.

Non è certo nuovo l'uso, nell'*interaction design*, di competenze di psicologia, pensiamo alla psicologia della Gestalt: raggruppare elementi per prossimità o somiglianza è un principio alla base del design di interfacce.

D'altra parte i designer hanno sempre applicato le loro conoscenze sulla percezione in modo empirico: cioè attraverso l'osservazione di esperienze precedenti e la progettazione iterativa. Anche nei pochi casi in cui vengono applicate in modo conscio e diretto teorie cognitive e percettive, questo avviene esclusivamente nei dominii della vista, dell'udito e del tatto, ma non del comportamento. Infatti, conoscenze appartenenti ad altri dominii, come appunto quello delle scienze del comportamento ma anche delle teorie dell'emozione o dei fenomeni descritti dalla psicologia sociale, vengono utilizzate esclusivamente come strumento di misura della qualità (di prodotti e servizi), piuttosto che come strumento di design.

Noi crediamo che l'applicazione cosciente di queste conoscenze al design e, in questo caso specifico, al gioco, possa contribuire alla produzione di giochi diversi, magari anche più interessanti. In altre parole: vogliamo capire se si può

rendere il gioco un mezzo di comunicazione più efficace, avvalendosi consciamente delle più aggiornate conoscenze riguardo ai modi in cui la mente percepisce, ragiona e apprende.

LA DISSONANZA COGNITIVA

La teoria della dissonanza cognitiva, introdotta da Festinger nel 1957, è centrale in questa ricerca perché è stata utilizzata dai nostri studenti come strumento di design per il loro gioco. La dissonanza cognitiva è il fenomeno per il quale un individuo percepisce la discrepanza tra le proprie cognizioni, le proprie credenze e conoscenze e il proprio comportamento. Questa discrepanza, a proposito di un ambito o comportamento specifico, è rappresentabile dal rapporto di magnitudine tra la somma delle cognizioni incoerenti fratto la somma delle cognizioni coerenti. Un esempio tipico è l'ambito di acquisto di una macchina nuova: nell esempio, un soggetto, nella scelta tra un auto di lusso che costa molto, ha consumi elevati ma un grande appeal estetico e di comodità, e una utilitaria usata, che costa poco, ha gli interni consumati e un brutto colore, sceglie la prima opzione. A questo punto la magnitudine della dissonanza cognitiva percepita sarà data dalla somma degli elementi discordanti con la scelta, ovvero il risparmio dell'utilitaria e gli alti consumi della macchina di lusso, fratto gli elementi concordanti, ovvero la bruttezza dell'utilitaria e la comodità e la bellezza dell'auto di lusso. Festinger sostiene che il soggetto sarà portato a modificare le proprie percezioni per ridurre quanto possibile la magnitudine, per esempio dando grande importanza ai fattori estetici oppure decidendo che l'impatto ambientale della propria automobile è irrilevante.

Quindi, ogni volta che un individuo elabora due o più idee incoerenti od osserva in sé stesso due o più comportamenti incoerenti, si allontana da una situazione emotiva ideale che desidera riacquistare. In altre parole, gli individui che sperimentano la dissonanza cognitiva iniziano un processo attivo di elaborazione per superare il disagio derivato. Più grande è l'incoerenza e maggiore è lo stato di agitazione e la motivazione a ridurre la dissonanza. Festinger, nella formulazione della teoria, insiste sul *drive,* sulla spinta alla riduzione della dissonanza come modificatore del comportamento degli individui e delle loro percezioni, sostenendo che la dissonanza cognitiva abbia un effetto simile alla sensazione di fame: le persone non "preferiscono" mangiare ma sono istintivamente "spinte" a cercare di nutrirsi.

Nel suo modello Festinger distingue tra nozioni o comportamenti reciprocamente irrilevanti e rilevanti: all'interno di quelli rilevanti possiamo trovare coerenze e incoerenze che accentuano o mitigano la dissonanza. Trasferire questo concetto nel design di un prodotto è fondamentale per l'applicazione della dissonanza cognitiva come modello per indurre un comportamento. Per fare ciò possiamo usare il paradigma della libera scelta descritto da uno degli allievi di Festinger, Jack Brehm (1956), che si riassume in quattro punti:

- La dissonanza cognitiva è strettamente collegata al comportamento e si verifica in presenza di decisioni.

- La dissonanza è ridotta da un cambio di percezione della differenza tra la decisione presa, favorendola, e la decisione che non è stata presa, accentuandone i lati negativi.
- Più la decisione è difficile e maggiore sarà la dissonanza, poiché più le scelte possibili sono favorevoli più è difficile aumentare la percezione di differenza che giustifica la scelta effettiva.
- La dissonanza cognitiva è un fenomeno continuo e pervasivo poiché è presente in tutte le scelte.

Il raggiungimento di uno stato emotivo soddisfacente—che non coincide per forza con il "divertimento" come vedremo più avanti—giustifica per noi l'attività di gioco; questa premessa ci permette di capire come questo modello cognitivo sia applicabile nel game design, come motore di attuazione del gioco. Secondo la definizione che adottiamo e come descritto nel successivo paragrafo, progettare un gioco è determinare un comportamento; la dissonanza cognitiva ci dà una mappa di come vengono sviluppati i comportamenti in funzione della percezione e per questo può essere usata come modello per la progettazione.

LA DEFINIZIONE DI GIOCO

Nel 1966 debutta il gioco da casa *Twister*, progettato Charles F. Foley e Neil Rabens e pubblicato da Milton Bradley (MB). Il gioco consiste in una pedana contrassegnata da cerchi colorati e una tavoletta che assegna in modo casuale piedi e mani dei giocatori a uno dei colori sulla pedana. A seconda di quanto indicato sulla tavoletta i giocatori devono posizionarsi sulla pedana, finendo per intrecciarsi in difficili posizioni da contorsionista. Chi perde l'equilibrio viene eliminato dal gioco.

Twister è un gioco straordinariamente potente per dimostrare la differenza tra meccaniche di gioco e dinamiche emergenti: in *Twister* infatti, sebbene si tratti di un prodotto adatto a un pubblico di tutte le età, è innegabile l'appeal erotico per i giocatori adulti e adolescenti. Questo aspetto del gioco, che ha certamente contribuito al suo successo e che immediatamente viene richiamato alla memoria quando si pensa a *Twister*, non è in nessun modo indicato nelle regole.

Questo esempio viene ripreso da Frasca nella sua tesi di dottorato (2005). Frasca elabora il concetto di gioco come "altro", rispetto alle regole, nel seguente modo: "Cosa sono i giochi? Di cosa sono fatti? Una prima riflessione superficiale potrebbe farci dire che sono fatti di oggetti fisici, come palloni, reti, gettoni e regole. Ma che ruolo ha l'attività del giocatore? Questa attività fa parte di ciò che chiamiamo gioco?"; a queste domande Frasca risponde tramite le parole di Espen J. Aarseth (2001): "I giochi sono sia oggetto sia processo, non possono essere letti come un testo o ascoltati come una musica, devono essere giocati. L'attività di gioco è fondamentale, non incidentale come nella lettura e nell'ascolto. Il coinvolgimento creativo è un ingrediente necessario all'attività di gioco" (citato in: Frasca, 2005, pp. 19).

Un altro aspetto della definizione che abbiamo adottato riguarda le potenzialità dei giochi come mezzi comunicativi. La teoria del gioco come strumento di apprendimento non è certo nuova. Secondo la tradizione, circa duemilacinquecento anni fa, il filosofo cinese Confucio avrebbe detto: "Sento e dimentico, vedo e ricordo, faccio e capisco". Questa relazione tra apprendimento e interazione è approfondita, nell'ambito dell'*interaction design*, da Martin Pichlmair nella sua tesi di dottorato *Designing for Emotions* (2004): "Le persone non desiderano semplicemente portare a termine un compito, desiderano sapere come sono riuscite a portarlo a temine. Un utente soddisfatto non è colui che raggiunge prima l'obiettivo, ma colui che l'ha raggiunto con piacere" (p. 17); con questa affermazione si sottintende che il lato emozionale è collegato al processo, e che il design dell'interazione, il modo in cui il compito è portato a termine, è ciò che comunica il messaggio e qualifica l'esperienza. Pichlmair aggiunge "La comprensione avviene sempre attraverso una richiesta attiva, interattiva, alla struttura narrativa proposta . . . se l'obiettivo del designer è evocare emozioni nell'utente, l'esperienza deve essere strutturata per permettere che ciò avvenga" (p. 160). Il messaggio non è conoscibile osservando la struttura ma interagendo con essa, usandola, permettendo cioè che l'esperienza abbia luogo e che il messaggio sia evocato nella mente dall'utente.

Queste osservazioni sono riscontrabili nei giochi comunicativi raccolti in Newsgames: nel 2010 Ian Bogost, Simon Ferrari e Bobby Schweizer hanno dato seguito al gioco politico di Gonzalo Frasca, *September 12th*[2], raccogliendo in un saggio un'analisi dei giochi che propongono, tramite le loro meccaniche, un'interpretazione di fatti d'attualità difficilmente rappresentabili con mezzi non interattivi.

ESEMPI DI GIOCO

Raccogliamo qui, a scopo esemplificativo, una selezione di giochi che non fanno del sistema obiettivo/sfida/punteggio/gratificazione il centro del loro design. Volendoli catalogare tradizionalmente, questi giochi appartengono a generi del tutto diversi: esplorativi, *sandbox*[3], concettuali, narrativi, *newsgames* etc. La caratteristica comune è l'assenza di un obiettivo di gioco esplicito o la presenza di un obiettivo triviale, sostanzialmente slegato da ciò che rende il gioco meritevole di essere giocato.

The Path è un videogioco scritto e prodotto da Tale of Tales nel 2006. Il gioco è una rivisitazione in chiave moderna della favola di Cappuccetto Rosso, reinterpretata attraverso i diversi momenti della vita di una donna, dall'infanzia, attraverso l'adolescenza fino alla maturità. Il gioco consiste nella semplice esplorazione di un ambiente tridimensionale che riproduce il sentiero (da cui il titolo) che porta a casa della Nonna. Il giocatore è libero di abbandonare il sentiero e andare alla ricerca del proprio Lupo, un'incarnazione dei pericoli e delle tentazioni che cambia a seconda della fase di vita che si sta interpretando (a una bambina e a un'adolescente corrispondono pericoli e tentazioni diversi). Il gioco è avvincente perché trac-

2. *September 12th* è un gioco sulla guerra al terrorismo in cui viene chiesto al giocatore di eliminare i terroristi in una città del medio oriente. I terroristi sono ben riconoscibili ma le armi a disposizione sono estremamente imprecise, finendo per uccidere sempre un certo numero di civili e, di conseguenza, provocare la nascita di nuovi terroristi.

3. Sono considerati giochi *sandbox* quelli che includono meccaniche creative di modifica dei livelli e degli attori di gioco: normalmente non è possibile definire un "modo giusto" in cui un gioco sandbox debba essere giocato.

cia un parallelo tra il violare le regole di gioco—l'obiettivo esplicito è la casa della Nonna—e violare le consuetudini, le leggi e il buonsenso della vita reale.

Minecraft è un videogioco di straordinario successo progettato e sviluppato da Markuss Persson nel 2010. Si tratta di un gioco di costruzioni tridimensionale in un mondo interamente costituito da blocchi cubici. Il giocatore è libero di esplorare il mondo, scavare e costruire usando tutti i materiali a disposizione: pietra, terra ma anche materiali complessi, che richiedono ricerche e sperimentazione, come mattoni, torce, vetro etc. Il gioco è interessante perché fa leva sul desiderio di scoperta e naturalmente sul piacere tipico dei giochi di costruzioni tradizionali.

Sleep is Death è un gioco ibrido, in parte gioco di ruolo in parte videogioco, progettato da Jason Rohrer nel 2009. Il gioco è diviso in due parti: una parte *editor* per il giocatore che progetta l'avventura e una parte di gioco "classico" per il secondo giocatore. Una volta che il primo giocatore ha realizzato tutte le grafiche per l'avventura, il gioco comincia. Il secondo giocatore prende il controllo di un personaggio ed è libero di interagire con il mondo di gioco attraverso ogni tipo di azione digitabile sulla tastiera. A ogni azione del secondo giocatore, il primo giocatore dovrà far corrispondere una reazione coerente e far progredire la narrazione. In questo caso il gioco funziona come un teatro d'improvvisazione, narrativo per un giocatore e interpretativo per l'altro: il piacere è derivato dallo spettacolo che i due giocatori si offrono reciprocamente.

RaRa Racer è un gioco concettuale sviluppato e progettato da Stephen Lavelle nel 2008. Il gioco si presenta come un finto filmato di YouTube, della durata di un paio di minuti, che rappresenta una partita nel formato del *Let's Play*[4]. Appena il gioco comincia, il filmato parte e una voce commenta la partita in corso. La particolarità sta nel fatto che la partita nel filmato è in realtà giocata dal videogiocatore vero, andando a modificare il contenuto della clip e quindi anche il commento vocale che lo accompagna. Il gioco è affascinante proprio per questa sua ambiguità: il momento in cui si capisce che il filmato nel gioco è interattivo, e quindi è il gioco stesso, è sorprendente; così come quando il gioco si conclude al termine della durata del filmato, come se il giocatore (cioè noi, ma in teoria colui che ha registrato il filmato) avesse deciso di terminare la partita.

Memory Reloaded è un videogioco progettato da Paolo Pedercini nel 2006. Il gioco si presenta come un tradizionale *memory* in cui bisogna associare coppie di carte uguali scegliendole da un set di carte coperte. La particolarità del gioco è che ogni tessera rappresenta un contenuto controverso o comunque soggetto a interpretazione ambigua. Questi contenuti vengono rappresentati in modo diverso ogni volta che vengono scoperti: ad esempio la stessa carta può rappresentare "la fame nel mondo" o "il problema del sovrappopolamento", mentre un'altra è "I liberatori Talebani" (dall'occupazione sovietica) e "I terroristi Talebani" (dell'11 Settembre). Il gioco è interessante perché fa riflettere sul concetto stesso di memoria, dimostrando come anche un gioco (infallibile, almeno nel concetto di *memory* tradizionale) possa trarci in inganno tramite l'uso della retorica.

4. *Let's Play* è un tipo di contenuto generato dagli utenti, tipicamente condiviso su piattaforme come You Tube, in cui si video-registra un videogioco mentre viene giocato e commentato.

SETE

SPERIMENTAZIONE SUL CAMPO

Nel Maggio del 2011 abbiamo organizzato un workshop di game design per il corso del secondo anno di Laurea Magistrale in Design della Comunicazione. Il workshop, chiamato "Indovina Come?" chiedeva agli studenti di progettare e "prototipare" un gioco da tavolo, in cinque giorni, utilizzando una dinamica cognitiva tra quelle presentate come fonte di ispirazione.

Il gioco sviluppato dagli studenti Valerio Pellegrini, Tommaso Trojani, Giorgio Uboldi e Santiago Villa si chiama *SETE!* ed è apparentemente un gioco gestionale in cui quattro fazioni si contendono una risorsa comune, con l'obiettivo di sopravvivere il più a lungo possibile.

Ogni giocatore possiede un determinato budget di acquisto e un set di strutture che producono denaro e consumano la risorsa comune: l'acqua. Quando l'acqua sta per finire, i giocatori possono darsi battaglia per sottrarsi l'un l'altro le ultime gocce disponibili. Il gioco termina quando uno dei giocatori resta completamente "a secco".

La dinamica cognitiva che gli studenti hanno deciso di affrontare è la "dissonanza cognitiva". Come spiegato precedentemente, la teoria della dissonanza cognitiva descrive come, in un individuo, due idee in conflitto tra loro provochino un comportamento che tende a ridurre questo conflitto, come nell'esempio classico della volpe e l'uva: la volpe, non potendo raggiungere il grappolo, si convince che l'uva è acerba.

Per implementare questo concetto all'interno del gioco gli studenti hanno attribuito alla risorsa comune un duplice valore. L'acqua, infatti, è vera—una brocca da due litri viene posta al centro del tavolo all'inizio del gioco—e può essere sia consumata per soddisfare le richieste delle strutture di gioco—fattorie, fabbriche e edifici—sia per soddisfare la sete reale del giocatore.

Durante la partita, questa seconda possibilità viene resa sempre più probabile dal regolamento che obbliga, tramite carte imprevisto e azioni giocatore, a ingerire piccole quantità di sale, acciughe e salumi piccanti.

Il finale del gioco è volutamente debole: in verità le partite raramente arrivano alla conclusione secondo regolamento. Diversamente, il gioco è interessante perché permette di osservare l'evoluzione delle strategia di gioco in base allo stato fisico del giocatore. Un giocatore assetato è portato a sacrificare una pianificazione di risparmio dell'acqua—che fino a poco prima sembrava perfettamente logica—perché la dissonanza tra bisogno reale e bisogno di gioco viene compensata da una rivalutazione strategica.

Il bisogno fisico è quindi in conflitto percettivo e le regole del gioco sono tali per cui il bisogno fisico si sviluppa in concomitanza col bisogno di risorse all'interno del gioco.

Nel dettaglio, e in riferimento a quanto spiegato precedentemente sulla dissonanza cognitiva, il gioco è progettato per determinare un comportamento

tramite una valutazione che non è razionale, come lo sarebbe una decisione orientata al raggiungimento dell'obiettivo di gioco, ma determinata invece da altre dinamiche. Infatti, il giocatore nel suo turno viene posto davanti a una serie di scelte che determinano quanta acqua verrà consumata dalle strutture di gioco e conseguentemente dal giocatore vero e proprio. Ogni scelta implica una rivalutazione strategica o percettiva per tentare di ridurre la dissonanza: il giocatore assetato che decide di bere dovrà giustificare a sé stesso la scelta di non aver conservato l'acqua per le strutture di gioco, e viceversa.

Un altro comportamento documentato è quello del giocatore che desidera essere sottoposto alla punizione del cibo salato per giustificare una precedente scelta che ha comportato il consumo di acqua dal bicchiere:

Ancora una volta il desiderio di ridurre una dissonanza determina un comportamento di gioco, anche se anti-intuitivo rispetto all'obiettivo dichiarato, cioè risparmiare acqua ed essere l'ultimo a restare in gioco.

Il gioco presenta il conflitto al giocatore lasciando che sia lui a trarne un'osservazione sul proprio modo di ragionare, giocare e attribuire un valore alle cose. In questo senso *SETE!* è anche una riflessione sul concetto di convenzione e su come l'attribuzione di valore nella società debba mediare con le caratteristiche fisiche delle persone. Questo risultato, il design di questo tipo di esperienza, è precisamente ciò che era stato richiesto dal workshop e, vista la qualità del gioco, almeno in parte dimostra la validità dell'approccio: il concetto e le caratteristiche del fenomeno che chiamiamo "dissonanza cognitiva" sono fonte di ispirazione e strumento di design, nonché giustificazione del motivo per cui il gioco è interessante.

CONCLUSIONI

Nel caso dell'applicazione della dissonanza cognitiva come modello di game design, il rapporto tra percezione, conoscenza ed emozione è il seguente: percezione e conoscenza sono i due piani sui cui viene impostato il valore delle risorse di gioco, in funzione dell'obiettivo (risparmiare acqua per vincere) e delle caratteristiche fisiche dei soggetti (bere per dissetarsi), l'emozione nel gioco è scatenata dal disagio provato dal conflitto tra percezioni e informazioni nella forma di regole del gioco. Infine, per quanto riguarda il comportamento, l'attuazione è data dal desiderio di ridurre la dissonanza cognitiva e godere di uno stato di equilibrio emotivo.

Se possiamo dimostrare che l'applicazione di questo modello può produrre giochi interessanti, allora è ragionevole trarre conoscenza dalle scienze cognitive e dalla psicologia sociale per formulare approcci di design al gioco. La motivazione, ciò che spinge al gioco alla messa in atto e all'azione di gioco, non è il raggiungimento dell'obiettivo (che pure è presente) ma altro: in questo caso è la risoluzione della dissonanza, la conseguenza del *drive* derivato dalle percezioni discordanti, cioè il desiderio di ridurle.

Abbiamo quindi un modello di gioco a esperienze, cioè istanze di gioco che sono giustificate da una struttura che invita alla messa in atto del gioco.

Questo invito, come detto, è descritto in letteratura nelle forme del *reward* e degli obiettivi di gioco. Noi vogliamo discostarci da questa interpretazione e l'applicazione della dissonanza cognitiva come "conflitto" —non tra giocatore e giocatore o giocatore e sistema, ma tra le percezioni stesse del giocatore—è la dimostrazione che un processo di questo tipo è possibile.

Crediamo che il successo dei titoli citati sia un'indicazione di un approccio valido alla progettazione di nuovi giochi e videogiochi originali non finalizzati a un obiettivo: è ragionevole pensare che una maggiore consapevolezza dei modi in cui la mente affronta il *problem solving*, le situazioni sociali e in generale i problemi legati alla percezione possa essere utile ai game designer per proporre estetiche di gioco interessanti e diverse dal rapporto compito[5]-premio.

Crediamo inoltre che il risultato di *SETE!* sia un ottimo incoraggiamento riguardo alla riproducibilità del metodo di game design che deriva le meccaniche di gioco dall'osservazione di dinamiche cognitive. Certamente progettare giochi digitali basati sulla percezione sarà più difficile rispetto a giochi da tavolo perché ci si allontana dalla sfera sensoriale pura, fisica, di interazione con il corpo. D'altra parte, il rapporto tra dinamiche cognitive e design di videogiochi tradizionali è in larga parte inesplorato, e nuove tecnologie[6] ci permettono di sperimentare con metodi di input/output non tradizionali, mettendo in gioco, oltre all'udito e alla vista, altri sensi come la propriocezione e il tatto.

Attualmente stiamo facendo nuovi test su artefatti progettati secondo questo approccio per verificare gli effetti a breve e lungo termine relativamente a intrattenimento, design delle emozioni e efficacia della comunicazione.

Le scienze cognitive sono in rapido sviluppo ed evoluzione e crediamo sia molto importante, nel campo dell'educazione, dare agli studenti occasione di sperimentare come le nuove conoscenze nei campi della psicologia, della linguistica, della sociologia e degli studi della percezione possano avere effetto sul loro lavoro.

RICONOSCIMENTI

Al Politecnico di Milano il centro per gli Studi su Interazione e Percezione (SIP) ricerca l'applicazione di percettologia, psicologia sperimentale e scienze cognitive al design per la comunicazione e, in particolare, all'*interaction design*. Il laboratorio indaga la relazione tra qualità dell'esperienza utente e caratteristiche percettive e cognitive dell'artefatto, ovvero sia dal punto di vista della progettazione sia dal punto di vista della misura della qualità. Una parte della ricerca del SIP è decata alle ricadute sul game design delle competenze sviluppate. Ringraziamo tutti gli studenti che hanno partecipato al workshop "Indovina come", per il loro ottimo lavoro, per essere stati nostra fonte di ispirazione e averci aiutato a credere nella bontà della nostra ricerca.

5. L'inglese task rende meglio il significato.

6. Pensiamo, ad esempio, ai sensori tridimensionali diretti o indiretti come telecamere a infrarossi, giroscopi, accelerometri etc.

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Digital games and the communication of health problems

A review of games against the concept of procedural rhetoric

With the spread of the internet and the availability of computing resources, the use of digital games technologies has grown considerably in areas other than pure pastime (Hainey et al., 2011). Serious games in particular are games designed for primary purposes other than pure entertainment (Susi et al., 2007). In this paper, we focus on the potential as well as the limitations of serious digital games as a medium for communication in the area of public health.

The idea for writing this essay came from a meeting one of the authors had with the communication manager of the Public Health Body (PHB) of one Italian region. According to this manager, the PHB is looking for new and innovative media and languages for communication with teenagers, especially because of the clear limits of other media traditionally used by the PHB, such as paper leaflets or posters. The manager, however, did not mention specific directions or desirable solutions to bridge the communicative gap between the PHB and teenagers in relation to health issues. Our idea is that games in general, and digital games in particular, can be used as effective forms of communication with young people. Digital games can therefore provide a solution for the PHB. In fact, digital games are already an important part of young people's pastimes. They can communicate messages to teenagers in ways that are entertaining and fun. Moreover, the use of digital games has already been recognized as a powerful medium for supporting young people's learning (Kirriemuir & McFarlane, 2004) and as educational tool for healthcare (Papastergiou, 2009).

This paper is a preliminary piece of work with an exploratory scope: the meeting with the PHB communication manager became the instigator for reflecting on the use of serious digital games as a means of communication with teenagers in relation with health issues like alcohol abuse, smoking, and sexual diseases. Indeed, because of their supposed power in shaping and influ-

encing real life practices, we consider serious games an interesting medium for conditioning attitudes and beliefs of young people (Becker, 2011), more than traditional forms of communication based on media such as leaflets (de Freitas & Griffiths, 2008). We believe that our preliminary analysis can lead to a larger research project focused on the introduction of serious games to be used by the PHB when communicating with teenagers.

Following Van Eck's proposal to focus serious game studies "on explanation (why and how they are effective) and prescription (how to actually implement Digital Game-Based Learning)" (2006, p. 18), our research questions are: what kinds of games are really able to significantly influence the real life behaviors of people? If they are influential, are some game genres or game mechanics more suitable than others for communicating health issues?

To begin answering these questions we will review a number of currently released, and available, serious games, including browser games, virtual worlds and more classical 3D engine games. Our review, however, is not just a mere list of games[1]. Rather, we compare these games against the *Procedural Rhetoric Theory* proposed by Bogost (2007). This theory suggests that games can be more effective than other media in persuading people about the merit or flaws of beliefs and attitudes. Games can exercise persuasion provided that the gameplay features a meaningful representation of the enabling underlying procedure. By considering games through the lens of the procedural rhetoric theory we will be able to identify and isolate a number of game mechanics we believe to be suitable for health communication campaigns.

SERIOUS GAMES AND GAMIFICATION

The concept of the "serious game" has only recently entered the vocabulary of educators to identify a game that has an educational purpose (Zyda, 2005; Michael & Chen 2005), even though digital games since their early days have had a close relation with the education and teaching environment .

In the current games market, three types of gaming technologies seem particularly promising for supporting the dissemination of gaming in areas other than pastime:

1. Casual browser games
2. Real time 3D engines
3. Massive multiplayer online environments (virtual worlds)

This distinction is merely analytical, as a single game can feature all three aspects (e.g. *Battlestar Galactica Online*), but often a game specializes in one single aspect (e.g. *Heavy Rain*) or two of them (e.g. *World of Warcraft*). Many of the existing serious digital games are based on one or more of these gaming technologies, but all of them are powerful but not necessary *tools* to build serious games; indeed, it is possible to build a totally engaging serious game without including

1. Nor it is fully exhaustive.

2. The first example of what would later be called a video game was OXO: an electronic version of the game Tic Tac Toe released by A.S. Douglas in 1952 to better illustrate his Ph.D. thesis on human-computer interaction at the Cambridge University. In 1954 physicist Willy Higinbotham at the Brookhaven National Laboratory released Tennis For Two: often cited as the first video game in history, Tennis For Two was an attempt by Higinbotham to raise interest for physic in his students.

in its design any of those aspects[3]. The crucial features of a serious game are the "game mechanics": simple or complex rules that shape the game experience.

The use of game mechanics outside of pure pastime use is the focus of the concept of *gamification*,considered to be the use of game mechanics in non-game situations (McGonigal, 2011). The concept of gamification originates in the areas of marketing, and has often been criticized because of the focus on trying to sell more products through the means of making customers more loyal (Zicherman & Linder, 2010). Furthermore, it has been said that marketing-based gamification might lead to forms of corporate surveillance toward customers through the means of gamified feedbacks (Man, 2011; Schell, 2010). Another form of critique argues that adding game mechanics to any application and pretending it will deliver magic communicative results is a very poor way of using game design for designing non-gaming artifacts (Deterding et al., 2010). Nonetheless, we believe that more critical and sustainable approaches to the concept of gamification are indeed possible, but have yet to be developed, and that the true challenge for media research is to use game mechanics to enhance proper and effective communication strategies. In order to do this we rely on the Procedural Rhetoric theory developed by Ian Bogost (2007).

PERSUASIVE GAMES

In his book *Persuasive Games*, Bogost explicitly states (2007) that his analysis wishes to prove how certain "video games mounts arguments and influence players" (p. viii). The concept that Bogost develops is that of Procedural Rhetoric: "the art of persuasion through rule-based representation and interactions rather than spoken word, writing, images, or moving pictures" (p. ix). Procedural Rhetoric is therefore the art of achieving persuasion by means of procedures, in a situation in which procedures can be easily represented by computerized artifacts. Digital Games are a special type of such artifacts with peculiar characteristics: they are expressive (for instance, in comparison with office computer software), interactive (because they demand that players interact with the game), and immersive (producing a more direct experience for players compared to, say a movie). Hence, argues Bogost, "video games can also disrupt and change fundamental attitudes and beliefs about the world, leading to potentially significant long-term social change" (p. ix).

Procedural Rhetoric is a concept that explains how processes can be used in a persuasive way, especially looking at computers as machines that allow for representations of processes that become persuasive by the means of rhetoric: effective expression embedded in a medium.

Therefore, for Bogost a game is persuasive if it mounts Procedural Rhetoric effectively. Bogost, accordingly to Gee (2004), Johnson (2005), Steinkuehler & Duncan (2008), and Flanagan (2009), in this way emphasizes the idea that the logical framework in which "play" occurs in video games is a communication medium itself. This medium is therefore extremely effective in convey-

3. Examples of this are Mary Flanagan's POX (Flanagan et al., 2011) or Brenda Brathwhite's Train (Pozzi et al., 2010)

ing meaning regarding processes, and in this it is more persuasive than other media, *not only for teenagers but for the human mind in general*. The ultimate asset of gaming as a medium is its effectiveness in letting people focus on models, rules and mechanisms.

This concept of Procedural Rhetoric by Bogost seems very promising for communication of health issues because a number of health problems are related to bad habits: bad behavioral patterns generated by wrong models, inappropriate rules or wrong assumptions (Baranowski et al., 2011). The Procedural Rhetoric of serious games could be very effective in persuasively acting on such elements. We must, however, avoid the thought that very complex social and biological problems related to health issues can be easily solved by a game, or any other single medium of expression (Baranowski et al., 1997).

To explore these ideas further, the first task we want to accomplish with this paper is to review existing examples of how already released and currently available serious games deal with their capacity for persuasion in relation to their audience, according to principles contained in Bogost's theory of procedural rhetoric. Let us look at a number of different types of games in turn, starting with 3D real time engine games.

3D REAL TIME ENGINE GAMES

Games that we list generically under the "3D real time engine games" label are products to be installed on users' computers that rely considerably on 3D graphics to convey important gameplay elements.

Even though many popular commercial games belong to this category, we don't believe that 3D games are particularly suitable for educational purposes. The production of such games requires a very high commitment in terms of working hours, technical expertise, and overall budget—all factors that usually are not fully available to educational game production teams. Even so, here we list some examples of educational games using real time 3D technologies that encountered high levels of success due to good design, good budgets, or, more often, both.

Food Force

With its four million downloads in one year, the serious game *Food Force* by the United Nations World Food Programme represents one of the first and biggest successes in the serious game history. The gameplay wisely mixes different kinds of game mechanics, going from the real time strategy game to the puzzle game, helping to keep casual gamers' attention. The game features a solid storytelling structure and character design that helps players to empathize with the game missions. The longevity of the game is assured by an online chart of the best players and by occasional competitions in which prizes can be won. The attention to the in-game graphics and to the overall quality of the product is very high, demonstrating the expertise of the development team, high respect for the target audience, and the availability of a large budget. Nonetheless, the game mechanics are clearly an oversimplification, and maybe even a distortion, of the mechanics and

procedures that they want to represent. This problem affects many simulation games, and the idea that a serious game should represent a simplified version of reality is one of the most common mistakes in the field. As thoroughly analyzed by Squire (2011), the problem with such games is not the simplification in itself (a model is always a simplification of reality, that doesn't mean it is not useful) but rather that a game's oversimplification (with its underlying mechanics) can change the nature of the phenomenon that it was supposed to highlight.

ICED! – I Can End Deportation

The American serious game *ICED! – I Can End Deportation* uses the immersivity of video games to let the players experience in "first person perspective" (the game view is actually in first person) the issues emerging from what the games producers see as unfair U.S. immigration laws, practices, and deportation policies. *ICED!* uses the mechanic of player frustration in a very clever way. In *ICED!*, in-game frustrations are used to communicate to the players the daily difficulties and injustices that clandestine migrants face in the U.S. Such a strategy is extremely efficient to teach users about legal issues.

The effectiveness can be assessed explicitly and directly from the *ICED!* evaluation method. *ICED!* uses pre-/post- questionnaires to create player awareness about effectiveness of the educational power of the game session. The game requires the players to fill the same 14-item questionnaire about U.S. immigration laws and deportation policies before and after playing the game. The results are then sent to the website of *ICED!* where they are gathered and analyzed by the Education Development Center/Center for Children and Technology (EDC/CCT), as well as showed to the player community. The results of such summative evaluation showed that:

> playing ICED! contributed to an increase in player knowledge about U.S. immigration and deportation policies, and over half (56%) of the respondents in the matched pre/post group indicated that playing ICED! had changed their attitude about the ways in which immigrants are treated in the U.S. (Diamond & Brunner, 2008).

These positive results, in our opinion, are due to the combined use of procedural rhetoric and "simulated" situated learning (Lave & Wenger, 1991).

Eco Warriors

Funded by the Apulia Region (Italy) with contribution from the European Union, *Eco Warriors* has been a success story as well. The approach that P.M. Studios took in order to talk about recycling issues, resulted in a game focused on a science fiction battle between evil forces that want to pollute the planet and a task force of brave warriors (the players) trying to avoid it.

The game is wisely constructed on a "search and collect" mechanic with positive feedback every time an object (rubbish) is collected and put into the right container (recycle bin). Such a game mechanic is an analogy to the real behavior that the game intends to facilitate, thus procedurally helping young kids to remember which rubbish goes in which bin and to make them adopt the habit of recycling.

VIRTUAL WORLDS

Under this label we list examples of games in which the real time, online, social interactions are particularly relevant. Virtual worlds are computer based simulated environments in which groups of people can play collectively, usually impersonating an avatar (the in-game persona). Most virtual worlds are also persistent, meaning that their existence is based on a server independent from the player computers (Castronova, 2005).

WolfQuest

WolfQuest can be considered a big success for public and of science communication *tout court*. This is a massively multi-player on-line role-playing game (MMORPG) where players can play the part of wolves living freely in a virtual mountain environment. The online component of the game lets the players/wolves gather together to form packs, in which to learn wolf hunting strategies and intraspecific communication.

Even though the developers found out how difficult it was to implement such a virtual world (Schaller et al., 2009), the public became fans of the game in large numbers when it was launched in December 2007. About 4,000 users downloaded the game in the first few hours after the launch, and this number rose to 250,000 in the following 14 months.

With regards to procedural rhetoric, *WolfQuest* forces the players to adopt behavioral patterns of wolves in order to survive. The game elegantly matches the social aspects of wolf ethoecology with the MMORPG-like gameplay. Even though it is still unclear if virtual world guild dynamics can be a good model for human team interactions (see Johnson et al., 2009; Ahmad et al., 2011), we can probably say that simpler group dynamics, like those used in wolf packs, can be effectively taught using MMORPG dynamics. The same could be true also for very simple human health prevention behaviors, like tooth brushing, or washing hands. The gameplay of a health related game could use procedural rhetoric in the same way that *WolfQuest* does, providing reasons, rewards, and consequences of enacting the given behavior in a community of motivated players.

CASUAL BROWSER GAMES

The instant access interface provided by browser games is very effective in minimizing one big risk inherent the medium: the fifth minute defection. If a game asks its users to spend more than five minutes to learn all the basic elements of the gameplay, it is likely to lose a considerable part of them (the so-called casual players) during the early minutes of interaction (Kuittinen et al., 2007). Contrary to what is commonly thought, this phenomenon occurs more often with adult audiences than teenagers, who can generally handle lower and longer learning curves (Juul, 2009). Additionally, casual games, especially those associated with social networks, are used equally by men and women, an issue that doesn't occur in other kinds of video games (Jenson et al., 2007).

So if a serious game intends to involve an adult/non gamer/gender neutral audience, without committing them to a long-term effort, a browser game approach is certainly convenient. Moreover, browser game development is generally less expensive than other forms of video game programming, so these kinds of games are also suitable for low budget productions. One or both of these two conditions (aiming to involve the widest audience possible and low budgets) are generally part of most public health campaigns, so the casual, browser based approach to serious game design should perhaps be considered among the first and main options to investigate further.

Kabul Kaboom

This post-9/11 activist game was released by the artist Gonzalo Frasca to highlight the paradoxical situation that the U.S. army was dropping both humanitarian aid and bombs on Afghanistan territory. The same process was generating two similar but very different mechanics: food fall and bomb fall. The two game mechanics mixed together allows the players to experience directly that, under those conditions, no winning strategy can be achieved.

In terms of health care prevention, game mechanics that highlights situations of stalling or no win conditions in a given setting (e.g. drug addiction, lung cancer) could help teenagers to recognize that situation as non desirable.

Love Bugs Battle

Love Bugs Battle is a game for health that lacks any procedural rhetoric. The idea behind the game is using sexually transmitted diseases (STDs) iconography inside the gameplay of the classic arcade "Space Invaders". Condoms are used in place of the spaceship and little bugs representing diseases such as syphilis or herpes are used in place of the aliens. How this operation should "reinforce the importance of condom usage and safer sex" (Mariestops, 2007) is not clear. Certainly the game does not use procedural rhetoric to achieve its intended goal, because the adopted game mechanic (tower defence) seems to be unrelated to the behaviour that the game wants to facilitate (condom usage).

e-Bugs

City University London's eHealth Research Centre (CeRC) developed the *e-Bugs* game series to improve young people's understanding of the importance of hand and respiratory hygiene and responsible antibiotic use [doing this in a] game platform as an open-source, low-cost, and re-usable framework to promote game development for education and entertainment (Edugames4all, nd).

The project-platform is certainly ambitious, well designed and well developed, especially due to its sustainability over time. However, the games released on this platform until now are not using procedural rhetoric in a consistent way. The game designers rely mostly on storytelling rather than on game mechanics to convey their message (e.g. the importance of hand washing). Nonetheless, we found some exceptions.

Among these, there is *Detective Game* (a game intended for teenagers, still in beta) in which the procedural rhetoric is at work when players are asked to

detect bacteria using the "MV mode" (a sort of Wood's lamp). This gameplay feature is very effective in communicating the existence of an invisible world full of microbes that teenagers must seriously consider for their own health.

Pos or Not

The goal of the game *Positive or Not* is "to allow the HIV community to serve as an awareness and prevention tool for those who are—but who do not believe themselves to be—at risk" (Kff, 2008).This goal is brilliantly achieved by borrowing a famous internet meme (Knobel & Lankshear, 2007) such as *Hot or Not*[4] in order to engage people to play with their own stereotypes. Indeed, the *Pos or Not* gameplay exploits the human instinct to categorize and forces the player to admit how deeply wrong is this action. For instance, it is not possible to decide if a person is HIV positive only by judging her/his face or by knowing a few personal details. Pos or Not is wisely designed in order to force players to see their biases as *results* rather than as *starting points*. In other words, players are forced to play *with* their stereotypes rather than *against* them. During the game the player notices that he/she cannot adopt a winning strategy, and that every turn of the game is entirely based on chance. In this way the player understands that the intrinsic game rules are wrong and that the only way to know if someone is HIV positive or not is to run a dedicated medical test. At this point a higher level of interactivity is reached: the game provides the player with an html form where she/he can insert his/her ZIP code in order to locate the nearest HIV/STD testing site. We judge the game *Pos or Not* to be executing a very neat and effective procedural rhetoric, providing an example to be followed in similar prevention campaigns.

The Great Flu

The Great Flu is maybe one of the most interesting serious browser games released. Presented by the Erasmus MC University Medical Center in Rotterdam, Netherlands, on the occasion of the 2009 Darwin Year celebrations, it is still available online and extremely popular, with more than 400.000 play sessions at March 2011 (Balvert, personal communication).

Aside from its friendly user interface, effective narration, and brilliant aesthetics, the game builds upon good mechanics to convey its core message: information about epidemics, their expansion patterns and measures to combat them. Epidemiology is a subject that seems to fit particularly well with procedural rhetoric, because of its intrinsic procedural basis. A successful play (managing to combat the epidemic) involves the understanding of the virus patterns and characteristics, so the game mechanics' winning conditions and the designers' "serious" *desiderata*[5] coincide in this game.

Power of Research

Power of Research is a EU funded (FP7) serious game that explicitly aims to get younger generations interested in the field of scientific research. The game design of Power of Research tackles one of the most intriguing aspects of gamification: the idea of using real data in order to make people play with them and learn from them. For this purpose, *Power of Researc*h is extremely innovative,

4. Cfr. http://hotornot.com/

5. Probably for this reason also one of the more significant studies on "serious" application of gaming, relate to an epidemic that broke loose in World of Warcraft on September 13, 2005 (Balicer, 2005). According to Ian Bogost this happens because "the computer magnifies the ability to create representation of processes" (Bogost, 2007).

enabling players to use real up-to-date scientific data streaming directly from major online libraries like PubMed. The issue with the game is that it is too serious! The gameplay is very complex and asks the players to come up with issues and make decisions surprisingly similar to the ones real researchers have to face daily. What leaves us skeptical about this is the huge effort game developers put in to make the game so similar to real jobs, with duties and chores, but without real compensation (wage, publication, academic reputation). The social aspect is present, thanks to a system of in-game reputations, but the feeling is that gaining such an in-game reputation is not enough to get people to undergo the extremely complex in-game tasks. *Power of Research* can be seen as the opposite of *Food Force*: a very deep gameplay, detailing almost every aspect of the subject that it wants to represent, but without any fun. Paradoxically the game ends up working against its own primary goal: to get young people to become fascinated with the world of research. It uses procedural rhetoric to persuade players that doing research is difficult, extremely complex, involves a series of high level skills in different disciplines that are very hard to learn and… that's it. Why should players want to be a researcher (or complete the game)?

During the completion of this article (September 2011) *Power of Research* added a second "action" game to the main strategy game previously described. This new game, named *Hospital*, tries to patch up the flaws of the long-term strategy game with a gameplay that is the complete opposite, and which unfortunately falls into the trap of oversimplification seen in *Food Force*.

Molleindustria

"Radical games against the dictatorships of entertainment": With this subtitle the Italian media researcher Paolo Pedercini (based in Pittsburgh, PA) has been releasing a series of browser games since 2006 that he describes as designed "to re-appropriate video games as a popular form of mass communication..... Our objective is to investigate the persuasive potentials of the medium by subverting mainstream video gaming clichés (and possibly have fun in the process)" (Pedercini, nd). All the Molleindustria games feature a high level of political criticism and irony, but they always build these aspects on solid gameplay, demonstrating a considerable knowledge and respect for the medium.

Regarding procedural rhetoric theory addressing established attitudes and beliefs, two Molleindustria games seem to offer useful insights. The game *Queer Power* intends to challenge homophobic attitudes, and does so with a modified 2D fighting game in which fun is generated by exploring different interactions between the two characters. Pedercini's point is that a more diverse world is a more interesting one: the game mechanics support this statement, showing how the possibility to freely choose male and female sexual partners is more entertaining than to have strictly woman and man only combinations.

The second example is *Operation: Pedopriest,* a game designed to address the overwhelming news of sexual abuse of children inside the Catholic church. Pedercini designed the game mechanic to highlight the core message: we have

a problem with the Church because it firmly states that the ultimate judge for human actions is God, and thus justifies a series of procedures to avoid trials for priests accused of sexual abuses. In *Operation: Pedopriest*, you, as a gamer, are in charge of implementing such procedures of saving priests from the secular judgment. The words used in the game are the same used by the church on a trial: the abusing priest is a "sinner", parents are "witnesses". As theorized by Bogost, the game is extremely persuasive in communicating the Roman Catholic Church's motivations. The only problem with the game is that it is very effective in further convincing people already upset by the Church's attitude on the issue, but it is unlikely to change the mind of users that don't share the same view on the subject.

Philosophy Experiments

This collection of (mainly) text based games on theoretical issues and paradoxes from the *Philosopher* magazine website is a good example of gamification in action. Whether this can be an innovative way of raising interest for the subject or just a simplified substitute for inquiry based learning, it certainly sets the minimum standards for gameplay in serious games (and in their budget!): goal oriented hypertexts, just like the first textual adventures (MUDs), at the dawn of video games. Even though it is probably the more cost-effective way to "gamify" an issue, we think that aside from philosophy students, it is very difficult to keep a user's attention on so much text, especially on healthcare issues.

TWO CLIMATE CHANGE GAMES

To close this review of browser games we present two examples of games on climate change that, despite using the same medium and the same technology, achieve extremely different results due to the implementation of procedural rhetoric in the first, and the total lack of it in the second.

The successful one is BBC's *Climate Challenge* by Red Redemption, 2007. In the game we play the role of the president of the European Nations, who is forced to make a series of decisions in the fields of commerce, industry, and local and national regulations in order to lower the CO2 emissions. *Climate Challenge* wisely asks players to carefully balance factors such as people's approval, and the strong influence of foreign policies. Procedural rhetoric effectively transmits not only the urgent need for CO2emission control, but also the complexity of the industrial, economic and political systems that come into account when addressing possible solutions to the problem of global climate change.

In opposition to this is the approach of the game *Rizk* by Playerthree, 2010.

The Science Museum of London produced a game designed to increase awareness of, and to educate visitors about, the science behind climate change. The set-up is in a world not too different from our own in which a Plant needs resources to grow. But collecting these resources can increase the risk posed to the Plant's wellbeing[6].

The gameplay has nothing to do with climate change. The 'world not too different from ours' is a series of abstract platform levels, the game mechanic is a

6. Cfr. http://www.sciencemuseum.org.uk/ClimateChanging/Rizk.aspx

classical tower defense one, the focus being on growing our own alien creature and protecting it from the threats of other aliens. The absurdity of linking such a context to climate change (and to a serious institution like the Science Museum) is evident. Interestingly enough, on the developers' website *Rizk* is not described as a serious game but as a standard free browser game.

We now summarize the outcome of our review/analysis with a table that shows the specific details for each game and highlight the degree to which the game embodies a procedural rhetoric.

Name	Category	Budget	Intended audience	Mounts procedural rhetoric effectively?	Game genre
Food Force	Real time 3d engines	High	Primary school	No	Real Time strategy, platform game, puzzle game. NOTE: The game suffers of oversimplification.
ICED!	Real time 3d engines	Medium	Teenagers	Yes	Role playing game
Eco Warriors	Real time 3d engines	Medium / Low	Primary school	Yes	Seek and collect game
WolfQuest	Virtual worlds	Medium	Primary school and teenagers	Yes	Role playing game.
Kabul Kaboom	Browser games	Low	Everyone	Yes	Modified 2D shooter.
Love Bugs Battle	Browser games	Low	Everyone	No	Tower defense game.
e-Bugs	Browser games	Low	Primary school	No	Adventure gameNOTE: even though the main gameplay is based on interactive storytelling, a glimpse of persuasive rhetoric can be found in a specific action of the game.
Pos or Not	Browser games	Low	Everyone	Yes	Dicothomic hypertext.
The Great Flu		Medium	Teenagers and adults	Yes	Turn based strategy game.
Power of Research		High	Young Adults	No	Turn based strategy game (original game), and role playing game (Hospital add on).
Queer power		Low	Adults	Yes	Modified 2D fighting game.
Operation: Pedopriest		Low	Adults	Yes	God game (choice probably driven by a further finesse of the author).
Philosophy Experiment		Low	Adults	No	Multiple-choice hypertext.
Climate Challenge		Medium	Everyone	Yes	Turn based strategy game.
Rizk		Medium	Primary school	No	Tower defense game.

CONCLUSIONS

The foundation for this paper came from a discussion with the communication manager of a Public Health Body of an Italian Region, who wanted to identify new media for communication with teenagers about specific health issues. Beginning with this challenge, and based on our existing knowledge of gaming, we felt these games might provide a possible solution. So we reviewed a number of serious games with the goal of possibly identifying certain aspects and game mechanics that can be used for healthcare prevention campaigns. We have analyzed sixteen examples of serious games with consideration of the Procedural Rhetoric theory developed by Bogost in order to understand how game mechanics use procedural rhetoric effectively and therefore identify game mechanics suitable for the PHB's communicative goals. The main outcome of our review is a synthetic table that shows which games use the Procedural Rhetoric and which mechanics support this process. In particular, what our review suggests to us is the understanding that the relationship between game mechanics and their effectiveness in promoting procedural rhetoric has to converge on a reasonable combination that effectively represents the off-game processes that it wants to connect to.

From this perspective, in order to evaluate the best rhetoric with which a possible PHB project should be promoted, the important issue is to understand how particular unhealthy behaviors take place in order to design a game that is able to reply to off-game processes at the rhetorical level, rather than relying on a completely faithful or oversimplified version of the off-game world.

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+10! Gamification and deGamification

This article investigates the cultural meaning of *gamification* and of its degamificator power. In particular we will see what gamification is (+1), which are the levels of analysis (+2), how gamification makes explicit how culture derives from the game (+3) even if they are different things (+4), how the formation of culture in game and vice versa could delete them and how gamification cannot do that (+5), why every gamification is a *degamification* (+6), why *pointsification* cancels fiction and gameness from games (+7), why gamification of devices does not involve a playification of experiences (+8) and how the gamed player stops to play (+9).

+1 TUTORIAL

Game Studies is both an academic and an industrial discipline that has led to cyclical debates. During the last year the concept of gamification has received increased attention, in part due to an essay of Jesper Juul devoted to the analysis of market expansion and the involvement of new casual users (Juul, 2009). Actual market expansion lies in three specific factors: 1) the introduction of new interfaces, such as the Wii Remote and the use of vibratouch screens; 2) the conquest of new play areas through online socialization, increased by the spread of social networks which involve real-life identities; and 3) the application of gaming technologies to the industry of mobile phones. These trends have sparked the interest of investors in gamification leading them to organize an international conference on the topic[1].

However there is not a consensus among researchers and designers about what gamification is, because its described features do not seem to pertain to a single phenomenon. This is the typical problem of any ontological "what-is-this" question. Moreover video games are social objects, so their *map* istheir territory (mapas knowledge, not as a *Pac-Man* maze). So to map this map we have to produce a metadescription with no objectivity, because the properties of the analyzed object (the game) depend on a specific point of view (that of the player). The issue becomes complicated.

In any case, some authors define gamification as A) a process of market expansion, which transforms non-players in players (or non-gamers in gamers)

1. The Gamification Summit, September 15–16, 2011, New York.

and non-games in games. According to others, gamification is B) the expansion of a ludic property, the so-called pointsification, toward non-ludic contexts. Finally, there are those who define gamification as C) a broad cultural phenomenon that can criticize consumerism by promoting it (McGonigal, 2011). To understand better these theses:

A. The market expansion into new spaces, new times and new media is a vital goal of any economic sector. The handheld introduced during the mid-eighties allowed the second socio-economic boom of video games, as well as the recreational use of CD by *The 7th Guest* stimulated the CD-ROM market. The game market periodically expands, so if "gamification" refers just to current market expansion, the concept contains a (forgivable) etymological error.
B. Gamification as pointsification instead refers to rewarding players with points, quantitative indicators or status icons such as the badges that track completed levels. Often an entire game is structured around pointsification, like in *Look How Many Friends I Have*, a game for the Facebook platform. Pointsification is a typical feature of video games, e.g. the counter at the top right corner of the *Space Invaders* screen. The concept of pointsification also suffers from vagueness because the score of *Pong*, which was a core mechanic, is not normally considered a good example of pointsification. So pointsification, while being nothing new and rather vague, is becoming more and more important for games and for other consumer activities, such as the refurbished badge-points of supermarkets, the credit structures of universities, the car stickers for gas control, and the symbolic hierarchies of NGO volunteers managed as a multilevel marketing company. In general, the pointsification is a boost to competition through the recognition of progress and loyalty to a product, which does not always lead to entertainment. On one hand the pointsificated activities inherit from games the intent to create engagement, interest and loyalty for uninvolving activities; on the other hand they are simply tracking methods, such as notches on the shepherd's stick.
C. The third, broader vision associates gamification with the dual historical process of *ludification* of serious practices and *seriousization* of ludic practices, well exemplified by the so-called *serious games*(or *educationals*), the ad-wares and the ad-games.

These three phenomena (market expansion, pointsification and ludification/seriousization) constitute a sort of gamification system that combines new marketing tools and design patterns with a form of stumbling ideology, promoting a consumerist and conservative battle in favor of a bizarre concept of secularization (Huling, 2010).

+2 LEVEL UP: THAT IS THE POINT

We have seen what gamification means, but we need to understand if it is a real phenomenon and if it is a good one. Different ontologies (organized categories) could be drawn depending on the level of granularity considered. There are various levels of granularity in the analysis of video game phenomena: level 1 is the program code (with many sublevels); level 2 is the perceptual output (sound, visual and tactile objects); level 3 is the player material interaction (interface); level 4 is the player symbolic interaction (usability); level 5 is the socialization between players; level 6 is the cultural classification of these phenomena; and level 7 is the scientific research on these phenomena. Gamification is not present in all levels:

1. More and more program routines and graphic engines originally developed for video games become used by non-ludic software, such as war training simulators. Moreover, software that still requires tutorials tends to design these as games.
2. The generation that grew up with video games (the majority of professional software users) is very sensitive to the playful patterns of representation, which form the basis of its computer literacy. So the use of certain "game styled" graphics in non-ludic software is due to the familiarity that the average user has with these graphics, rather than their inherent affordability.
3. The material interface of video games, however, does not tend to migrate to other devices: joystick, joypad and Wiimote did not find serious applications, while mouse and touchscreen passed from serious software to games.
4. By contrast, ludic usability (symbolic interface) of video games is rampant on many serious applications: avatar, splitscreen, free roaming first-person view, isometric representation and the division of the screen into separate areas such as text and images are just some professional software elements introduced early by games.
5. The socialization of games has cooperative elements (such as modding, online multiplayer, bulletin board systems and grouping of MMORPGs), which has often migrated toward other contexts, such as joint purchasing groups. Nevertheless, what is dominating the current camification is simply the structure related to pointsification.
6. The critics' style in video game magazines has created a model for all other technical magazines. Today any specialized magazine designs its reviews, previews, insights, readers' mail, demos and rankings following the model of game magazines. However, the model for game review and scoring probably derived from the evaluation of wines introduced by Bob Parker in the late seventies. So there is a gamification in review styles, but it origins in a non-ludic practice.

7. Game studies is the main model for research on games, but they have not had a particular influence on other disciplines. Rather, they are modeled on semiotic, ontological or cognitive approaches.

So gamification is not related to all aspects of video games, and its expansion beyond video games does not affect all the areas of the non-gaming reality. Still, it remains to be understood from a broader point of view what the gamification of the culture implies, and what the central idea of the gamification system is.

+3 FLASHBACK TO ANOTHER WORLD

In philosophy, the relation between "what is play" and "what is not play" is scattered among the pages of a vast amount of literature, often not directly related to the subject. Concerning gamification, only a few names are relevant, starting with lyotard (1979). According to him, our age, which has given rise to video games, is the age of postmodernism, where *grand narratives* (massive ideological systems of interpretation) disappear. Ideology, religion, politics and science no longer have normative influence: we can just play. From this perspective games become the main institutions of our society; video games in particular, because they bind information technology and media, which are the basis of economic development of post-industrial societies.

Lyotard's thesis dates back to 1979, the time of the first video game boom. Previously, other thinkers described the culture (not just the post-industrial one) as a big multiplayer game. Anthropologists (geertz, 1973; turner, 1982; goffman, 1974; bateson, 1956), philosophers (schiller, 2000; fink, 1960; gadamer, 1960; searle, 1995) and psychologists (winnicott, 1971; vygotskij, 1966; piaget, 1945; bruner, 1976) described institutions as productions of the faculty to imagine and to play "as if" X was not X, pretending instead that X is Y. Culture derives from searle's *imposition of status function*: the physical object X counts as a status Y in the context C. Wittgenstein says that culture is a set of linguistic "games" concatenated by family resemblances. Nonetheless, social actors do not intend language games as games, otherwise they could not constitute serious institutions upon them. So, culture is an implicit and serious fiction, deriving from the game understood as an explicit and interactive fiction.

According to many thinkers, culture is a fiction taken seriously, a representamen sign transformed into a represented object (remotti, 1993). Then the cultural ludic status is a convention determined by the subject. Wittgenstein seems to confirm this when he states that there is not a single collective trait that could regroup all the games under a single ontological category(wittgenstein, 1953). Indeed, the variety of game types is due to the fact that the game, being an intentional state and not a real object, depends on the subject (mosca, 2011b). Game is a frame, not an object (deterding, 2009).

Following this conception, gamification is a metarepresentation: if the culture derives from the game, then to gamify the culture is just to reveal its core

structure. Almost ten years ago, michael montola published a series of essays on pervasive games and on the traditional boundaries of ludic activities (montola, 2005). He identified the main trend of postmodern games: going outside the traditional ludic boundaries. This trend seems to be constantly growing, but already montola questioned it on a specific issue: if the game is a fiction opposed to real life, what happens when the game bursts into serious life, eventually involving unsuspecting or passive "players"? There are two scenarios, montola wrote: if a non-player character (NPC) understands she is part of a game, then she could choose to continue or to stop playing; but if she does not realize she participates in the game, then she will continue to believe she lives in a real life (like the protagonist of the film, *The Game* [fincher, 1997]). In that case, it is difficult to argue that in fact a NPC is playing. As we have seen, the game is an activity that depends on comprehension and awareness.

The dependence of the game upon the subject involves a particular relation between game-time and real-time: to be ludic, the nonlinear game-time has to be inscribed in linear real-time. Due to this, people who remain continuously connected to the MMORPGs do not perceive they are playing, instead they perceive they are spending real time in a real second life. Conversely, exploring a new context of real life (e.g. a new CAD software) is an activity often perceived as ludic and separated from reality. This is paradoxical, but true. So, a ludic tutorial is not the gamification of serious learning, but merely the exacting of the playful property of learning.

Is gamification just an explicitation of the ludic origin of culture?

+4 AVATAR AND AVATARA

The Christian *theologia ludens* of Rahner(1965) and Moltmann (1972) revalued cultures as worldly games and James Carse distinguished "finite games" inside life from the "infinite game" of life: to feel life as a game it is sufficient to think of it as one of the opportunities and not the only one (Carse, 1986). Carse's theories were adopted by gamification ideologists as a very effective example of their ideology. Gamification—making game what is not—seems to bring culture back to its ludic roots. Indeed we have seen that culture arises when the infantile and intransitive fiction of games becomes the adult and transitive fiction of institutions.

Many authors think that social reality derives from game, but the same number believes that there is a fundamental difference between them. According to Plato (*Leg., 803c–d*, trans. 2000), actions can constitute a game only if they have no irreversible consequences. A real life is a game only if it is eternal and with no existential problems: therefore only gods live by playing (with human toys). Many other doctrines share this view, like the Hindu myth of Lil, the divine play that God uses to constantly create the world that he visits with his *avatara*(Watts, 1999).

According to Caillois(1958) and Huizinga(2009), the essential feature of games is the magic circle that separates them from other serious activities. The serious work is a goal-oriented activity that takes its meaning from its goal. On the contrary, games are non-pervasive and autotelic(Csíkszentmihályi, 1996) activities that have a meaning in themselves, like morals; differently from morals, in order to play you have to believe that your game cannot exist independently from you, whereas a real social actor believes exactly the contrary. According to Turner, the adult society maintains a space of play (the liminoid), where players can explore and freely create without any purpose. That ludic space is a non-lieu(Augé, 1992), a non-time, where daily places and times become meaningful, where the familiar is de-familiarized and the unfamiliar is again approached. Thus the social order comes from the extraordinary gameplay.

Gamification makes explicit this fiction as the basis of culture. But could the culture itself become a game?

+5 NEVERMORE "GAME OVER"

Herbert Marcuse argued that workers plagued by alienation should use complete automation to produce goods in order to turn work into play(Marcuse, 1964). During the 1950s (when Marcuse wrote his critical theory), some companies tried to insert game into work in order to increase production and to decrease alienation. A noble intention, but one that apparently failed: the game, both as recreational break from routine and as exploratory activity, did not yet increase production. Again, during the eighties many companies tried to gamify their working processes, this time on the basis of mathematical game theory that identifies games with problem-solving and brainstorming (Morgenstern and Von Neumann, 1944). Yet, even though such practices became a reality in many organizations around the world, it seems that workers do not consider them as play activities.

Nevertheless, closer to the political rhetoric of "all power to the imagination", the existential and psychological problems seem to share in the *bovarist* ideology of today's gamification, which do not simply turn work (the goal-oriented activity) into game (the autotelic activity), but turn game into work too.

The positive, Frankfurter consequence of a broad gamification would be the critical *deconstruction* of social reality, whereas the negative, Californian consequence would be the *destruction* of social reality as reality (the ontological res that resists to the subjective epistemology). Even in the view of Carse, the infinite game of life is such only if opposed to a background; so a game, to be such, must have a characteristic of playfulness that distinguishes it from a serious reality. But if social reality becomes a game, then its reality is deleted. In addition, if game becomes social reality, then its playfulness is also lost. Therefore, the risk of gamification is not only to destroy the real culture, but also to destroy the game as a parallel, fictitious and separated space. Disaster!

But have no fear: the transformation of the entire life into a game is not so simple. If a game feature becomes pervasive on a total scale, then it loses its playfulness. The points collection was a game only for the housewives of the sixties. Those who play always (e.g. monomaniacal gamblers, video game-addicted, gametesters) gradually stop to feelthat they are playing, even as they continue to carry out actions that their culture considers to be playing. But above all, a game exists if and only if players do not believe that it exists outside their mind. If all social objects were games, then they could be changed continuously. The motor of change is the liminoid space and change is a good thing for societies, but a totally dynamic society is not a society because basic structures of societies (such as promises, laws, and moral values) are founded on continuity. This continuity is designated as serious, in opposition to games and thoughts. So, a society made by games would have no games, but solely serious institutions. This is a daunting prospect, but improbable due to the social need of continuity of serious and real social objects that stop social conflicts and the capriciousness of future actions.

+6 VIDEO DEGAMIFICATION

When old works become new games, old games become new works. We have seen that gamification is a transformation of serious activities into ludic ones, but we have see too that this constantly activates the transformation of ludic activities into serious ones. I call it a degamification.

The first electronic gamification was the OXO use of computer in 1952. For a long time, that gamification was restricted to a few people: the engineers that worked with computers. On the contrary, the majority of people came into direct contact with computer technologies through video games. When ordinary people started to use computers for work, there was a degamification.

A non-technological example is the degamification of public spaces that has occurred over the last decennia: children no longer play in the streets, squares and courtyards, but in private rooms (Farné, 2010). Beyond the specific reasons related to urban development, the degamification of public spaces is the opposite of the gamification of work and organized shopping. But why gamify shopping? Today, the majority of free time is spent in malls, where shopping is no longer a playful activity (as for *Parisian-passages* ladies of Flaubert, Balzac, Simmel and Benjamin). Pointsification, lotteries, assignments of roles, and fictional statuses are simply means to make new the very old phenomenon of consumerism, so essential to our capitalist society.

What is important is that every gamification is a degamification. Some years ago, public and private institutions such as banks and governments opened avatar branches in *Second Life*. Did it involve a gamified access to institutions or a degamification of *Second Life*?

The question is similar to the nineties issue of "real vs. virtual": did websites of institutions "virtualize" the institutions or did they "realize" the Web? This

could be seen as the classic unsolvable problem of the glass as half full (sense) or as half empty (nonsense). But someone, like Lehdonvirta (2010), would suggest that virtual worlds do not exist as worlds. Informatics platforms share the very same world of children playing and of war massacres. I agree because, as Heidegger (1996) and Axelos (1974) wrote (and that Heim [1993] did not understand), the concept of "world" implies a totality. There is just one totality, full of different contexts, as well as there only being one space, full of places. So there is one cyberspace with a plurality of cyberplaces (Mosca, 2011a). Similarly, every gamification of an X always goes with a degamification of a Y, even if gamification is just pointsification.

+7 POINT TO POINTS: THIS IS THE LEVEL

The purpose of pointsification is to increase user engagement, loyalty, rhetoric awe, and time spent by using software. The secret intention is not to entertain but to gain money from players, or alternatively to educate them. Education and income are two very different areas, even antithetical, but they share the same property: the new goal orientation of an old autotelic activity. The most shared external goal of games is victory. So pointsification is based on the gratification received by a competitive environment, which provides identity and social status through rewards.

Cognitive science experiments show that activities presented as autotelic receive more attention than goal-oriented ones, even if the goal is a desired reward. Reward diminishes attention. According to gamificators (I do not use "designer" because "the gamification process rarely involves any of the current game designers" [Robertson, 2010]), this decline in attention is compensated by the intensity of the autotelic play. I believe this cannot happen.

Some real, competitive and hierarchic elements are part of many games, but there is still a space of fiction in any of them. Therefore, to transform a ludic competition into a non-ludic one it is sufficient to cancel the fictional property that gives a limitation to the desire to win and to achieve a hierarchical status. This property is the *fair play*. The fair use of the magic circle dissolves all hierarchies installed by the victory, resetting them at the start of every new match. When in wargames and role-playing games the single matches are connected in campaigns and the campaigns in pointsificated rankings, players often lose the playful aspect of the competition: the exploration of fictional identities ("I am the king of goblins") becomes the construction of a single real identity ("I am the best player"), which has marked psychological commitments.

The mask is a good example of how games and institutions treat some elements in different ways; this leads me to consider the game as a way of understanding objects (a frame) and not a specific object. Masks can be used to liberate one from roles or alternatively to provide just one role: if the given role is immutable and the mask cannot be taken off, then it is a serious social role. A mask like the one worn by Facebook users cannot be taken off, therefore the exploration of

a social network can be felt as a game only at the moment when users start to use it; afterwards, in order to play you need an application such as *Farmville*.

To ensure the play, a good gamificator should not simply replicate some game structures, instead she should know what people feel when they play. But sadly the game is not important for a good gamificator because her purpose is simply to induce a lucrative addiction. Addiction is enhanced by basic perceptual stimuli related to pleasure (or to pain *eustress*, the "good stress", as gamificators call it), such as light sources in motion, vibrations of the touch, repetitions of coordinated movements, successes on simple tasks, and frustrations of tasks too complex for the learning curve followed until that point.

If the danger of gamification is to transform everything into game, the danger of pointsification is to transform everything into addiction.

+8 GAMIFICATION OF DEVICES IS NOT PLAYIFICATION OF EXPERIENCES

As Consalvo shows, pointsification builds identities through competition and hierarchy but also through care giving (Consalvo, 2011). On the model of *Nintendogs* and *Tamagotchi*, many Facebook games are addressed to a female audience through non-immersive avatars that need care. Saving them from extinction or trying to make them more beautiful are activities that do not involve identification.

Hierarchy and caregiving are then different models of poinstification. Hierarchic players search their identity through identification with an avatar, while caregiver players build the identity of an avatar. These categories mirror the patterns of childhood play as those divided by gender: dolls and guns. But each gender entails projection and introjection: the dolls category is divided into neonate and adult puppets (like Barbie), while males use guns as well as constructions (like LEGO).

Devices built for gamification purposes are similar to normal game devices, but this does not mean a playification of the experience connected with the device, which only relatively depends on objective properties. Entertainment (in the form of game) is merely the attractive property of those devices, not their function. For example, gamificators build a socialization based oncompetition, not a socialization granted bycompetition. In a gamified activity there is never a free exchange of resources among players, except in order to encourage the frustration of "Ouch! I do not have what you have" potlatch effect. Competition for status is a boost for purchase, and that is the encrypted goal of such "games".

A case closely related to that of gamification is the use of explicit sexuality through advertising, the "sexification" that exploits the theme to the extent that today sex is autotelic or entertaining only if goal-oriented.

In 1955 Marcuse was right to say that any activity structured as a *performance* (instrumental and goal-oriented) encourages the alienation of the social actor. The sexual performance of reproduction, he said, could be eliminated in favor of a playful and autotelic sexuality. Forty years after the sexual revolution (incited by the introduction of chemical contraception), the current prevalent

sexual anxiety related to performance is not associated with reproduction, but rather to a sexuality completely ruled by play and pleasure, which Marcuse believed with no alienation. But competition and identification are central problems of the contemporary sexuality: a sexual paradigm evolved from the duty of reproduction to the duty of pleasure. Today, mass media represent sex as a means for social competition, power, prestige and canonized roles. Yesterday, the sexual pleasure was a freedom; today it is a duty.

Similarly, the game today is a space to experiment a free recoding of social roles, but tomorrow the gamification could turn it into an expression of anxieties, responsibilities, and duties. Already, those who today live totally immersed in activities that are normally considered as games, such as professionals in sports, croupiers, and otakus, feel anxiety and duty as if they were not playing.

Gamification tries to capture, through competition, frustration, gratification, fear, socialization, and collection fever, the user's attention, in order to addict them. According to Consalvo, the gamified socialization is profitable for the gamificator only if it is organized in such a way as not to let the user exit from the game. So, very often, the socialization model of gamification is an exploitation scheme where players, like those on Facebook, contact "friends" just to gain an advantage from them.

+9. GAMER OR GAMED?

According to certain game scholars, "games are about the perception of control, choices, goals, rewards, achievements—while art is fundamentally, about contemplation, awareness and surrender" (Anon, 2011). In opposition to such theses influenced by Kant (trans. 2000), I think that contemplative activity is incompatible with passivity or disinterested pleasure. I do not understand how one could be disinterested in relation to pleasure. The participated pleasure is essential to every contemplative activity, from art to tourism. I disagree with Lucretius ("Beautiful [is only] looking the far shipwreck from the coast" [trans. 2005, p. 109, author translation]) and I agree with Leopardi ("the shipwreck is sweet for me, in this sea" [trans. 2010, p. 420, author translation]). As I wrote elsewhere, video games are very good representations of our contemporary society because of their combination of materialism and image worship. With a video game you interact not only with symbols, but you also materially interact with images. This interaction, so important for games, does not eliminate contemplative experiences related to aesthetic objects.

Current gamification does not export contemplation toward instrumental media; rather it exports exploitation toward contemplative media. In a gamified activity any action is goal-oriented, like the whole activity as such. This is no longer gaming but a gamed activity.

According to Piaget (1945) and Schiller (2000), games are the autotelic activities necessary to develop ethics. Turning games into instrumental activities could lead to a transformation of ethics into instrumental activities. Using

games to make advertising (ad-games) or to educate (serious games) indicates the transformation of an autotelic activity into a goal-oriented one, formally the same move of the rhetorical uses of morals.

That apocalyptic view, shared by certain critics, has the merit of showing the necessity of analyzing in a non-naïve way the non-naïve phenomenon of gamification. Nevertheless, I know that gamified activities cannot be judged, like rhetoric, by an ethic point of view, but I claim that they can be judged by an aesthetic point of view: the loss of autotelic games implies the loss of freedom and beauty.

For decades free gaming has been the paradigm of Scandinavian kindergartens and therefore a globally pedagogical model. But today, because of the model of gamification, the educative goal-oriented game is overwhelming. The difference, fundamentally, is that free play focuses on the acquisition of generic skills (frames for action) while goal-oriented game focuses on a specific content (objects). If game is a frame for action, then the goal-oriented activity is not a game. The gamified world structure is a set of functional boxes in which every space and every place, including ludic ones, has a specific purpose. It is clear that a social reality with game (the most important of secular liminoid activities) as functional activity is far more repressive than a social reality in which the game is a free space.

But a continued and long-termed gamification enterprise owns an intrinsic impossibility: after a first period and beyond a certain level of pervasiveness, users realize they are being used, rebelling and migrating to other forms of entertainment.

+10. FINAL BOSS

In conclusion, gamification means the use of some game mechanisms (mainly those related to pointsification, competition and caregiving) applied to non-ludic activities, in order to better engage the user. Does it work?

I agree with Adrian Chan when he says: "I personally have doubts that 'fun' adds value" to a product from the user's point of view (Chan, 2010). For marketing, ad-games are not a windfall like sex images were. Perhaps a user continues to play an ad-game, but she is then driven by a compulsion to repeat, not by pleasure (Gramazio, 2010). Many authors pointed out that games communicate meaning (Frasca, 2001; Sicart, 2011; Consalvo, 2005; Bogost, 2007): what is important now is to understand that even gamification has a meaning. Gamification, like pointsification, does not simply increase the use and intensity of an activity; instead it transmits precise values related to competition, hierarchy, and *predation* (to use a term introduced by Bertozzi [2011]).

To sum up:

1. Every gamification of X is a degamification of Y
2. Current gamification is a pointsification and not a radical gamification of culture, which is itself founded on game.

3. Radical gamification is not a good deal, because it deletes liminoid spaces.
4. Pointsification is not necessarily related to games; student honors are points, but not games.
5. Pointisification is not a good deal, either for the video game industry or for values of our society.

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Games and science fiction

Contributing to define hybrid spaces in location-aware games

In *What Is Philosophy?* (1992, p. 137) Gilles Deleuze and Félix Guattari argue that a concept is acquired by "inhabiting, by pitching one's tent, by contracting a habit". That is to say, creating a concept is like creating an "intersection", giving meaning to an undetermined land, hence making a territory. Each culture has its ways of setting up places, therefore creating spatial logics for living grounds. These cultural territorializations articulate knowledge, technologies, narratives, experiences of time and meaning, subjectivity and socialization.

Throughout both eighteenth and nineteenth centuries, improvements in transportation, navigation, and cartographic techniques allowed the mapping of the entire planet, tracing routes . If modern rationalism took only the cartographies of physical and visible spaces, human imagination began to wander about "other spaces". In that sense, Michel Serres assumes that Jules Verne's *Extraordinary Voyages* series marked the end of the era of voyages, since it was no longer possible to wander about unknown places in Earth's terrestrial surface (1977, p. 12-13).

Born precisely in that moment of all terrestrial routes already tracked, Science Fiction sought for new worlds and new possible voyages under different space-time logics as scenarios for its narratives. Dreaming about new spatiotemporal experiences enabled by science and technology, Science Fiction has become a privileged field to explore hybrid spaces. As an example, let's think about several types of hybrid spaces described in SF stories: hyperspace, alternative universes, parallel universes, innerspace (traveling inside human body), time travels, and more.

In the dawn of Information and Communications Technologies (ICTs), Science Fiction guided us through cyberspace creation. Computer simulations, hypertext windows and the Arpanet network already existed as separate phenomena, but science fiction writer William Gibson gave a name and a meaning to those emerging computational technologies, reducing the abstract infinity to finite senses that can be assimilated by our embodied experience/our sensorimotor cognition (Hayles, 1999).

Nowadays, *locative media* combine both geographic and digital spaces. These media assume that spatial perception is crucial to obtaining contextualized

1. In the eighteenth century, Isaac Newton defined physical space as an empty box with three linear dimensions (the x, y and z geometric axes) that always lie in an empty space, finite and continuous, in which solid bodies move through time. As heirs to Newtonian physics, modern thinkers believed that reality was entirely expressed in physical space. Margaret Wertheim explains that, in the Newtonian era, "the physical world is the totality of reality because within this vision physical space extends infinitely in all directions, taking up all available, and even conceivable territory" (1999, p. 33).

information (Boa-Ventura, 2006), allowing interaction with elements of the environment, as well as their use in different contexts. This change in the concept of space occurring through localizing, classifying, archiving, and using information is seen as somewhat relevant (Galloway, 2005; Ward, 2005).

Locative media allow the creation of games combining geographical space exploration with the use of mobile digital technologies like cell phones and GPS devices; these are location-aware games. These games make daily life objects and spaces become "communication machines, trading information and identifying objects/people and movements" (Lemos, 2007, p. 9), to create ludic experiences that can be experienced individually or within a group. Integrating both geographic and digital spaces, real and fictional environments, the *location-aware games* instigate us to redefine game spaces.

Seeing Science Fiction as a privileged field for hybrid spaces exploration, the main goal of this paper is to demonstrate how hybrid spaces created by location-aware games are like heterotopic spaces—so common in SF stories. The development of this text is divided into three parts. First, we shall highlight the way in which the cyberspace became a space of communication, data exploration and social interactivity through the Graphical User Interfaces (GUIs). In the second part, we shall discuss how location-aware games articulate both digital and physical worlds. Finally, we shall understand the concept of heterotopias, and how Science Fiction is enabling us to explore and understand hybrid spaces, thus contributing to the understanding of spaces in location-aware games.

THE INFORMATION SPACE

Since their beginning, ICTs have demonstrated a potential to defy petrified concepts of space. The cyberspace, the communication networks, and virtual reality cannot be reduced to simple prostheses, tools, or sensorial extensions. In providing new possibilities for environment interaction, these information technologies stimulate and require new abilities from our sensorial/cognitive systems; therefore ICTs carry out some reconfigurations of our physical, sensorial and cognitive capacities, resizing the spatialization and thus the limits *ofthinking, embodiment* and *space* itself (Regis, 2002).

As postulated by Steven Johnson, cyberspace and interactive simulations (e.g. the virtual reality) offer the notion of *space* as a ready-to-explore environment (Johnson, 2001, p. 23). We know that digital media have this paradoxical feature: we need a proactive behaviour to enjoy their possibilities (a striking difference regarding mass media) but the user cannot make use of this information directly, as Johnson explains:

> A computer thinks—if thinking is the right word for it—in tiny pulses of electricity representing either an "on" or an "off" state, a zero or a one. Humans think in words, concepts, images, sounds, associations. A computer that does nothing but manipulate sequences of zeros and ones is nothing but an exceptionally inefficient adding machine. For the magic of the digital revolution to take place, a computer

> must also represent itself to the user, in a language that the user understands. (Johnson, 2001, p. 17)

Through the development of computational devices, these needed representations became the graphical user interface, evolving from the complex programming strings to a visual, metaphorical system. Computation has became more and more image-related, creating what Johnson identifies as an "information-space", an old-fashioned technique of mind information storage based on the organization of human mind, which gives privileges to the visual memory, more enduring than textual memory. As said by Lev Manovich (2001), that organization of space for representing or visualizing something is not exclusive to GUIs, being just one more of the cultural features transposed to digital media, since it always was a technique of human practices, used in different fields of knowledge like Architecture, Urbanism, Geometry and Topology.

GUIs started having spatial attributes when the graphical representation of information began to be built through bitmapping techniques; thus we had the illusion of exploring virtual environments, leading to construct systems that allow users a "direct" manipulation of data, which is represented through images and icons (Perani, 2007). This is precisely the concept behind terms such as Lev Manovich's (2001) "image-interface"—building information which is not only an image, but also information that has to be manipulated, a proactive behavior needed from every digital media user for the structuring and enjoyment of these media. Therefore, "So that the information-space illusion functioned, we had to be able to make our hands dirty, to move things from a side to the other, to make things happen" (Johnson, 2001, p. 21). That environment exploration ability is considered one of the features most desired by interface designers, since it would lead to better knowledge of system, allowing its use with greater awareness and enjoyment (Perani, 2007).

The spatial information held by computing devices quickly became a cultural trend that has come to define our relationship with these media. The same navigation metaphors and interfaces started being used for several purposes, such as scientific data analysis or entertainment (Manovich, 2001), and with the popularization of computer networks, since the 1980s virtual environments have started to give name to groups of people who had the same interests, like the virtual communities. Spatial metaphors (e.g. the word "navigation") have begun to make reference to different methods of information organization and access (Manovich, 2001). This *téchne kybernetiké* has originated the word cyberspace, created by Sci-Fi writer William Gibson in his classic book *Neuromancer* (Gibson, 1984) to define these new interactive spaces. But the presence of a cyberspace discourse does not mean that we adopted, for this work, utopias of "pure connectivity" environments, which would lead to an escape from the flesh and to the dematerialization of the mind, an issue of early Cyberculture studies referring to religious discourses of (re)connections with information and transcendental possibilities through ICT usage (Dery, 1996; Wertheim, 1999; Grau, 2007). So even

if *Neuromancer* is a satire of utopias of dematerialization in computer-mediated spaces (Grau, 2007), we believe that Gibson possessed a unique sensibility in order to capture the spirit of digital technologies: the spatialization of information which generates explorable environments through user actions.

In Gibson's book, Case, the main hero, has his neural impulses connected directly to the computer through electrodes. According to Hayles (1999, pp. 38-9), Gibson creates two literary innovations that allow human mind to act directly upon abstract data; the first innovation is a subtle modification in the point of view (p.o.v.) notion—in *Neuromancer*, the p.o.v. is the subjectivity of the character, which works as a position mark (cursor) for his absent body. The second innovation in *Neuromancer* is transformation of the data matrix of cyberspace into a stage in which a story can be developed. The narrative becomes possible when the p.o.v. travels through the created landscapes, giving a sense of temporality to the story. Reduced to a dot, the p.o.v. is a purely temporal entity without material extensions; metaphorized as an interactive space, the *datascape* receives a narrative due to the p.o.v.'s movement through it.

Gibson's work fills the cyberspace with subjectivity, spatiality and temporality. This reduces the abstract infinity into finite terms that can be grasped by bodily experiences and the sensorimotor cognition. The 1982 movie *Tron* by Steven Linsberger had already created something similar, but is no coincidence that *Neuromancer* was released in 1984, the same release year of the Apple Macintosh, the first widely sold personal computer with an embedded graphical interface.

Besides making computer devices more accessible to the public consumption and building a powerful cultural trend, developing the concept of information-space has also a more pragmatic purpose: organizing the large scale of data we receive from digital devices and the interconnections of computer networks (Johnson, 2001). In that sense, when we talk about spatial constructions we can refer to cartographic metaphors, since this would be a work of mapping such as those described above: a search for unspecified elements, trying to establish connections between similar patterns, and their subsequent arrangement in a spatial structure. Just because of the overload of given information, we must recognize that "There is an increasing need for an aesthetic structuring of knowledge, which will allow the data to be presented in a form that is transparent, manageable, and manipulable" (Grau, 2007, p. 248).

LOCATION-AWARE GAMES: ARTICULATING BOTH DIGITAL AND PHYSICAL WORLDS

We shall remember that constructing an interactive virtual environment is not the only change in the notion of space brought to us by ICTs. In the 2000s, a new technique of spatial representation through digital media has arisen, using preexisting urban spaces and at the same time amplifying them. The *location-aware games* combine the exploration of geographic spaces with the use of mobile technologies, such as mobile phones and GPS, making objects and spaces

"communicational machines, exchanging information and identifying objects/people and movements" (Lemos, 2007, p. 9), creating playful experiences which can be experienced individually or within a group. Thus the notion of spatiality is a main idea in our studies, connected to the concept of locative media; essential tools to develop these games, locative media lead to the idea that spatial consciousness is a main attribute for obtaining contextualized information (Boa-Ventura, 2006), allowing interaction with environment features as well as its use in different situations from the original context. The spatial transformation from these types of communication media happens through localization, classification, storage, and the use of (considered somehow) relevant information (Galloway & Ward, 2005). Relating to that scenario, we can associate locative media to *Star Trek*'s tricorder device (1966)—when pointed to any object, the tricorder offers information about it to crewmembers.

These characteristics clearly demonstrate the connections between locative media, ludic theories and Science Fiction, since games allow the construction of an aesthetic experience, which is lived outside of the daily life, starting from a space-time "separation" which brings us the need of assimilating the rules of that parallel universe. The "isolation" of time and space made by the game action is activated when the rules are defined: with these regulations, which are mandatory for the players, use of spaces, duration, limitations and possible actions are delineated. According to Steven Johnson:

> And one of the things that make all games so engaging to us is that they have rules. In traditional games like Monopoly or go or chess, the fun of the game —the play— is what happens when you explore the space of possibilities defined by the rules. Without rules, you have something closer to pure improv theater, where anything can happen at any time. Rules give games their structure, and without that structure, there's no game. (Johnson, 2003, p. 134)

We know the ludic, as well as art, "has the power to impose its own assumptions by setting the human community into new relationships and postures" (McLuhan, 2003, p. 272), since it involves a different setting of space and time, with specific conventions and possibilities that only exist within the game. That game-driven experience needs a proactive stance from the player which can imply explorations, appropriations and/or the resignification of habits, abilities and information, features used by locative media to develop new possibilities of fruition for users through location-awaregames.

In this specific case, players become aware of the rules that drive this ludic activity through locative devices, which offer mandatory affordances at the beginning of environment explorations. We also know from theories of ludic activities that the perception of *affordances*, a cognitive trait for apprehending and comprehending a certain environment, is an extremely important tool for human development and the acquisition of knowledge and life experiences. As said by Jesper Juul, "the rules of a game also *set up potential actions*, actions that are meaningful inside the game but meaningless outside... Rules specify

limitation and *affordances*" (Juul, 2005, p. 58). Therefore, with the possibilities of environment interaction provided by locative media, the player can initiate a playful exploration, learning from game spaces, detecting essential information, sorting out and selecting options.

The alleged difference between "traditional" non-electronic games and video (digital) games is that, in the former, rules are described for the player at the beginning, and such a thing would not be possible in digital media, in which players have to explore the virtual environment until discovering the rules of the game (Juul, 2005; Johnson, 2005). That is also the logic behind location-aware games, which use locative devices as points of connection between players and the hidden rules. Thus, interacting with space in order to obtain contextualized information of a given game is also the acquisition of its constituent rules. However, we shall observe a certain difference in the proposition brought to us by location-aware games: even if the set of rules of that ludic experience is hidden, just as in the "regular" electronic games, players shall discover them through the interaction with the physical environment that surround them, that is interacting with the streets, buildings and people, all transformed in elements within the proposed experience.

This reinforces the sensation of a hybrid activity that employs several common features to a variety of games, either electronic or traditional. The hardware of location-aware games is not only the electronic medium, which gives *entry points* to the game action, but also the physical space in which they are being played. These games contribute to valorizing the experience with the physical space, even if that experience is mediated by locative digital devices. Instead of dematerialization theories, created at the dawn of cyberculture discourses, we have a construction of a hybrid space where information provided by the physical environment has the same importance as virtual data.

SCIENCE FICTION SPACES, HETEROTOPIAS AND THE LOCATION-AWARE GAMES

One of the main features of the Science Fiction genre is the creation of exotic spaces for narrative development. These are hybrid spaces frequently constituted by spatiotemporal logics that defy our perception.

A classic Sci-Fi theme is that of adventures within huge intergalactic empires. These sorts of narratives describe two kinds of unusual spaces at least: alien planets and interplanetary space. Exotic alien spaces are originated by astrophysics and geographical conditions of the planets in which narratives are developed. Climatic conditions, gravitational forces, and multiple suns are some of the aspects that define alien forms of life with distinct body parts, beliefs, habits and territories. Yet for space travel to be possible, the barrier of the velocity of light, imposed by the Theory of Relativity, has to be defeated, thus leading Sci-Fi authors to imagine fictional spaces. The writers of the genre borrowed the term hyperspacefrom Mathematics and gave it other signification. As said by Clute and Nicholls, *hyperspace* is "In sf terminology, a kind of specialized

2. According to the Human-Computer Interaction (HCI) theory, entry points are elements that "invite" users to experience a certain system (Rogers, 2004). In this work, we shall think of entry points as the elements that help users to discovery and play roles in a location-aware game.

space through which spaceships can take a short cut in order to get rapidly from one point in "normal" space to another far distant" (1995, p. 607). Hyperspace is commonly understood as a space from another dimension in which our three-dimensional space can be folded—like a sheet of paper—getting two distant points to be in a direct contact. Just like several other Sci-Fi concepts, the *hyperspace* word was largely incorporated to its terminology and is free of further explanation within readers and writers.

Another very common type of space in Sci-Fi works is represented by the *alternate world* narratives: "is an account of Earth as it might have become in consequence of some hypothetical alteration in history" (Clute & Nicholls, 1995, p. 23). Those are histories that think about "what would happen if…". When several alternative universes coexist simultaneously, interacting sometimes within them, then a *parallel world story* is created.

The possibilities of narratives about microscopic and inside spaces were also considered by the creative minds of Sci-Fi writers. The tendency of *innerspace* voyages, propagated by the *New Wave* trend (during the 1960s and 1970s), has motivated the inner exploration of the human body. In the *Fantastic Voyage* film (Fleischer, 1966), a group of scientists invented a machine capable of miniaturizing humans and objects.

For those moved by the desire of knowing and controlling the reality that surround us, no theme would be more seductive than *time travel*. Science Fiction does not invented time travel stories, but their endless narrative possibilities are always seducing their writers and readers. One of the main plots of time travel stories is the temporal paradox, a temporal disturbance in the time flux caused accidentally or purposefully by a time traveler. For instance, if a person returns to the past and meets his/her grandfather when a child and kills him, how would that person be alive and time traveling to kill his/her grandfather?

Thus, the different perspectives revealed by Science Fiction have been developing a new comprehension on spatiotemporal configurations in its fans. For the Sci-Fi, the universe is a heterotopic space. To fully understand the meaning of this expression, we shall seek for the ideas of Michel Foucault, who defines and differentiates heterotopias from utopias in *Of Other Spaces: Utopias and Heterotopias* (2001). The French philosopher describes utopias as idealized spaces which are created from real spaces of the society, but utopias are unreal and do not have a localization within the society. The heterotopias are real places, some sort of counter-places, a utopia effectively created in which every real place, every other place found in the midst of a culture can be represented, criticized and inverted—simultaneously. Heterotopias get every place together immediately. They are everywhere and nowhere at the same time. Frequently, heterotopias are also heterochronisms: they reunite various times all at once.

Foucault describes some examples and principles of heterotopias. Here we shall emphasize the third principle: heterotopia has the power of making juxtapositions of various places and various positions that can even be incompatible:

> Thus on the rectangle of its stage, the theater alternates as a series of places that are alien to each other; thus the cinema appears as a very curious rectangular hall, at the back of which a three-dimensional space is projected onto a two-dimensional screen. (Foucault, 2001, p. 418)

The heterotopic feature of Science Fiction has been noted by its scholars and critics. Besides the word *heterotopia*, all of Sci-Fi's *other spaces* can be explained by the concepts of zone and *paraspace*. In *Postmodernist Fiction*, Brian McHale assumes that postmodernist fiction resembles Sci-Fi writings. McHale argues that in postmodernist fiction "Being is centered, as the status of the world and existence become defining issues. Postmodern fiction stages a dissolution of ontological boundaries, presenting a collision and shifting of words" (Bukatman, 1998, p. 162). This world is not identical to itself, and it does not exist as a homogeneous place with a permanent meaning. The space that allows the multiplicity of worlds is called Zone, a word chosen because of its importance to Science Fiction. In William Burroughs's space age mythology, *Interzone* is the place where everything is allowed and coexists (1987). In *Stalker*, a romance adapted to film by Andrei Tarkovsky in 1979, Zone is the mysterious place for alien visits. In the Zone, "a large number of fragmentary possible worlds coexist in an impossible space" and if that space contains allusions to historical places (Ohio, Latin America, occupied Germany), it "in fact is located nowhere but in the written text itself" (Bukatman, 1998, p. 164). That definition seems to be adequate for the kind of space generated by location-aware games, yet the "nowhere" that was exclusive to the written text now exists in the informational space.

The Sci-Fi writer and critic Samuel Delany created the term paraspace to make references to the "science fictional space that exists parallel to the normal space of the diegesis" (Delany, 1988, p. 30). Delany argues that the notion of exotic places (outer space, future) is endemic in the genre.

So the concepts of *Heterotopia*, *Zone* and *Paraspace* seems to be appropriate for initiating a discussion about new hybrid spaces shaped by location-aware games, here approached as a common sample of the peculiar time-space configurations brought to us by ICTs. Science Fiction, as a well-adapted narrative genre for the study of heterotopic spaces, demonstrates its capacity to serve as an instrument for comprehending novel perceptive and sensorial structures, and also comprehending new spatiotemporal logics of ICTs and location-aware games in particular.

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Click, click, click, click

Zynga and the gamification of clicking

Although the era of the social network game officially began with the launch of the Facebook Platform in 2007, it wasn't until 2009 that social network games began to attract the spotlight of mainstream media with the runaway successes of several games. Not surprisingly, since that moment the online gaming industry has been fully occupied with discerning and attempting to replicate the elements that have made those Facebook games fruitful. Both academics and industry members have engaged in a hearty amount of discussion and speculation as to the reasons for the success seen by social network gaming, watching the evolution of the genre as companies have both emerged and retreated from the industry.

Despite the large number of games appearing on Facebook by a variety of publishers and developers almost none have come close to meeting or bypassing the initial pace set by game developer Zynga. Over the course of just a few years, Zynga has built a company valued at over 15 billion USD with over 200 million monthly active users (MAU) of their games (Woo & Raice, 2011). The next closest game developer is EA at 55 million MAU. EA is one of the first developers in the past three years to develop a game, The Sims Social with 28 million MAU, that has come close to average MAU counts—30 to 40 million—of the games released by Zynga (Appdata, 2011). What then is it about Zynga's games in particular that make them so successful?

In the discussion and literature addressing social network gaming and the reception and success of Zynga's games in particular, three core features of their structural design stand out that are frequently referenced as reasons for the success of Zynga. First, Zynga's games are free-to-play. They require no payment by the player to access and participate in the main features of the game. (Helft, 2011; Brown, 2011; Gaudiosi, 2011) Second, Zynga's games are social. Players perform social interactions as a core part of their playing experience. Therefore, many believe that ". . . the runaway success of the online games from Zynga can largely be attributed to how they bring together acquaintances who otherwise wouldn't have much to say to one another . . ." (Jackson, 2011). Finally, Zynga's games offer a continuous stream of engaging gameplay. The game en-

vironment Zynga provides engages players by offering them "new and exciting game content" (Lamacraft, 2010).

However, are these the real reasons behind the current success of the Zynga empire? In the course of this paper, through a case study of *FrontierVille*—now known as *The Pioneer Trail*—I will further address these three proposed aspect. First, I will argue that Zynga's games are not explicitly free-to-play. Rather, I argue that Zynga provides the player with an option of paying through currency or through referral value (media value). This drives the games' viralibility, and thus their popularity. Second, I will illustrate how many of these games do not rely on core designs based around social interactions, but rather structure social interactions so that players interact with their friends in a way that is eerily similar to that of a player interacting with a non-player character (NPC). I will explore how this social construction allows players to experience a desired feeling of sociality, without having to provide the typical level of commitment required for the average social game. And finally, I will argue why I believe many of Zynga's engaging "games" are not full-fledged games, but exemplify the "gamification of clicking".

FROM *FRONTIERVILLE* TO *THE PIONEER TRAIL*

The Pioneer Trail, formerly known as *FrontierVille,* is a social network game launched in 2010 by Zynga where the player takes on the role of a pioneer in the American Old West. The player can complete actions such as chopping down trees, clearing ground, growing and harvesting crops, raising animals, tending trees, crafting items, clobbering unwanted pests, constructing buildings, and collecting items. The number of activities a player can do at a time is governed by a limited supply of energy, with almost all activities consuming one point of energy. Energy regenerates over time or can be purchased from the store. By engaging in these activities, players have the chance to earn experience points (XP), coins, special collection items, and, in some cases, resources (i.e. wood and food). Coins allow the player to purchase crops, animals, trees, building plans, and decorations from the Market. Wood allows the player to build the buildings bought from the Market with coins. Each building requires a certain amount of wood to construct. Food allows the player to purchase extra energy from the Market.

The game is structured by storylines which are composed of quests, a set of goals following the narrative of the specific storyline. Each quest asks the player to complete specific tasks (e.g. "chop 25 trees on your homestead" or "tend 5 cows"). Some quests require the player to collect items that are only available by asking friends for the item or purchasing the item with Horseshoes. Most quest lines require players to request these items from their friends, and can only request an item once a day. Horseshoes, of which a limited amount can be earned in-game but mostly are purchased with real world currency, allow the players to buy special limited edition items, energy, and, perhaps most valuably, the

special quest items mentioned above. Completing these goals yields a variety of rewards, ranging from XP and coin bonuses to unlocking new quest lines.

The game was renamed to *The Pioneer Trail* in August of 2011 when the new quest line was launched. This new quest line has players following a storyline of a rescue mission similar to that of *The Oregon Trail* (Cooper, 2011). However, the original mechanics from *Frontierville* are still the core feature of the game.

FREE-TO-PLAY

A free-to-play (F2P) game is a game that provides players with an option of playing the game without paying. This does not mean that the game does not set out to generate any revenue, however. Rather most F2P games make their income through "additional content" players can purchase to enhance or extend their basic playing experience. This is commonly referred to as a micro-transaction model. A pay-to-play (P2P) game is, on the contrary, a game that requires players to pay in order to play the game. Traditionally, the online gaming industry has been based around P2P games—such as the MMORPGs *World of Warcraft or Star Wars: The Old Republic*. However, in recent years the industry has begun to shift from P2P models to F2P model as F2P games have started to become more profitable than their older cousins (P2P). In the past year many games have begun to make the switch, including *Lord of the Rings Online* or *DC Universe Online*, and have seen dramatic increases in revenue (Fahey, 2011). When games began to go F2P very surprisingly "gamers who used to knock off full-price games were spending 10 times that amount on virtual doodads, expediting upgrades and premium features" (Brown, 2011). This increase in profit can be attributed to two major changes that F2P introduces: the removal of the monetary barrier that stood between new players trying a developer's game, and the flexibility that micro-transactions offers for player with different spending habits. In other words, when a game goes free-to-play "two powerful things can happen: first, more people will likely try your game since you've made the 'ante' zero; and second, you will likely take more total money, since different players can now spend different amounts depending on their engagement and preferences" (Valadares, 2011). Taking this swell of F2P revenue into consideration, it is not surprising that many scholars and industry professionals attribute Zynga's success to its decision to be F2P (Helft, 2010; Brown, 2011; Gaudiosi, 2011).

On the surface, it does appear that Zynga's games, including *The Pioneer Trail*, fill all of the requirements to be classified as using a free-to-play model. It is accurate to say that there is a possibility to play the entire game without ever paying any real currency. At no point in the game does a player "need"to pay money in order to continue the main storyline of *The Pioneer Trail*. Players can purchase the majority of items needed for quests from the Market for the low revenue actions purchasable by coins or, if the item is not available for purchase in the Market, players can ask their friends to send them the item. It is always a

possibility to buy the items as a high revenue action purchase with horseshoes as opposed to requesting friends to send the necessary items, but it is not required. However, this analysis of the situation considers that there is only one form of payment a player can make: monetary value—i.e. paying in real currency. In actuality, there is another form of payment the player can make, and does make, namely a media value measured in a player's potential to refer new players to the game through word-of-mouth marketing, making Zynga's model a hybrid between F2P and P2P. Word-of-mouth (WOM) marketing is "marketing a good or service by the message spread by customers where the communications takes place voluntarily and informally between people or groups" (Lee & Lee, 2006). In other words, it's marketing where a company activates its product through its customers spreading the word. WOM marketing gives customers a secondary value—the customer advertising for the company—to the original monetary value—the customer spending money on the company's product (Buttle, 1998). In the end, what Zynga has done with their business model is to create a structure that allowed players two options: either pay with a monetary value or pay with a media value by participating in a specified amount of WOM marketing. As one blogger writes, "advertising was free, users were cheap and achieving virality on a massive scale was easy. Zynga jumped on this, cloning and spamming their way to the top" (Fallarme, 2011). In the end the game is *not* playable if the player does not want "to pay money or pay by participating in referral marketing" or does not have a big enough referral network in order to meet the required quota (see Image 1–1). Zynga found a structure that allowed for the benefits of F2P game such as easy access for new playersand flexible payment options while monetizing their entire player market like a P2P game.

SOCIAL

In games based around sociality, players engage in social interactions as a core part of their playing experience. As Ducheneaut & Moore (2004) explain, "the social nature of most recent games has important consequences for their design. Designers want to promote interactions among the players, as they recognize that these encounters are essential to the success of their virtual worlds" (p. 1).However, beyond this initial definition, it is difficult to determine to what extent a game or mechanic is classifiable as "social" or not. Therefore, when addressing whether or not Zynga's games are successful because they are *social,* it is important to take into consideration what is implied by the term social. In the case of Zynga, what is most commonly implied by social is *interaction of the player with the player's Facebook friends*. Zynga's games, as stated above, "bring together acquaintances who otherwise wouldn't have much to say to one another . . ." (Jackson, 2011). Credit card company Discover has announced a sponsorship of a *FarmVille* game expansion because they believe "[s]ocial games bring people together into virtual communities" (MerchantServiceSales, 2011). But, is the experience provided by Zynga really about bringing people together?

In general, there are two issues to address concerning the structure of sociality in gaming: the formation of communities in response to the game environment (Kolo & Baur, 2004) and how the game mechanics within that game environment force collaboration or opposition within the gameplay of the game environment which often leads to the formation of those communities (Ducheneaut & Moore, 2004, Koster, 2011). As Raph Koster (2011) proposes several types of constructions of players within multiplayer game environments and the mechanics that can create them. There are many scholars that have written on the social aspect of gaming, however I chose Koster's mechanics as they are one of the most relatable approaches to social network-based games as a genre. There are two in specific that could apply to *The Pioneer Trail*: "player versus player (parallel play)" and "networks".

Player versus player (parallel) because players work alongside each other as opposed to in direct competition with each other, and networks because of the social claims of *The Pioneer Trail.* Most of Koster's other social mechanics from "networks", such as "iterative interactions and trust", "guilds", "elections", "influence and fame" (see Koster, 2011) don't really come into play within *The Pioneer Trail* environment. Even "trade and contract" (Koster, 2011), which on the surface seems plausible as the game does allow players to send items to each other, can only be found in *The Pioneer Trail* in a severely simplified form. In fact, players are banned from communal trading on forums and chat (Jacobs & Shivonen, 2011). Although many mechanics aren't applicable, there are some elements of sociality in the game: "leaderboards", "helping", "gifts", "reciprocity" (see Koster, 2011). Players can, for instance, perform a limited number of actions per day on their neighbors' homestead. At the same time, however, players can also reject actions performed by friends on their homestead, pushing away the interaction. Because of this it appears that player interaction is more similar to player interaction with non-player characters (NPCs) than with other players.

In addition to Koster's social mechanics, other game designers have addressed the social nature in games. In relationship to the example of Zynga, Salen & Zimmerman's (2003) basic approach to social play is also interesting to explore. Salen & Zimmerman argue there are two kinds of social play. The first is internal, within the confines of the game environment as "a product of the formal system of the game" (p. 462). This, as seen through Koster's gameplay mechanics, is not very present in The Pioneer Trail. The second type is external social play, "social roles brought into the game" from outside the game such as pre-existing friendships and rivalries (Salen & Zimmerman, 2003, p. 462). This type is the type seen within almost all of Zynga's games as nearly all social mechanics within the game exist by way of pre-existing friendships. In summary, it appears that although the internal play within the constraints of the game design itself is not social, the external social play of pre-existing relationships does make the game social. This then begins to blur into Zynga's word-of-mouth (WOM) marketing strategy. Exploring this further, it could be argued

that the most social aspects of the game are in fact based around the structure of the WOM marketing mechanics. Zynga's WOM strategy is mostly present in the form of gift giving—giving a friend an item—and gift requesting—requesting an item—both often with instant effortless reciprocity of the gift to the gift giver. Therefore what many may believe to be social mechanics, are actually just the side effects of Zynga implementing a WOM strategy into its games.

Taking all of this into account, it appears that Zynga games are not traditionally social in the sense that they don't encourage any direct social interaction with other players. Instead, I believe what Zynga's environments do well is bring people together for a feeling of a shared social presence, play in parallel. As Ducheneaut et. al proposed, perhaps one of the reasons players play is not for direct social cooperation—in fact many of them choose to avoid it. Instead they enjoy the feeling of community received by participating in something *alongside* others (Tyni et al., 2011). "For most, playing the game is therefore like being 'alone together'—surrounded by others, but not necessarily actively interacting with them" (Ducheneaut et. al, 2006). Perhaps being "alone together" in *The Pioneer Trail* environment is what makes the games successful. Instead of bringing people together into direct contact, Zynga quite literally brings people together into a common shared environment where they have full control over the extent of their social interactions.

GAMIFICATION OF CLICKING

What constitutes a game? It's a tricky concept to ultimately define[1], however, in the broadest sense of the term, a game is "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (Salen & Zimmerman, 2003, p. 80). In other words, what defines a game is the structure of the game. As McGonigal (2011) explains, "when we're playing a game, we just know it. There is something essentially unique about the way games structure experience" (pp. 20–21). Jesper Juul (2003) proposes a six characteristic approach to game structure based on the work of Johan Huizinga (1950), Rogier Caillois (1959), Bernard Suits (1978), E.M. Avedon and Brain Suttin-Smith (1981), Chris Crawford (1984), David Kelley (1988), and Katie Salen and Eric Zimmerman (2003). Inspired by these author's work, Juul proposes a game definition consisting of six points. Games must be (1) "rule-based". They must have (2) "variable, quantifiable outcomes" that are (3) "assigned different values, some being positive, some being negative". The player must invest (4) "effort in order to influence the outcome. (I.e. games are challenging.)" and be (5) "attached to the outcome". Finally, the game must have (6) "negotiable consequences" where "the same game [set of rules] can be played with or without real-life consequences" (Juul, 2003). Based on this definition, is *The Pioneer Trail* a game?

First, I would argue *The Pioneer Trail* is not so much rule-based (1) as it is "property-based". The word "property" refers to a measurable characteristic (much akin to a physical property in physics). Therefore, when I say *The Pioneer*

1. The subject of what is a game is highly contested and far from agreed upon in the field of game studies. However, it is not within the scope of this article to address this issue in full, rather I have chosen to use a sampling of the most commonly acknowledged set of characteristics (wonderfully summed up in Juul's 2003 article) as a starting point for the discussion.

Trail is property-based, I am saying that it is mostly governed by its own set of physical properties as opposed to created regulations. It takes 60 seconds to grow a clover. This is less a "rule" of a game as it is a "property" of the environment. Take, for instance, the game of basketball. Gravity is not so much a "rule" of basketball as it is a "property" of the environment it is played in. However, that a player cannot run with the ball during the game but instead must always dribble the ball is a rule of basketball, imposed on top of the environment's properties.

Despite the variety of tasks needing to be performed, *The Pioneer Trail* does not have many variable outcomes (2). In general, it has one clearly defined outcome that does not involve skill or chance: the quest is either completed or not completed. The decoration is either purchased or not purchased, placed or not placed. There is a slight variety in terms of crops—as once a crop is grown it only remains ripe (ready for harvesting) for a limited amount of time, therefore the player has the outcome of either harvesting the crop in time, or having the crop decay—but it is still quite limited in outcome. For this reason, as there is often at max two outcomes, there are not frequently outcomes that are better than other outcomes (3). Choosing to perform one quest over another quest does not necessarily provide an alternative or better outcome. Choosing one task before another during a quest does not provide an alternative or better outcome. Harvesting all of the planted crops at one time does not provide an alternative or better outcome than harvesting the crops in 15 minute intervals.

Contrary to the previous three characteristics, however, it is true that the player is required to invest effort to complete tasks (4) and the completion of tasks can affect the game state. Completing a task can influence the materials the player has or the state of one of the many non-player characters (NPCs) in the game, such as a relationship quest that appeared with the creation of *The Kissing Tree* in 2011. However, while performing a quest, it is rare that a player can influence the outcome outside of deciding to either do the quest or to not do the quest. In this way, the player is, at points, attached to the outcome (5). However, this ties in heavily as to whether or not the game can be played without real-life consequences (6) or real-life interactions which affect the reason the player is attached to the outcome. As A.J. Patrick Liszkiewicz (2010) states in his essay on *Farmville*: "The secret to *Farmville*'s popularity is neither gameplay nor aesthetics. *Farmville* is popular because [it] entangles users in a web of social obligations". The same applies to *The Pioneer Trail*, and almost all of the social network games of Zynga. These games are not free of real-life consequences as they enforce a sense of obligation and a connection to real-life relationships and reciprocity.

From this analysis it appears that although some aspects of game structure fit with the social network games of Zynga, at the same time, it's difficult to definitely argue that it is indeed a game. It appears it's time to find another structure that may be better to equipped to provide a framework for assessing these social network games "that barely [qualify] as a game" (Liszkiewicz, 2010): and I propose gamification.

Gamification is, in its most simple form, "taking things that aren't games and trying to make them feel more like games" (Jesse Schell quoted in Graft, 2011). It is "the use of game design elements in non-game contexts" (Deterding, 2011, p.2). An example of gamification is the popular mobile application Foursquare: the gamification of being at a location. Users can "check-in" when at a location, earn points, and publically share their presence at this location with friends on Foursquare itself or other social networks like Twitter or Facebook. Foursquare Friends can compete against each other to "check-in" to the most locations or show off personal achievements—such as checking into certain number of locations in one day. Foursquare has fixed-rules—such as: check in at a location, get points, points add to your total score, your total score affects your ranking in the leaderboard—however it still doesn't have variable outcomes. In this way, although Foursquare has begun to create a game structure around the activity of being at a location, it is still not inclusive of all aspects of game structure, especially separating activities from real-life consequences. Thus it cannot be characterized as a full game.

The same seems to be true for *The Pioneer Trail*. From this analysis it appears that although some aspects of game structure can be found in the social network games of Zynga, at the same time, it's difficult to definitely argue that it is indeed a game. But the question is then: what is it gamifying? How is it gamification? I argue that "social network games" like *The Pioneer Trail* are the "gamification of clicking". In the end, *The Pioneer Trail* and many social network games are about clicking. Each activity is accompanied by a timed click which was well noted by Ian Bogost's *Cow Clicker* application. The more you click, the further you progress in the game, making timed clicking the main form of engagement with the game with many players performing thousands of clicks every week, and the main strategy for the player is how to economize that clicking and find the most efficient method. Rather than needing to click to explore the environment, the environment is built to accommodate clicking. The graphical overlay and rudimentary storyline work together to create not so much a game, but rather a clever, yet simple, example of the gamification of clicking.

The Pioneer Trail, game or not, as well as many of Zynga's applications, have attracted huge audiences and have been able to, for the most part, keep those audiences well engaged. There is much to be explored looking at The Pioneer Trail as a form of gamification as opposed to a game that can help analyze how Zynga has created these engaging retentive environments, why gamification appears to work, the effect of selections of game mechanics, and, in the end, beginning to understand the difference between gamification and games.

CONCLUSION

At the beginning, the initial selection of literature suggested that Zynga's social network games have seen success due to the fact they are often "free-to-play", "social", and have "engaging gameplay". Through this critical analysis, I have

shown that this is not entirely the case. Zynga games are not really free-to-play, but are instead a hybrid between free-to-play and pay-to-play. The games are able to offer the flexibility of a free-to-play game with easy access for new players and flexible payment options, while monetizing—in one way or another—their entire player market like a pay-to-play game. They do this by offering players a hidden choice between paying real currency or paying media value through word-of-mouth marketing—which triggers an incredibly effective viral referral marketing campaign—to continue engaging with the game. Zynga games are also not, per definition, social games.

Instead, once again, they are a hybrid, offering the basic benefits of social gaming—the "alone together" shared experience—while not requiring the same time commitment required by most full-fledge social games (like MMORPGs). By turning player's friends into resources, the friends become similar to NPCs, entities that can be used when necessary and can be ignored when desired allowing the greatest flexibility possible in multiplayer gaming. Ironically then most of the arguably "social" mechanics are instead actually a result of implementing a basic world-of-mouth marketing strategy as opposed to the design of the experience. Finally, I showed how Zynga games are perhaps not really game, and instead are a perfect example of gamification—specifically the "gamification of clicking". Instead of having created an engaging independent game environment Zynga has, in fact, done something much more unique: Zynga has created an enjoyable way to better engage an incredible number of people in the act of clicking.

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