The Revolution of Fun.

A study of applied games and fun as highly powerful tools to achieve goals in non-entertainment contexts through motivation and engagement.

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To Oscar Garcia Pañella, professor, mentor
and friend, who opened the doors of the
wonderful world of Game Design for me.

Introduction

Games, fun, play… These three words and most of the concepts related to them have positive connotations for us. Humans, as rational beings independent from the strictly instinct-ruled behaviour that animals have, love pleasure. We love fun. We love to enjoy whatever we do. This is specially noticeable in children, who show their appetite of playing without any reservations.

However, as we grow up, we sometimes tend to forget this instinct. We forget how much we love -and need- to have fun, or that to play is one of our favourite activities. And further, we forget that a playful attitude towards life makes us happier and more productive.

Over the last three or four years, concepts like Gamification or Serious Games have become popular, particularly in the media. They are often associated with economy-related areas, but their potential is much more significant than that. And it can be summed up in one easy question:

What if we enjoyed all the activities we do in our everyday routines, even the ones that we normally dislike? What would this impact be?

This dissertation will clarify the research the author has been conducting around this topic over the last two years. It aims to address the basic reasons that make games and fun in general highly powerful tools in terms of triggering psychological patterns such as motivation or engagement. These psychological patterns would generate a much better life experience as well as an increase of the level of productivity humans have in their everyday routines. It is clear that a motivated and engaged individual is more likely to do an activity properly than an unmotivated one. Then, why do we not attempt

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to make these activities motivating, engaging and, ultimately, fun?

This theoretical approach to the potential of fun and games in non-entertainment contexts is going to cover both the psychological theories related to them and the basic Game Design rules. The contents of this dissertation, thus, constitute the fundamentals over which the author is going to base the future stages in his research.

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As argued, the usage of fun as a tool to trigger motivation and engagement is beco-ming a growing trend over the last years. And it's still expected to keep growing. In this dissertation we are going to discuss the factors that need to be taken into consideration when implementing fun in a real life context.

However, before analyzing this set of factors we need to clarify the basics of fun itself. The more we know about it, the easier is going to be to use it as we need to. Thus, this dissertation starts with the following question: what is fun?

What is fun?

In order to answer to such a broad question, it is necessary to understand the major number of the areas to which it can be related. Having a wide range of points of view will give us a more comprehensive idea about what it really is.

The first lens we are going to use to describe the term 'fun' is the etymological one. Let's start looking at the linguistical definition that the *Oxford English Dictionary* gives to this word:

> *[NOUN] [MASS NOUN] Enjoyment, amusement, or light-hearted pleasure.*

This is a short and simple but, simultaneously, revealing definition. Two of its main concepts can be clearly highlighted: '*enjoyment*' and '*pleasure*'. These are arguably the main factors that make games and their characteristics be directly engaging for people: they provide something that we always desire: pleasure. As rational beings different from animals, our life goals are not limited to eating, sleeping and reproduction - we have other needs that are a direct product of our evolution process. Abraham Maslow,

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in his academic paper *"A theory of Human Motivation"* (1943) published in the scientific journal *Psychological Review*, proposes the following hierarchy of needs, with the ones at the bottom the most basic:
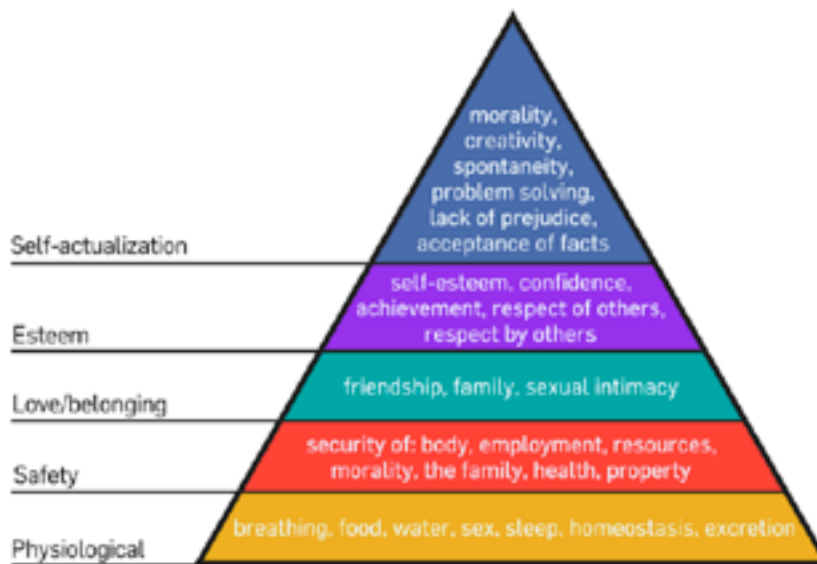
(Illustration 1. '*The hierachy of needs*')

Several concepts included in this graphic can be directly or indirectly related to games, as we are going to discuss within this dissertation. Problem solving, creativity, spontaneity (the pleasure of surprise), acceptance of facts (the presence of rules), achievement and many others are present in every single game and most fun experiences, if not all of them.

Johan Huizinga, a Dutch historian, cultural theorist and one of the founders of modern culture, argues in his book *Homo Ludens* (1938) that fun is *"an absolutely primary category of life, familiar to everybody at a glance right down to the animal level."*

As seen, thus, fun is something directly related to the human condition, and this is what really makes it that effective - especially when implemented in the form of a game

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or a game-like system. The next step in the process of realizing its potential is asking ourselves a second question: what is a game?

What is a game?

As stipulated in the previous section, the first step we are going to take in order to clari-fy what a game is will be checking its linguistical definition. The *Oxford English Dictio-nary* states that a game is

[NOUN] a form of competitive activity or sport played according to rules.

Again, some interesting concepts arise from this definition such as: '*activity*', '*rules*', '*played*', '*competitive*' - even though we could argue that a game does not necessarily need to be competitive.

However, a broader reseach needs to be done to truly clarify what a game is. The defini-tion provided by the *Oxford English Dictionary* is too broad. It is not accurate enough, it does not define what a game is in a concrete way. Therefore, a good method of investi-gating in this topic would be to explore the definitions that some relevant theorists set.

Elliot M. Avedon and Brian Sutton-Smith state that "*games are an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produce a disequilibrial outcome.*"

Some interesting concepts can be extracted from this definition. Firstly, as it happe-ned with the one provided by the *Oxford English Dictionary*, the concept of 'rules' is predominantly present - Avedon and Sutton-Smith consider games as "*an exercise of*

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voluntary control systems [...] confined by rules". Secondly, they introduce a new concept: games as a system that generates a '*disequilibrial outcome*'. As we know, if we play a game we can get two different outcomes: we will either win or lose.

Let's move to another theory. Greg Costikyan, an American Game Designer and Science-fiction writter, gives an alternative definition. In his article '*I Have No Words & I Must Design*' (2002), he states that a game is "*an interactive structure of endogenous meaning that requires players to struggle toward a goal.*"

This definition introduces two new concepts, both of them relevant. First of all, Costikyan defines a game as a structure with an '*endogenous meaning*' - this refers to the fact that games have an individual, defined and closed universe where everything needs to be coherent - a single inconsistency within them will probably turn a memorable experience into a miserable one. Secondly, Costikyan finishes his definition by stating that players within a game necessarily have a '*goal*'. This directly refers to the concept of '*hero journey*', a pattern found in multiple narratives from around the world.

Joseph Campbell, an American mythologist, writer and lecturer, named this concept '*Monomyth*' in his book '*The hero with a thousand faces*' (1949). According to Campbell's arguments, the '*Monomyth*' could be defined as

> "*a hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man.*"

Another definition of the term '*game*' is provided by Tracy Fullerton, Chris Swain and

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Steven Hoffman, who state that "*a game is a closed, formal system, that engages players in structured conflict, and resolves in an unequal outcome.*" Most of the concepts included in this definition have been used in the previous ones: closed system, conflict, unequal outcome... However, they also create a new one. Fullerton, Swain and Hoffman introduce the concept '*engagement*' - one of the most used ideas when discussing the potential of games and fun within real life contexts.

Many other theorists have discussed games and psychological patterns related to gameful experiences. Bernard Suits, for example, coined the term '*lusory attitude*' in his book '*The Grasshopper: Games, Life and Utopia*' (2005), stating that

> "*To play a game is to attempt to achieve a specific state of affairs [prelusory goal], using only means permitted by rules [lusory means], where the rules prohibit use of more efficient in favour of less efficient means [constitutive rules], and where the rules are accepted just because they make possible such activity [lusory attitude]."*

Again, concepts such as '*goal*', '*rules*' or '*amusement*' appear as key elements. As seen, most of the definitions analyzed are based on similar concepts, being slightly different due to minor issues. The main characteristic that they identify in games is that of problem-solving.

Jesse Schell, one of the most well-known Game Designers worldwide, conducts a deep discussion about this topic in his book '*The art of Game Design: a book of lenses*' (2008). Considering some of the definitions listed above are valid, Schell argues that they do not exactly cover what a game purely is. The argument that Schell states - with which the author strongly agrees - is that

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"Games cannot simply be problem-solving activities. One who plays them must also have that special, hard-to-define attitude that we consider essential to the nature of play. So, a definition that nicely covers all ten qualities might be: 'A game is a problem-solving activity, approached with a playful attitude.'"

As seen within this discussion, the definitions given by several theorists and designers are generally similar. Concepts like '*rules*', '*goal*', '*entertainment*', '*problem-solving*', '*play*', etc. are recurrent in all of them. These make games something more specific than the broad concept of '*fun*', which does not necessarily imply them. After having made clear what games are, then, it's time to reflect on what makes them a potential tool outside of pure entertainment contexts.

Why fun?

Raph Koster, in his book '*A Theory Of Fun for Game Design*' (2004) makes a simple but, in the author's point of view, highly relevant statement:

"The definition of a good game is [...] 'one that teaches everything it has to offer.' That's what games are, in the end. Fun is just another word for learning."

As Koster argues, games (in a broad sense, not just *serious games* or *edugames*) are systems that teach things, communicative structures with which users exchange information. It is an evidence that even the less reality-related game forces its players to assimilate some information: the rules, the story behind it and the set of happenings within the process. This makes games in their multiple forms particularly interesting for learning processes.

But games are not just useful as learning-oriented systems. Their direct connection

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with human psychological patterns such as motivation or engagement give them a high potential in terms of achieveing tangible results in multiple real life contexts. From the author's point of view, games in their multiple forms and their characteristics can be useful in most situations where there's a need to achieve certain goals or improve a process where human activity is the core element. Paraphrasing Mary Poppins, *"In every job that must be done, there is an element of fun. You find the fun, and -Snap!- the job's a game!"* (Disney, 1964)

Richard Burke, in his article '*Work and Play*' (1971) published in the academic journal *Ethics*, discusses the differences between these two activities. Althogh they apparently seem radically different, Burke argues that in their essence they are not. As one of the arguments, he recalls a quote by John Dewey, an American philosopher, psychologist, and educational reformer:

> *"Both [play and work] are equally free and intrinsically motivated, apart from false economic conditions which tend to make play into idle exctitement for the well to do, and work into uncongenial labor for the poor."*

What, then, is the difference between '*work*' and '*play*', if we agree that both of them are problem-solving activities voluntarily conducted by a human being? The author argues that the one and only essential difference between them is the attitude we have towards them. Too commonly, we tend to work led by extrinsic motivation -I work, therefore I earn money-, while we play for the simple fact of enjoying it, which consititutes a purely intrinsic motivation. A deeper insight about these kinds of motivation will be explained within the second chapter of this dissertation.

However, the potential of games is not limited to their multiple psychological benefits.

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From a biological point of view, they should also be considered as highly interesting systems.

The fact that they have a strong storytelling component, particularly important due to the high level of interaction players establish with them, makes them provide the pleasure of surprise. Scientific studies such as '*Evidence for striatal dopamine release during a video game*' (1998), leaded by the Imperial College School of Medicine in London, have evidenced that some areas of the brain are stimulated when faced with games, due to elements like surprise and goal-directed motor tasks, which in the end are problem-solving activities. These studies give novelty a great importance in the process that makes the brain release dopamine, a chemical which stimulates the amygdala, the part of the brain that regulates emotions. As they have demonstrated, situations where surprising events occur are likely to make our brains release this chemical substance.

Another interesting scientific study that demonstrates the potential of games as something more than simple entertainment systems is '*Playing Super Mario induces structural brain plasticity: gray matter changes resulting from training with a commercial video game*' (2013), conducted at the Max Planck Institute for Human Development and Charité University Medicine St. Hedwig-Krankenhaus. This study demonstrates that videogames are likely to cause increased size in brain regions responsible for spatial orientation.

Simone Kühn, senior scientist at the Center for Lifespan Psychology states that

> *"While previous studies have shown differences in brain structure of video gamers, the present study can demonstrate the direct causal link between video gaming and a volumetric brain increase. [...] This proves that specific brain regions can be trained by means of video games."*

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Moreover, Jürgen Gallinat, psychiatrist and co-author of the study argues that *"many patients will accept video games more readily than other medical interventions"*. What this study aims to prove, then, is clear: videogames are not just a fun medium for making medical processes more enjoyable but a brain developing tool as well. The abstract of the study states:

> *"Video gaming is a highly pervasive activity, providing a multitude of complex cognitive and motor demands. Gaming can be seen as an intense training of several skills. Associated cerebral structural plasticity induced has not been investigated so far. Comparing a control with a video gaming training group that was trained for 2 months for at least 30 min per day with a platformer game, we found significant gray matter (GM) increase in right hippocampal formation (HC), right dorsolateral prefrontal cortex (DLPFC) and bilateral cerebellum in the training group. The HC increase correlated with changes from egocentric to allocentric navigation strategy. GM increases in HC and DLPFC correlated with participants' desire for video gaming, evidence suggesting a predictive role of desire in volume change. Video game training augments GM in brain areas crucial for spatial navigation, strategic planning, working memory and motor performance going along with evidence for behavioral changes of navigation strategy. The presented video game training could therefore be used to counteract known risk factors for mental disease such as smaller hippocampus and prefrontal cortex volume in, for example, post-traumatic stress disorder, schizophrenia and neurodegenerative disease."*

At this point, we have discussed fun, games and their high potential as real-life oriented systems. Next we will begin analyzing them deeper to understand how they actually work within these real life contexts.

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As systems that provide humans the pleasure of fun, games have an strong relationship with the field of Psychology. It is clear that what makes them that attractive is their capacity to trigger certain positive psychological patterns and reactions.

Therefore, most of the theories related to games and fun have a psychology-related basis. Would not it be impossible to design a game with certain goals and intended to a certain target group without being able to map and compare it to psychological theories? A well-designed game needs to be designed according to these psychological aspects, always being player-centered. In this chapter, the basics of Game Design and its relationship with Psychology are going to be discussed.

Games, Gamification and Gameful Design

For an uncontably long time, games have been one of the most common mediums for delivering fun to people. As discussed in the first chapter, there are multiple psychological facts that make games eminently attractive for humans. Therefore, they are also an interesting medium with which to achieve goals related to human behaviour, as they can directly affect the levels of motivation (and consequently engagement) of a potential target group.

But games (or characteristics from them) can be implemented in several different forms, specially when applied to objectives different from entertainment. Depending on the way they are implemented, they are commonly divided into different groups. Andrzej Marczewski, a Polish Gamification guru, sets this division in four types of games. As it can be seen in the following diagram, Marczewski bases the distinction between the four categories in the presence or not of four elements related to games: *game thinking, game elements, gameplay* and *fun*. The following graphic illustrates this categorization:

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Differences in Terms

	Game Thinking	Game Elements	Game Play	Just for Fun
Gameful Design	●			
Gamification	●	●		
Serious Game / Simulation	●	●	●	
Game	●	●	●	●

(Illustration 2. Marczewski, A., 2013, www.marczewski.me.uk)

Amy Jo Kim, an American Game Designer and Researcher, adds another category. According to her research, there's a clear distinction between Games and Social Games these that imply a strong connection between players (Jo Kim, A., 2012, www.amyjokim.com).

These are just two approaches to the concept of applied games. Several other authors have proposed their definitions and categorizations. As we are talking about a recently born field which is immersed in a clearly initial stage of development, it's still difficult to find a standard that unifies the criteria for this categorization. However, some definitions around the topic are starting to become standards, although they are constantly changing.

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-Game: a Game is a problem-solving activity approached with a playful attitude (Jesse Schell, 2008, p.37).

-Serious Game: a Serious Game is a software or hardware developed through game technology and designed through game principles with a purpose different than just entertainment (Oscar Garcia-Panella, 2012).

-Gamification: Gamification is the use of game thinking and game mechanics in non-game contexts to engage users in solving problems. Gamification is used in applications and processes to improve user engagement, return on investment, data quality, timeliness, and learning.

-Gameful Design: a Gameful Design is the result of a design process where game thinking has been used.

As the aim of this dissertation is to review and filter the existing theories in the field of applied fun, the author has made some punctualizations to these theories. The author has noticed an increasing tendency to consider the previously listed categories as completely different areas, and this may be a mistake.

Whilst it's clear that the presence of a purpose different from pure entertainment definitley makes the difference between a regular game and a serious (or applied) game, assuming the presence of gameplay as the key element to differentiate a serious game from a gamified system is too ambiguous -and even inconsistent- we can argue. A gamified system cannot exist without the presence of gameplay, as this is the element that provides the system with a plot and a way to play it. This gameplay may be more

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or less complex, the interaction requirements may be higher or lower, but in the end it's always gameplay. Therefore, if both serious games and gamified systems have a gameplay component… What is the difference between them?

Dr. Oscar Garcia Pañella (read the complete interview in Appendix 1 - Interview Oscar Garcia Pañella), one of the most reputated Gamification consultants and researchers in Spain , head of the Videogame Undergraduate Degree (ENTI-University of Barcelona) and the Gamification & Transmedia Storytelling master program (IEBSchool) has a similar point of view. Garcia Pañella, who is also Senior Consultant at Cookie Box, agrees that Gamification and serious games are more similar than they are usually considered. He argues that *"Gamification consists of turning a 'potential miserable moment' into a 'memorable act'. Take what you already have, within a product or service, and check where the pleasure resides. Everything can be memorable if implemented from the 'pleasure side'"*. Garcia Pañella defines the difference between a serious game and a gamified system by considering serious games as having *"developed from scratch to serve some sort of learning"*, whereas gamified systems *"are designed as 'magical spells' in the top of som sort of service or product already running in most of the cases"*.

The only noticeable difference between what serious games and gamified systems essentially lies in the relationship the actions made by players have with the non-fictional world. In a serious game, players commit actions that end and only have a meaning within the game, whereas in a gamified system these actions transcend to the non-fictional world generating an impact on it.

However, we can argue that the designing processes related to them are frequently considered more different than, according to the author's point of view, they really are. In

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their pure essence, all these categories (specially serious games and gamified systems) share most of their properties, particularly the most important one: their common goal to produce a certain outcome by delivering fun to users. In terms of the design process, Oscar Garcia Pañella argues that

> *"I approach both (serious games and gamified systems) the same way. I believe that the role of a game designer within any service or product consists of recieving a brief that states several problems -challenges that must be addressed- from a client. Then we segment the users of that service as players and we select the most suitable motivators for them to better enjoy what they are supposed to do, while they learn by discovery and 'enter a magic circle', without forgetting the rigor and the serious nature of the experience and the learning involved".*
> *(Garcia Pañella, O., 2013, appendix 1)*

According to these arguments, therefore, a major part of the designing processes in the four categories should be identical.

Motivational facts

As discussed within Chapter 1, game theories have a strong connection with psychological theories - and this is not a casuality. What makes games (in all their variations) something popular is that they provide high doses of fun by delivering motivation and engagement. And don't these two concepts come directly from psychology? A well-designed game must give players exactly what they psychologically need in order to satisfy them. That's why motivational psychology becomes so important in the process of designing not just an applied game but also any kind of game: knowing how potential players are and which psychological profiles they present is fundamental.

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A really important fact about motivational psychology related to games is the kind of motivation they deliver. Many theorists discuss that there are two main types:

-Intrinsic motivation: it refers to enjoying something for the only fact of the pleasure among from its nature (for example, playing football).

-Extrinsic motivation: it refers to enjoying something due to the fact of there being a reward not necessarily connected to it (for example, working hard to get a salary). These rewards don't necessarily have to be tangible (for example, a salary), they can be imaginary or virtual as well (a points system in a game).

Since being aware of these two types of motivation, a game must be designed providing the balanced amount of them both that potential users need. Even though sometimes it is not like this, intrinsic motivation should be the most important one, as it's the one that really makes the game fun by itself. However, it does not mean that extrinsic motivation is bad - designers need to make sure that it does not totally control the game, as if it does the game will lack its own interest besides the rewards.

Thus, assuming that intrinsic motivation is something that must be considered fundamental in the process of designing a game (and, therefore, an applied game), the fact of knowing how to deliver it becomes important. There is an especially interesting theory related to this called *RAMP model*, which sets the four facts that can provide intrinsic motivation. These facts are the following:

-Relatedness: the desire to be connected to others.
-Autonomy: the desire to decide and choose own paths.

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-Mastery: the desire of developing a skill, mastering it.

-Purpose: the desire to connect own actions with a greater reason. Often related to philantropism.

(Marczewski, A., 2013, www.marczewski.me.uk)

Another significant theory about motivational facts, in this case even more connected to games. It is called '*The 8 kinds of fun*', by the Game Designer and Researcher Mark LeBlanc. According to this model, there are 8 facts that can give pleasure to humans in games:

-Sensation: Game as sense-pleasure

-Fellowship: Game as social framework

-Fantasy: Game as make-believe

-Discovery: Game as uncharted territory

-Narrative: Game as unfolding story

-Expression: Game as soap box

-Challenge: Game as obstacle course

-Submission: Game as mindless pastime

(LeBlanc, M. et al., 1996, p. 2)

Therefore, this model is a good tool in terms of making sure that a game really delivers fun. By analyzing its design through the lens of these 8 kinds of pleasure and realizing how many of them are being delivered, it is often easy to conclude if a game has been well-designed. The presence of a large amount of these pleasures is a symptom of a good design, although the presence of all of them is not always required (again, depending on users' motivational profiles).

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Users vs. Players

In a designing process of a project where applied fun is implemented, the potential target group must be considered not only as users but also as players. As discussed in Chapter 1, most of the existing theories about games are closely related to psychological and behaviourism factors. This implies that a deep research of our target population's player and motivational profiles becomes fundamental. As happens with the categorization of different ways to implement applied fun, however, there are many different theories from several authors about players segmentation.

Probably the most common approach to this process is a theory developed by the Game Designer and Researcher Richard Bartle, who makes a four types of players categorization on MUD type games. based on two facts: the way that players like to interact (by acting or interacting) and with/to whom players like to interact (the world or other players). By making this double-axis categorization, Bartle defines four types of player, which is illustrated in the following graphic:
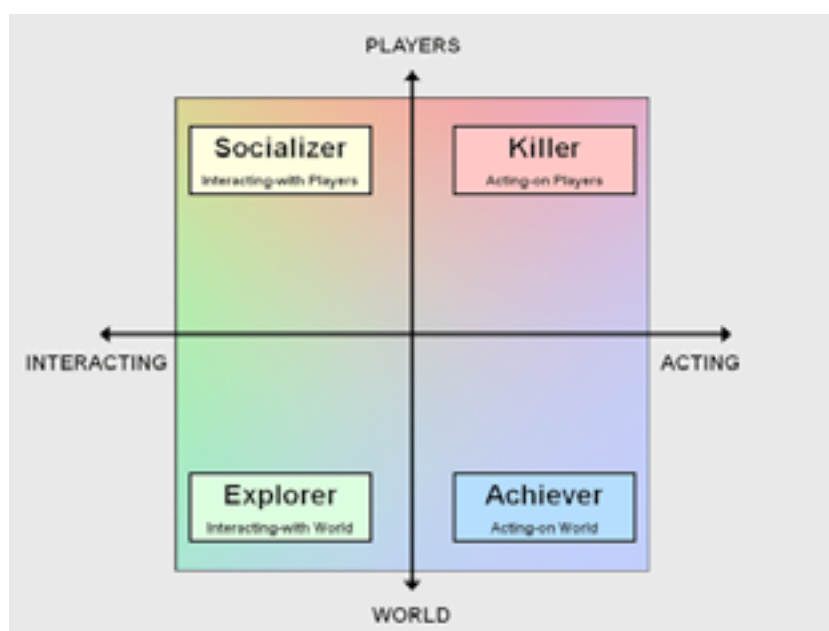
(Illustration 3. Bartle, R., 1996, www.mud.co.uk)

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However, even taking this segmentation model as a basic standard, many authors (including Bartle himself) agree that this theory is not completely accurate when designing systems different from MUDs. Therefore, some authors have developed theories based on Bartle's Four Types of Players by making it more adaptable to multiple implementations of applied fun.

One of these theories is Amy Jo Kim's Players segmentation in Social Games. Jo Kim keeps the double-axis segmentation but adapts it in a way that it truly represents types of players in social games, and therefore sets four different kinds of players depending on their preferences in ways to act within social games or systems: *Express, Compete, Explore, Collaborate*. Thus, this theoretical approach to players segmentation is totally based on the way they behave in social system, which makes it quite specific but never universal, as happens with Bartle's model. As can be seen in the following graph, Jo Kim adds some keywords in each of the four segments in the graphic representation in order to make more clear and easy to use it, as if it was a framework.
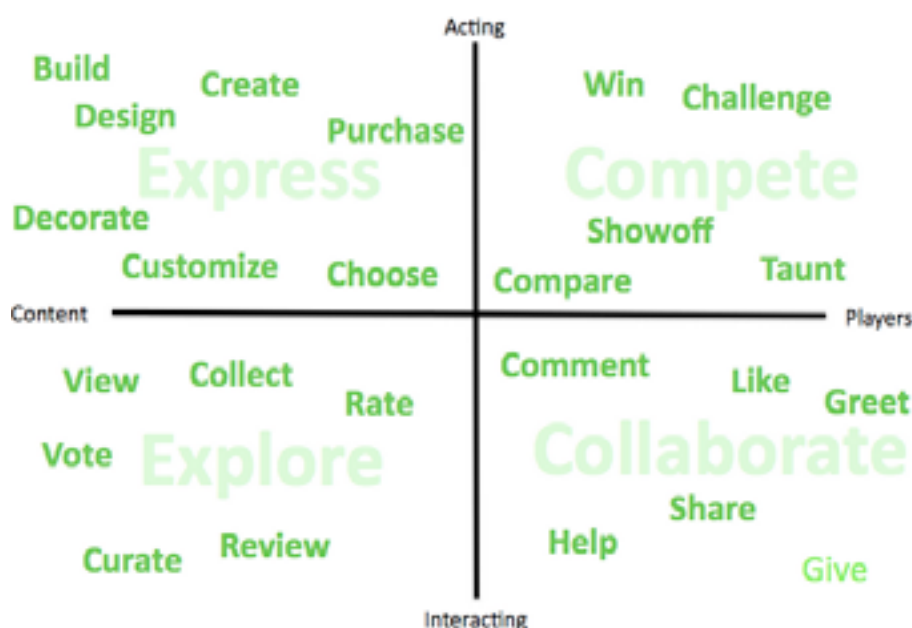

(Illustration 4. Jo Kim, A., 2012, www.amyjokim.com)

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Another more complex players segmentation theory is Andrzej Marczewski's *Users segmentation model in Gamification*. Again it is based on Bartle's segmentation profile but it explores motivational facts in more depth. Marczewski adds a third axis to the model, in this case related to users' motivation-related needs. This third axis is based on the intrinsic vs. extrinsic motivation discussed above. Marczewski argues that the four kinds of Bartle's player types can be applied to both intrinsic and extrinsic motivational profiles, which leads to a 6 player types model. In one hand, he identifies '*non willing to play users*', which need to be provided of extrinsic motivation to engage and motivate them. On the other hand, he defines '*willing to play users*' as those who are more keen on recieving intrinsic motivation. As can be seen in the following graph, it becomes a considerably complex segmentation model.
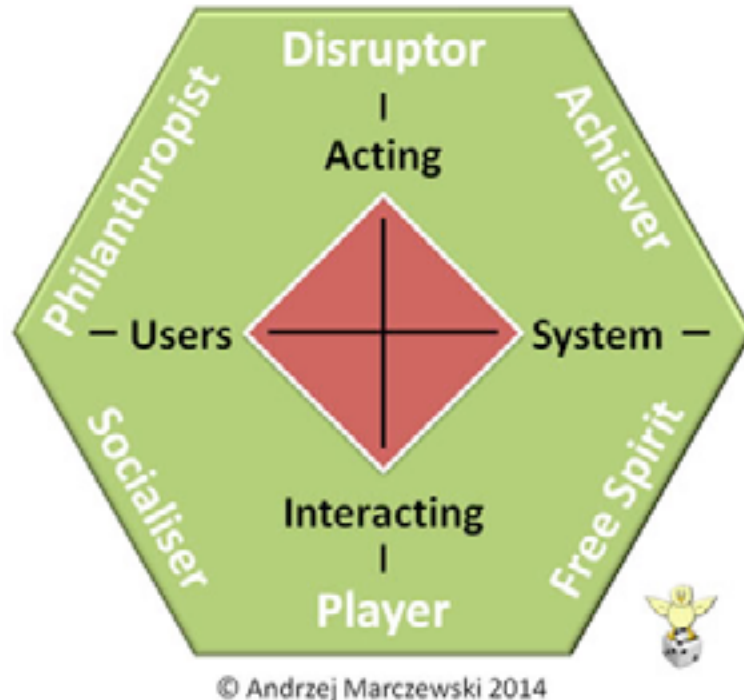
(Illustration 5. Marczewski, A., 2014, www.marczewski.me.uk).

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All of these three models can be considered as valid and correct. In fact, some more segmentation models can be found, however they are not common. Each in its specific area can work, but they all lack in one fact: real practical cases show that it is extremely difficult to conduct an accurate users (or players) segmentation in projects where games or their characteristics are applied. Much of the time, the target population is too broad and extensive and there's not enough information about it in relation to game theories. Therefore, sometimes it becomes difficult to taxonomize users according to these kind of player type models/segmentations.

From the author's point of view, these models are an additional aide in order to get to know a project's target group, but most of the times they are not accurate enough to be the main tool used. An interesting way to make sure that an applied game (as discussed in previous chapters, in all of its possible variations) is truly adapted to its potential users, which is fundamental, is analyzing them through the lens of psychological theories, particularly the ones related to motivation. As discussed previously, game theories are intrinsically related to motivational theories, what makes these theories a great tool to connect an applied game to its target group. Therefore, theories like RAMP model of intrinsic motivation become really interesting in terms of user segmentation. RAMP model can definitely be considered a good starting point in an applied game designing process, as it lets designers create enough elements to fulfill all the different kinds of players' needs.

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At this point, we have clarified the psychological facts that make games, gamified systems and gameful designs a great tool in terms of triggering motivation and engagement. We have discussed how motivation can be mapped with games and their fundamentals, as well as how users should be approached when designing a system where fun is implemented.

As the basics are set, it's time to dive deeper into the basic elements that these systems contain. This chapter will discuss the most relevant factors that need to be taken in consideration in a Game Design process.

Game dynamics

Game dynamics, mechanics and *elements* are the core parts in a game design process. This triad of items define the game specifically. Therefore, it's important to know clearly what they are and how can they be approached when designing, to avoid inconsistences that could break down the memorable experience a game provides. However, as it happens with the actual definition of concepts like 'serious game' and 'gamification', these three elements are not clearly defined. Some of their facts are accepted in an standard way, but we can find differences in the definitions provided but different authors and game designers.

Game dynamics are commonly known as '*the grammar of a game*'. They define what the game is about, being a high-level description of it without exploring concrete facts too deeply. Game dynamics, therefore, have a lot in common with motivational psychology, as they define why and in what way a game is fun. In the end, dynamics set the motivators that rule it. Which would be, then, the list of motivators/game dynamics to implement in a game? Apparently there isn't a closed list. As long as the dynamics

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chosen to define a game have a strong psychological basis they are correct. There are, however, some commonly used sets of motivators in game design processes.

One of these is the '*8 Kinds of Fu*n' set of motivators defined by the game designer and researcher Mark LeBlanc, previously defined. This theoretical approach to motivation and games has a strong game-related research background, which makes it a totally reliable model to use when defining the game dynamics within a game design process.

Another commonly used theory in terms of game dynamics definition is the *'16 Basic Desires'* model by the psychologist Steven Reiss. Reiss, in this case with a research background clearly in the field of motivational psychology, defines the 16 main motivators that rule human behaviour. These motivators are the following:

-Acceptance: the desire to avoid failure and criticism.

-Curiosity: the desire for understanding.

-Eating: the desire for food.

-Expedience: the desire to act out of self-interest.

-Family: the desire to raise children and to spend time with siblings.

-Idealism: the desire for social justice.

-Interdependence: the desire to trust others to meet one's needs.

-Order: the desire to be organized and clean.

-Physical Activity: the desire for muscle exercise.

-Power: the desire for influence or leadership.

-Romance: the desire for beauty and sex.

-Saving: the desire to collect.

-Social Contact: the desire for peer companionship.

-Status: the desire for respect based on social standing.

-Tranquility: the desire to be free of anxiety and pain.

-Vengeance: the desire to confront those who offend.

(Reiss, S., 1998)

3- Game Design

Game mechanics

Game mechanics, on the other hand, refer to the activities the players do within the system. Therefore, keeping with the linguistical metaphore we used when we defined game dynamics as '*grammar*', they are commonly considered the '*verbs*' of a game. They rule which actions players have to do when they interact with the system, and they are strongly related to motivators and user segmentation.

Jon Radoff, an american Game Designer, sets a list of 42 things that people have fun with. It's not a list focused on games or gamified systems; it's open to the whole situations in the everyday routine of a human being. However, this list is extremely useful and reliable when defining the game mechanics that are going to rule a system. In the end, it's a list of trustworthy activities that people enjoy doing. Moreover, Radoff links these actions with Steven Reiss' *16 Basic Desires* by connecting, in this way, some game mechanics to their related game dynamics (see Appendix 3 - Jon Radoff's 42 fun things).

Victor Manrique (read the complete interview in Appendix 2 - Interview Victor Manrique), a Spanish Gamification Designer, blogger and researcher, has developed a deep theory about gamification mechanics, a concept that he clearly differentiates from pure game mechanics. Manrique argues that gamification mechanics come from the original game mechanics but clearly lack the action component - as most gamified systems have a limited and simple gameplay, without including a large amount of actions. Therefore, gamification mechanics directly become game elements. *"The components extracted from games"*, Manrique explains in an interview, *"are the core element within a gamified system"*. And not only in the system itself, but in the design process as well. Designing the mechanics for a gamified system is the most important stage in the design process, as well as the most challenging for designers.

3- Game Design

Game elements

The last item in the triad we must define are game elements. Whereas dynamics are the '*grammar*' and mechanics are the '*verbs*', elements would be the '*characters*' that make these '*verbs*' and '*grammar*' something real and possible. Game elements are the tangible parts that create a game and, after having been used in multiple along the history, they have become patterns. Therefore, game elements are probably the easily identifiable part in a game. A short list of them would be the following: points, badges, leaderboards, achievements, progression bars, boss fights, maps, inventory, power-ups, random, superpowers, avatars, skills, health&life...

Despite the existance of such a broad range of game elements, it is common that systems where Gamification is implemented consider just three of them: points, badges and leaderboards. The game elements in this triad, named PBLs, are really useful in terms of simplicity: any user would perfectly understand how they work and what they represent. However, PBLs are directly related to extrinsic motivation - they are pure rewards to the actions carried out by players. This means that, by themselves, they are triggering just one of the two kinds of motivation that should be provided - moreover, the less relevant one. Therefore, the author argues that it is mandatory to complement them with other game elements so that intrinsic motivation becomes the main psychological pattern triggered by the system.

Platforms

The platform should always be a secondary component when designing a system where fun and games are applied. Ideally, it should never influence how the system is designed, as almost every game dynamic, mechanic or element can be implemented in any

3- Game Design

sort of platform. Therefore, a platform should be defined at a point where the system, and most of its features are already designed to avoid interferences in the process. There are many exceptions to this rule, as sometimes an existing service or product already has a defined platform. This just means, however, that the platform where the system is going to be implemented is defined from the first moment. The design process shouldn't be affected nor influenced by this fact.

In terms of deciding which is the most appropiate platform for a gamified system or a serious game three main facts should be considered:

- First of all, as mentioned earlier, the current needs of the client -understanding client as the company or institution that requires the system- in terms of platform consumption. Not only the fact of already having or not a running platform has to be considered. It's important to clarify which kinds of platforms the client and it's workforce is used to as well. A designer has to make sure that the client, not just the final user, feels comfortable with the platform, as the system might be managed and updated by him.

- On the other hand, final users/players' needs and consumption habits should also be considered. The platform has to be as familiar to them as possible, becoming a smooth plus to their everyday routines. If it turns to be a drastic change in their habits, there's a high risk of fail.

- Finally, although we have argued that the platform shouldn't influence the game design process, it has to be adaptative to the system's requirements. An appropiate platform will be able to respect all the features designed.

3- Game Design

Thus, as seen, the key point in deciding a platform during the design process of a system is finding a correct balance between these three facts. Succeeding in this task will strongly minimize the chances to fail.

There are two main typologies of platforms, depending on their technological complexity: analogue and digital. Despite it's commonly assumed that digital ones are more likely to succeed, this is not a completely true statement. Each platform is suitable for a different context or/and a different potential user, no matter if it's digital or analogue. Therefore, an analogue platform won't be as appropiate for a certain type of context or user as a digital one but the opposite situation is common as well. Furthermore, analogue, tangible and physical things are specially attractive. Humans love to own objects and interact -play- with them. Jean Beaudrillard, in his book '*The system of objects*', argues that "*man never comes so close to being the master of a secret seraglio as when he is surronded by his objects*" (Beaudrillard, J., 1996, p. 94), whereas Maurice Rheims, a French art historian and commisaire explains in his book '*The Glory of Obsession*' that

> "*for man, the object is a sort of insentient dog which accepts his blandishments and returns them after its own fashion, or rather which returns them like a mirror faithful not to real images but to images that are desired.*"

Another noticeable fact regarding the field of storytelling is the current growth of Transmedia as an enormously powerful way to present stories. Contemporary mass media is starting to present its contents in a transmediated structure. Transmedia makes contents (stories, informations, narrative universes…) deeper, more complex when desired and considerably more attractive. Moreover, it spreads elements of a same story through different channels/platforms, which means that more users will

3- Game Design

be likely to consume them. Dr. Henry Jenkins, who is a Provost Professor of Communication, Journalism, and Cinematic Arts, a joint professorship at the USC Annenberg School for Communication and the USC School of Cinematic Arts, argues that

> *"Transmedia Storytelling represents a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience. Ideally, each medium makes its own unique contribution to the unfolding story."*

To summarize, the fact of deciding which is the appropiate platform for a system where fun and games are applied has to be influenced by the target group, the client and the game design -but never vice versa-, and both digital and analogue platforms should be considered forgetting the clichés that assume analogue ones as old-fashioned and non-attractive. Finally, Transmedia Communication can be considered as a way of structuring the presentation of contents.

Storytelling

From the early times when games started to be played, storytelling has been a particularly important component in them. As Oscar Garcia Pañella explains,

> *"we are not talking about games or videogames only but about books, ARGs, comics, movies and so. Cultural products that are made of a deep transmedia storytelled basis besides the best technology, a suitable aesthetic effect that has to be negotiated with the client -and the players- and the best ruleset ever. It has to make sense, follow the player's skills, look nice and provide with a wonderful user experience."*

(Garcia Pañella, O., 2013, appendix 1)

3- Game Design

Therefore, we can consider storytelling as a key element in any system where applied fun and games are implemented. A game, a gamified system or even a gameful design without a consistant story behind them will not be as powerful, motivating and, especially, engaging as they would be if they had it.

However, a lot of gamified systems are not designed following this rule. They often ommit storytelling by considering it a secondary and optional component. This mistake makes these systems have a noticeable lack. From a similar point of view, Victor Manrique argues that

> "nowadays, storytelling is not commonly being implemented in Gamification because of economical costs. Designing a deep and powerful story requires a big amount of resources, and sometimes it is a barrier both for the designer and the client. However, I'm sure that this trend will change in a near future and storytelling is going to have the presence it deserves, as it is a particularly important component in terms of engagement and motivation."
>
> (Manrique, V., 2013, annex 2)

The storytelling component behind a game does not need to have an enormous complexity. In some cases it will; in some others not. But we could definetly argue that both games and gamified systems should, apart from some exceptional cases, have a background story that gives them a meaningful unity.

Conclusion

The fundamental point that can be extracted from the research process involved with the writing of this dissertation is that games and fun in general represent something more than simply a way of entertainment. As they are directly related to human psychological needs and behavioural patterns, they become highly powerful tools for achieving goals in non-entertainment contexts.

This research was conducted at academic institutions such as the University of Girona and the University of Lincoln, where the author studied. Further, the author had the chance to complement his research as a professional in the industry. Firstly, at Cookie Box as a Junior Gamification Consultant; secondly, at IEBSchool taking part in the 'Master Program in Gamification and Transmedia Storytelling' as a lecturer.

As argued, what makes games especially powerful, in the author's point of view, is the direct relationship they have with psychology - a relationship supported and demonstrated by several contrasted and trustworthy theories such as Andrzej's Marcszewski's *RAMP motivational profile*, the *16 Basic Desires* by Steven Reiss or Mark LeBlanc's *8 Kinds of Fun.*

If this relationship between human psychological patterns and game elements, mechanics and dynamics is clearly established, it means that game techniques and thinking can be used to successfully promote human behaviours. Moreover, it can (and should) be done in a way that enables not only the promoters to profit from it (getting the benefits provided by the gamified system). Final users, the ones taking part in the system, are going to be positively affected as well, in terms of an increase of motivation and, therefore, of fun.

Conclusion

As argued in the Introduction, this dissertation covers both the basics of Game Design and some of the psychological theories related to fun. Therefore, '*The Revolution of Fun*' constitutes a theorical basis - the first but fundamental approach to an incredibly deep and exciting topic. Based on the fundamentals defined in this dissertation, the author aims to continue his research in the area of applied games and fun.

The second and following stage of this research process is going to be a deeper and more industry-related insight to the topic. Using the information extracted from both the first step of the research -this dissertation- and the professional experience that the author has already had, a Design Method is going to be developed. This design method aims to create a set of methodologies that make the process of designing a system where applied fun and games are implemented easier, clearer and specially more likely to be a success. A fun set of methodologies, of course.

Appendix 1   Interview Oscar Garcia Pañella

This interview was done via e-mail communication. Oscar Garcia Pañella is a Telecommunication Engineer and PhD in Computer Science by La Salle-URL, Postdoc in the ETC Entertainment Technology by Carnegie Mellon University, Senior Consultant in Gamificación and Serious Games (Cookie Box SL) and Academic Director of the Videogames Undergraduate (ENTI - University of Barcelona) and the Gamification and Transmedia Storytelling Master Program (IEBSchool).

1- Even though it might sound obvious, how would you define 'gamification'?

I'd say that gamification consists of turning a 'potential miserable experience' into a 'memorable act'. Take what you already have, within a product or service, and check where the pleasure resides. Everything can be memorable if implemented from the 'pleasure side', never forgetting what human beings really love to do in terms of motivators (dynamics) that couple with their inner interests. Game design is the clue and we shouldn't forget about a good script and the correct aesthetics, I'd say.

2- Which are the key differences, in your opinion, between a gamified system and a serious game? Do you think, as many gamification designers do (for example, Andrzej Marczewski) that a gamified system doesn't have gameplay at all?

To be honest I approach both the same way. I believe that the role of a game designer within any service or product consists of receiving a briefing that states several problems (challenges that must be addressed) from a client. Then we segment the users of that service as 'players' and we select the most suitable motivators for them to better enjoy what they are supposed to do, while they learn by discovery and 'enter a magic circle', without forgetting the rigor and the serious nature of the experience and the learning involved.

Appendix 1 - Interview Oscar Garcia Pañella

If I had to put a difference in the top of the table, I'd say that serious games are developed from scratch to serve some sort of learning, even if talking about advergames, exergames or newsgames to mention some. And gamification campaigns are designed as 'magical spells' in the top of some sort of service or product already running in most of the cases.

3- Do you think that a gamified system and a serious game are different enough to have different design processes? Or would you follow a really similar (or even identical) process?

I follow very similar protocols to design both, as I said earlier. It is about delivering memorable experiences and I do not really make any difference between a marketing, a human resources, an educational or even a banking challenge. Game design can be applied to them all.

4- Do you see storytelling as a key element in a gamified system?

Sure thing! We are not talking about games or videogames only but about books, ARGs, comics, movies and so. Cultural products that are made of a deep transmedia storytelled basis besides the best technology, a suitable aesthetic effect that has to be negotiated with the client (ans the players) and the best ruleset ever! It has to make sense, follow the player's skills, look nice and provide with a wonderful user experience.

Appendix 2   Interview Victor Manrique

This interview was conducted via Skype, so this annex is a summary of it. It was done in Spanish. Victor Manrique currently works as a Gamification Designer (Play Jugo), researches in this field (http://www.epicwin.net) and leads the Gamification Spain Meetup association.

The discussion started with a basic but fundamental question: "Even it may sound obvious, how would you define 'Gamification'?". Both of us agreed that an answer to this question would be worth a large thesis, as it was as basic as deep. However, Victor pointed some key elements to include in an hypotetical definition of the term: game elements, motivation, engagement, efficiency...

The second question I asked him was about the differencebetween a gamified system and a game (or serious/applied) game. He argued that, as Andrzej Marczewski explains, the difference between both kinds of systems is in the presence of gameplay. From Manrique's point of view, serious games and ARGs have a strong gameplay, whereas gamified systems lack it or have a weak one. A really interesting discussion came through when I explained him my point of view, consisting in identifying gamified systems as the ones that trascend to reality while serious games do not. The discussion ended as we agreed that the line between both kinds of system (and also ARGs) is that thin and diffuse that most of the times they merge and combine.

This discussion brought us to the third question, related to the design process. I asked him wether he considered that the design processes for serious games and gamified systems should be different. He argued that they should, but only when designing technological factors - the core part of the design (concept, users, mechanics...) should be approached the same way wether the final product is a game or a gamified system.

Appendix 2 - Interview Victor Manrique

After these questions about basic concepts in Game and Gamification Design, I went deeper in Manrique's speciality: Gamification Mechanics. I asked him how would he define them and in what way they were different than dynamics in his opinion. He explained that gamification mechanics are not game mechanics in their totality: they are just a part of them. "As gamified systems lack the large amount of actions games have", Manrique argues, "gamification mechanics lack this actions as well". Therefore, in his opinion gamification mechanics end to be just the components used. In other words, they are game elements.

To finish with the conversation, me and Manrique discussed about the importance of storytelling in gamified systems. As a Gamification Designer who has worked in many projects such as Social Raid, he explained that nowadays storytelling is rarely being implemented as its "economical costs scare both designers and clients. Designing a good story requires a lot of talent and resources." However, we both agreed that storytelling was a fundamental component in Gamification, and he predicted an increasing tendency to implement it in future gamified systems.

Appendix 3   Jon Radoff's 42 fun things

	Motivator	Power	Curiosity	Independence	Acceptance	Order	Saving	Honor	Idealism	Social contact	Family	Status	Vengeance	Romance	Physical Activity	Tranquility
01-03	#1: Recognizing Patterns		X			X										
04-06	#2: Collecting	X				X	X					X				
07-09	#3: Finding Unexpected Treasure	X					X					X				
10-12	#4: Achieving a Sense of Completion	X		X		X										X
13-14	#5: Gaining Recognition for Achievements				X					X		X				
15-17	#6: Creating Order Out of Chaos					X										X
18-20	#7: Customizing Virtual Worlds			X						X		X				
21-23	#8: Gathering Knowledge		X							X		X				
24-26	#9 Organizing Groups of People					X				X	X	X		X		
27-29	#10: Noting Insider References				X					X						
30-32	#11: Being the Center of Attention	X										X		X		
33-35	#12: Experiencing Beauty and Culture					X								X		X
36-38	#13: Romance							X		X				X		
39-41	#14: Exchanging Gifts				X			X		X				X		
42	#15: Being a Hero	X		X				X	X	X		X	X	X		
43	#16: Being a Villain	X		X									X			
44	#17: Being a Wise Old Man	X		X	X			X			X	X				
45	#18: Being a rebel	X		X						X		X	X	X		
46	#19: Being the ruler	X				X		X		X	X			X		

42 fun things (I), Jon Radoff

Appendix 3 - Jon Radoff's 42 fun things

Range	Item															
47-48	#20: Pretending to Live in a Magical Place		X					X					X		X	
49-50	#21: Listening to a Story		X						X							
51-52	#22: Telling Stories	X			X						X					
53-54	#23: Predicting the Future					X										
55-57	#24: Competition	X									X	X		X		
58-59	#25: Psychoanalyzing		X			X										
60-62	#26: Mystery		X										X			
63-65	#27: Mastering a Skill	X		X										X		
66-67	#28: Exacting Justice and Revenge	X										X	X			
68-70	#29: Nurturing			X			X			X	X		X			
71-73	#30: Excitement													X		
74-75	#31: Triumph Over Conflict	X										X				
76-78	#32: Relaxing															X
79-80	#33: Experiencing the Freakish or Bizarre		X													
81-82	#34: Being Silly				X											X
83-84	#35: Laughing													X	X	
85-86	#36: Being Scared													X		
87-88	#37: Strengthening a Family Relationship						X		X	X						
89-90	#38: Improving One's Health													X		
91-93	#39: Imagining a Connection with the Past		X			X										
94-96	#40: Exploring a World		X	X												
97-98	#41: Improving Society						X	X			X					
99-00	#42: Enlightenment		X	X												X

42 fun things (II), Jon Radoff

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