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Analysis on the Effectiveness of the Gamification Process

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Abstract

Gamification is the concept of applying game-mechanics and design to the non-game context applications and process to make them more engaging and effective. This concept is still relatively new and is growing and evolving at a rapid pace and the success of this concept depends on all the game mechanics that are employed. This thesis aims at analyzing the effectiveness of the gamification process in the present day scenario. To analyze this, a qualitative in-depth research is done within a multi-national organization by conducting semi-structured interviews with participants from various functions and levels. It also gives a clear understanding on the concepts of gamification and also gives an in-depth review on all the elements such as mechanics, design, etc. that go into it and the measures of the effectiveness of the process with the help of various frameworks and studies that have already been done. By reviewing the literature and the analysis of the data from the interviews, recommendations and conclusions are drawn that would help understand how to make the gamification process effective in the present day scenario and also gives insights into future of gamification.

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Abstract (Portuguese)

Ludificação é o conceito da aplicação de mecânicas e design de jogos em aplicações e processos de contexto não lúdico, de forma a torná-los mais envolventes e eficazes. Este é um conceito relativamente novo e que está a crescer e a evoluir muito rapidamente, sendo que o sucesso deste conceito depende de todas as mecânicas de jogo que são aplicadas. Esta tese tem como objetivo analisar a eficácia do processo de ludificação no contexto dos dias presentes. Para analisar isto foi realizada uma pesquisa qualitativa aprofundada com uma organização multinacional através da realização de entrevistas semiestruturadas com participantes de vários níveis e funções. Também irá fornecer uma perceção clara sobre os conceitos de ludificação, tal como uma revisão em profundidade sobre todos os elementos como mecânica, design, etc. que são aplicados neste contexto, e as medidas de eficácia do processo, com ajuda de vários enquadramentos e estudos que já foram realizados. Através da revisão da literatura e da análise dos dados das entrevistas, recomendações e conclusões foram retiradas, de forma a ajudar a perceber como tornar o processo de ludificação eficaz no contexto dos dias de hoje e compreender o futuro da ludificação.

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1. Introduction:

The word Gamification was initially used in the computer games industry. It made its path into various industries and to the everyday activities as a way of defining and formulating various processes. Originating from the concept of a change to the behavioral mindset of the user it had made all the processes involved in work, fun and effective. (Chou 2015) In simple terms, it is a craft of taking in all the fun and also the addictive elements found in the games and applying them to the processes in the real-world. It leverages game design and behavioral economics leading to the creation of an optimal context for the behavioral change leading to successful outcomes. (Engagement Alliance 2013)

The process of Gamification has been and is now used in various fields and programs in the organizations such as Information Technology, Education, Human Resources, Marketing & Sales, Rewards & Recognitions, etc. (APM 2014) It is also used in the everyday life and activities to motivate and achieve the personal challenges. One of the best example for this are the apps and websites designed for weight-loss goals, learning a new language, running trackers, etc. which help in tracking the progress of the activity bringing in the feeling of a game and making it more fun. (Merriam-Webster 2015)

The Gamification of processes is on a rise and according to Gartner by 2015, over 50 percent of the organizations that maintain and manage processes that are innovative will gamify the processes. (Gartner 2011)

In this dissertation, there is a deep study on the main concepts and the frameworks that are involved in the gamification process which gives us clear understanding on the history, design, and core drives, etc. which gives us a clear 360° perspective on all the aspects and elements that get into the process of gamification. The main analysis is done on how effective the gamification process has been in terms of behavioral change especially taking into consideration the four main measures: motivation, engagement, performance or the return on investment (ROI) and also the sustainability of the gamified process itself. It also takes into consideration the three key parameters: culture, field or department, role and position of the user in the organization. This gives us a clear insight into the effectiveness of the process of gamification in today's organizations.

2. Literature Review

2.1 Detailed Overview of Gamification

2.1.1 What is Gamification?

Gamification is defined as the process of using game thinking, game mechanics and game design principles in a non-game context to engage the users efficiently. In a business perspective, it is the process of integrating game dynamics into the services,

processes, campaigns etc. to initiate the participation and also enhance or promote the engagement. The main concept of this process influences the behavioral aspect of the users and their specific desires in terms of being competitive, successful in terms of getting an achievement or successful outcome being recognized and also influences self-expression. (Kumar, J 2013)

One of the simple and very apt definitions of gamification that sums it all up is stated by Andrzej Marczewski in his book where he defines gamification as

“The application of gaming metaphors to real life tasks to influence behavior, improve motivation and enhance engagement” (Marczewski 2013)

There were studies that were made on the defining the gamification keeping in mind the other related concepts and one of the studies defines it using the two dimensions of playing/gaming and parts/whole. The part/whole dimension has been

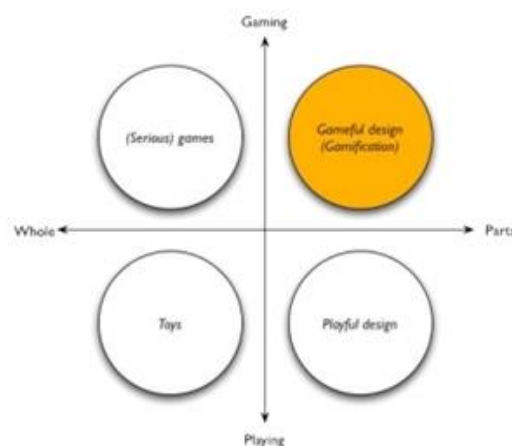


Figure 1. “Gamification” between game and play, whole and parts
Source: Sebastian Deterding 2011

used to distinguish the games in general or serious games that are present from the gamification. Playing/gaming dimension has been used to distinguish the difference between playful design and the toys. Figure 1 gives us an understanding on how gamification is defined based on these dimensions. (Deterding et al. 2011)

According to Gartner, the main goals of gamification are to get users engaged at their higher level, change their behaviors and also stimulate innovation in work and processes. (Gartner 2011). One of the conclusions that were got in the PLE conference on which aims at studying the impact of gamification in learning, 2013 were that the Gamification aims mostly at extrinsic factors of motivation especially working and targeting on those activities that the users are less or not motivated to perform. But they also concluded that it should also foster the intrinsic motivation that brings about value, which means that even if the game elements are removed from the system or the process that was gamified, the remaining contents in the system or the process should still bring about value. (Buchem 2013)

There were various frameworks and conceptual models that were designed to explain in detailed about gamification and the key core elements that are involved with it. They are explained in detailed in the later part to give a deep insight into Gamification.

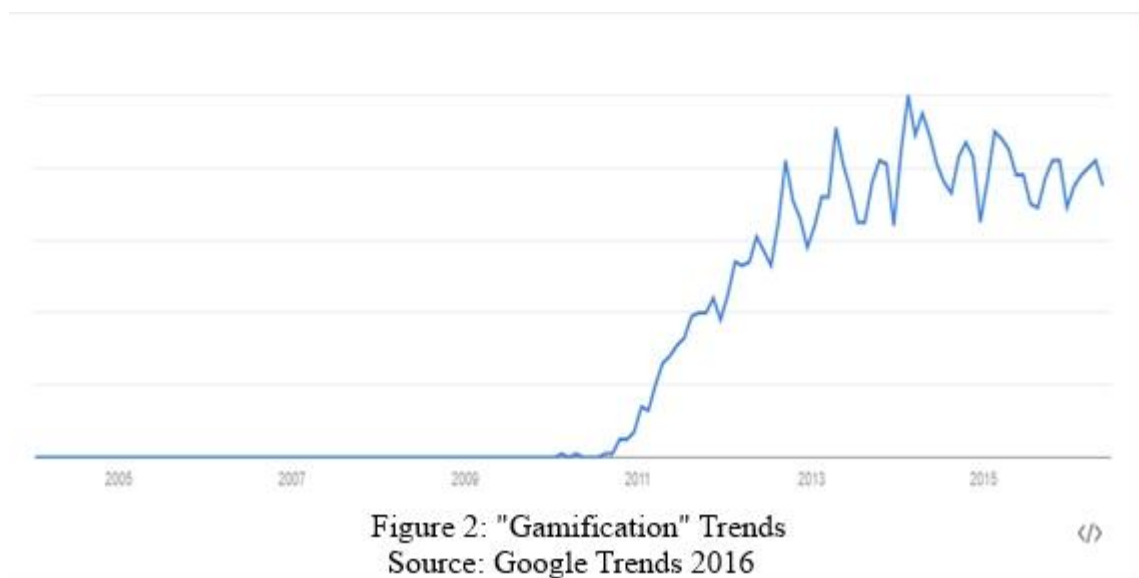
2.1.2 History of Gamification

Basically originating from the digital media and the gaming industry, the history of gamification is very recent and started getting adopted widely only from the year 2010. (Deterding et al. 2011) The word gamification was initially used or coined in 2002 by Nick Pelling, a British-born game programmer. (Marczewski 2012) He used the term to describe his work in starting a gamification consulting firm by the name of Conundra which started with a vision that every device would turn into a game. (Per Hagglund 2012) There were also various alternate terms that were used to define the concept of gamification such as “productivity games” (McDonald et al. 2008), “behavioral games” (Dignan 2011), “fun ware” (Takahashi,D 2008), etc. that were used to define it. But eventually, all these terms got contained itself into one umbrella term called gamification. (Deterding et al. 2011)

Even though it was coined as early as 2002, the first use of this term for documented use was found in a blog post by Bret Terrill only in 2008 where he covers the lobby of the social gaming summit that happened that year and one of the biggest topic that was discussed at the summit was the gamification of web to increase the engagement. (Terrill 2008) The first book that was published in 1985 that emphasizes on the concept of gamification at work place in a very conservative manner is called “The Game of Work – How to enjoy work as much as play” written by Charles Coonradt who is known as the “Grandfather of Gamification”. He was also the founder of a consultancy called The Game of work in 1973. (Krogue 2012) The first academic

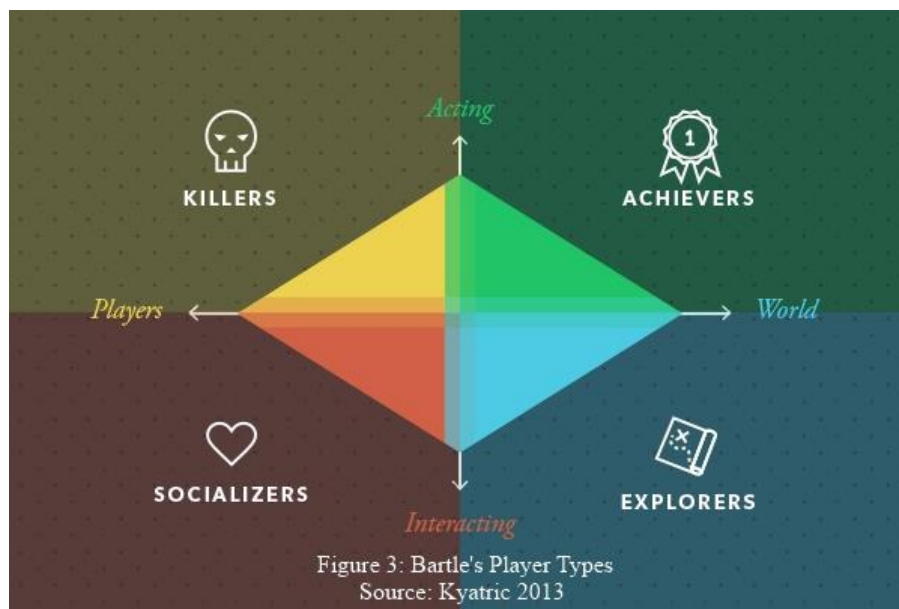
documents that got published that were around the gamification concept were also in the 1980s such as What Make Things Fun to Learn by Thomas W. Malone and Heuristics for designing enjoyable user interfaces: Lessons from computer games which aimed specifically using the concepts of gamification in learning. (Lucas 2014)

Even though the term gamification is relatively new and had better trends and interest only from 2010 on as seen in the figure 2 below from the google trends, the concepts of gamification date backs to late 1800s – early 1900s when it was first used in various marketing concepts of the organizations.



According to the Technology advice, the first known use of the concept of gamification by an organization was by S&H Green stamps in the year 1896 where it used to bring out customer loyalty by rewards. The technology advice also came up with a timeline of the use of gamification from the inception until the year 2014 which gives

a clear picture on the years, the organizations and how they used the concept of gamification as shown in the Appendix 1. As per the timeline, there was a 77 years gap until Charles Coonradt brought about this concept again in 1973 by starting his consulting firm followed by the creation of MUD1 which is the first multi user game developed by Roy Trubshaw at the university of Essex. It also captures that the rewards that are a key element of gamification were used in the 1980's to maintain customer loyalty by the American Airlines in 1981 who introduced the first frequent flyers program, Hotel loyalty program of the Holiday Inn in 1983 and also the first car rental rewards program by National Car rental in the year 1987. This followed by the video game boom in the 1990's and leading to the famous Bartle's taxonomy of the types of game users that is shown in the figure 3 below where he defines the four types of gamers. (Bartle 1996; Kyatric 2013)



In 2002, Serious Games initiative was cofounded by Ben Sawyer and David Rejeski at the Woodrow Wilson International Center for Scholars. This was originally created for tackling the challenges in education, healthcare, national defense and also homeland security and led to creation of various games even for the United States Military. (McCormick 2013)

Even though Serious Games initiative dwelled upon the concept of gamification, the main difference was that in serious games initiative the games are developed from scratch for the purpose of learning and education whereas gamification is more about taking the non-game environments and embedding game elements into it. (Griffin 2014)

After the coining of the term in 2003, Bunchball that was also backed by the company Adobe systems was created by Rajat Paharia in 2005 which was the first company that was providing game mechanics as a service. (Growth Engineering 2014) The bunch ball got its first contract in 2007 where it created the website “Dunder Mifflin Infinity”. This is a gamified website for the TV show “The Office” that drew over 8 million views in a period of six weeks. Foursquare got released in the year 2009 which is an application for social network of location sharing and also gave out the blueprint of gamification for badges, points and leaderboards but phased out of the elements of gamification in 2013. After the workshop that was done at CHI 2011 there was also the creation of Gamification research network. (Walter 2013) In 2010, the website DevHub uses the gamification in its website where a point system was used as a result of which there was rise in the user engagement by 70% and in the same year the first ever summit

for gamification takes place in San Francisco that attracted over 400 attendees. In 2012, Mozilla also starts the badges initiative to mark the accomplishments online. (Turco 2014)

Even though foursquare paved way recently for the use of badges, the Boy Scout movement that was founded in 1908 was the first to be known for using the concept of badges where scouts could earn badges as there is progress in the proficiency of various activities. The fun part of gaming was taken seriously as the time progressed in the 1990s where there were papers that got published suggesting that the one of the major requirements in the designing of the software should be the enjoyment of the user. (Draper 1999) The same year when bunch ball developed the Dunder Mifflin Affinity, Kevan Davis also developed the Chore Wars which is a role-playing game that used to give incentives for doing chores that found great popularity with people from all ages. One of the other platforms that were developed around the same time as Foursquare was BigDoor which provided solutions for customer loyalty. (Growth Engineering 2014) The gamification of education took a big step in the year 2012 where there were many organizations and also websites that were formed. Two of the main actors in this area are Khan Academy which is a non-profit organization with the main objective of providing higher education anyone from anywhere and also Code Academy website that aims at teaching computer languages for free with fun using the concepts of gamification. (Hagglund 2012)

One of the main mass market appearance of the concept of gamification was also in 1912 by American Cracker Jack popcorn that used to include a free gift in every bag that became an instant hit in marketing where there are elements of fun and reward. (theHRdirector 2014) Cracker Jack gave away over 23 billion in package treasures by incorporating a simple concept of fun and reward. There were also other instances where the gamification concept was effectively used such as the video game was developed for the presidential campaign of Howard Dean in the United States in 2003 which was produced by persuasive games and also “A force more powerful” which is a game developed by the company York Zimmerman Inc. with co-founders of Otpor in 2005 to teach non-violent resistance which also made a big impact. Even the United Nations used the principles of gamification in developing a game called Food Force that deals with equipping the players with learning to deliver aid in the warzones. It was also used by the traffic department in Sweden in 2010 where they released the “Speed-camera lottery” as a three day experiment that helped them study on the safety of drivers where there were incentives given to the drivers that drive below the speed limits leading them to a lottery. Other examples include Volkswagen Crowdsourcing campaign in China in the year 2011, multi-player game released by the United States Navy to generate ideas for fighting piracy, Foldit that is developed by the University of Washington which an online protein is folding game that helps in treating HIV and AIDS. Two of the examples that were also observed which used the gamification principles for ethically not right purposes are elements that were found in the website of the Islamic extremists called the IslamicAwakening.com to increase user engagement and also in 2012, the Israeli

defense forces used it on its website allowing users to get points for tweets leading to increased engagement. (McCormick 2013)

There are various events that are presently held in the area of gamification and its research such as the G-summit that happens every year which started in 2013 and also events such as Loyalty and Gamification World championship that started in 2014. (Loyalty Games 2014)

2.1.3 Designing of Gamification Process

When using the gamification concepts in designing a process, the optimization is concentrated on the human in the system than the efficiency of the system itself. In terms of designing a process of gamification, this is considered to be a Human Focused Design rather than Function focused design by which most of the processes are designed in the organizations now. (Beerda 2014) Gabe Zichermann, the foremost expert & respected authority in this field defines it as a “non-fiction game design”. (Gabe Zichermann 2012) From the perspective of a game designer, a game is defined as “system which players engage in artificial conflict, characterized by rules that result in a quantifiable outcome”. (Salen & Zimmerman 2004)

There were studies that date back to using the principles of gamification back to 1980s where the Grandfather of Gamification Chuck Coonradt, the author of The Game of Work states the five key principles for any gamification process. (Krogue 2012) The five principle are:

- Clearly defined goals
- Better Scorekeeping and Scorecards
- More frequent feedback
- A higher degree of personal choice of method
- Consistent coaching

Andrzej Marczewski explains gamification in a simple manner with the 5P's of Gamification which are should be taken into consideration in designing a gamification process. He also emphasizes the importance of science that is involved in terms of the neurotransmitters that are involved with the gamification that need to be considered. The main neurotransmitters that he emphasizes that lead to various end elements of the gamification process are Dopamine, Oxytocin, Serotonin and Endorphins which would be explained in detailed respectively with the parameters that they influence in the later chapters. Before diving deep into how the gamification process can be designed, there is a need to know the essentials of gamification process. The 5P's of Gamification are: (Marczewski 2015)

1. Purpose:

The component of purpose deals with three main concepts. Firstly, the implementation of the process which should have a clear and a defined purpose. Secondly, dealing with the intrinsic motivation and purpose of the user into designing it more focused on the internal motivation so that the user feels the worth of being in the system. He also explains the same in the RAMP

(Relatedness, Autonomy, Mastery and Purpose) framework. Thirdly, the users need to have a thorough knowledge of the system where the process is involved so that there is a purpose and a meaning for the existence.

2. Progress:

This brings about a sense of direction to the process which would define also define the right pace. The main elements of this include getting and giving continuous feedback, honing skills, acquiring new skills, etc.

3. Proficiency:

This plays a major role in engagement where even in this development and honing of skills play a key. It involves with more of internal motivation to do something that you love rather than just doing things to get something out of it.

4. Pride:

This also deals with the engagement through reward where the user feels pride in achieving something. It brings about sense of self-esteem which would keep the interest going for the process.

5. People:

The main and the key of the five is this where the whole process has to be built around people rather than treating people as one more entity in the system or the process. It is very important to design the process designed on what the people want and need rather than the needs and wants of the system itself.

As, the 5 P's of gamification clearly explaining the key elements of it and people being the center of everything, Janaki Kumar and Mario Herger define the designing process of gamification as "Player Centered Design" where they have come up with the process of design based on this. Even though the player centered design is based on the concepts on the user centered design, it goes beyond it which would enable meaningful engagement and change in behavior. The below figure 4 describes the approach of a Player Centered design process.

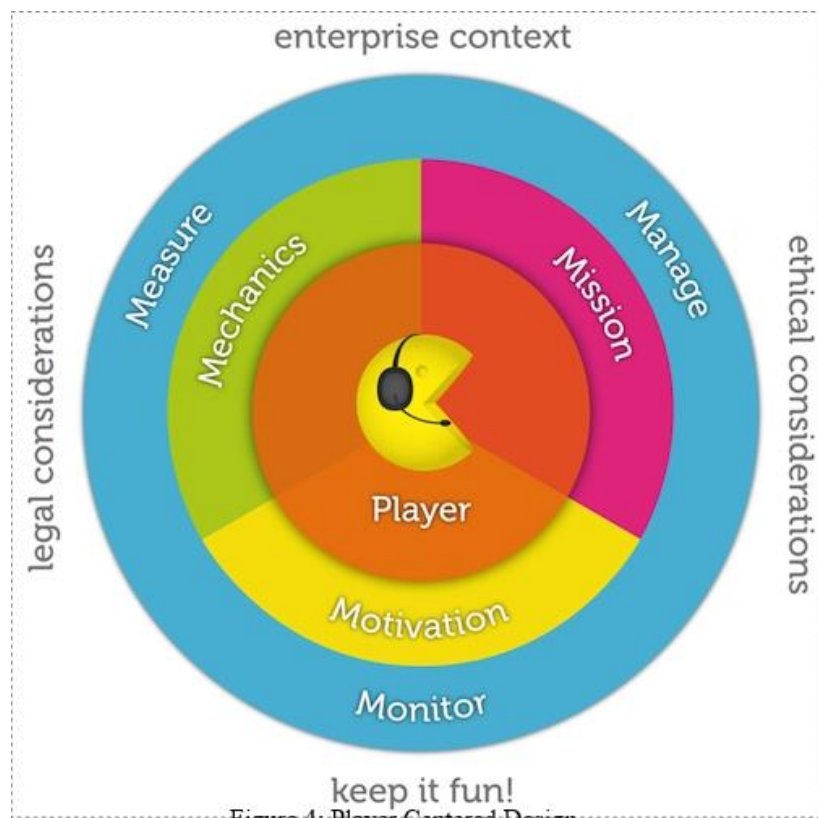


Figure 4: Player Centered Design
Source: Janaki Kumar 2013

The player centered design is very apt in terms of the gamification at work. This is designed by keeping the player at the core and also instead of having a rigid structure to the process, it focuses more on how it can be more adaptable and agile based on the needs of that specific organization with the help of the results that get monitored throughout the process. (Kumar 2013) This design is done in five simple steps:

1. Know and Understand the player:

This is the first step where there is strong analysis on the type of player and understand the context. The better the understanding of the player, the better would be the designing of the process as the player is the core of the whole system

This also brings back the importance of the type of players that Bartle's Taxonomy mentioned in the 1990s. (Bartle 1996) This taxonomy explains the type of players in the game designer's point of view which also hold true in the designing of the gamification process. (Fu 2011) The four types of players are:

- a. Achievers: These are the players whose main aim is only to move forward in the process in terms of crossing levels by gathering points, badges, etc. These are the player types who also believe in socializing where they give help and at the same time get help to move ahead. These are the players that want to act on the world or the process of the game.

- b. Explorers: These are the player types where they find delight or happiness in having the process open up its internal machinations. These are the player types, who think out of the box and also great problem solvers in finding ways to get things to work. They look at socializing in different perspective of only to gather ideas and these player types believe in discovery more than achieving something. There are also the player types who would like to and want to interact with the world.
- c. Socializers: These are the player types who are interested more in what others say than what they have to say. They emphasize on the importance of the relationships in the game and empathize with other players. These player types develop into good listeners and observers which would serve as a reward for them. They explore the process to understand others perspective and also move forward only to gain more access to communicate to more people rather than the progress in the game. For the socializers, it is all about knowing people, understand them and form strong relationships. These are the player types who want to interact with the other players in the world.
- d. Killers: These are the player types who mostly would like to dominate others and impose themselves on others. These player types who are totally opposite when it comes to socializers where

they feel the others as a threat to their progress and for example, would find their delight in killing them in the game to become more powerful. These player types are generally very aggressive at their approach, proud of their reputation and their skills. These are the player types who want to act on other players in the world. (Bartle 1996)

2. Understand and Identify the mission

Once the target group is studied, the next step is to define what the mission is going to be. This is done in three stages, understand the present scenario – what players are doing in the present, identifying and understanding the desirable or target outcomes – what the management wants to achieve because of this process, and the last stage deals with setting and defining the mission which is appropriate. One of the techniques that is used for this step is called S.M.A.R.T which stands for specific, measurable, actionable, realistic and time bound that helps in in depth analysis to identify the mission. Having a good understanding of the player in the step 1 also plays a major role in identifying the mission.

3. Understand human motivation

Once the player and the mission are identified and understood, the third step is understand the present motivation based on the context of where, when and for whom the process is being designed. There are two main categories or types of motivation which are intrinsic and extrinsic that would be explained in detailed in the later part. Intrinsic motivation refers to the inner or internal motivation of

the player such as autonomy, belonging, meaning etc. Extrinsic motivation deals with the techniques of external motivation such as money, competition, etc. Studying the motivation and understanding is one of the main keys in the designing of the process and as Gabe Zichermann stated that Gamification is more of psychology which is 75% and technology is 25%, this is considered a very important factor. (Carr 2011)

4. Applying Game mechanics

Once the player is known and the mission and the motivations are understood, this step aims at forming the core engagement loop by using various types of game mechanics which have all the game rules. Game mechanics is defined by Sicart as "elements of the game system, game hardware and player experience, mapping mechanics to input procedures and player emotions." (Sicart 2008) This literally deals with the user interface of the overall process of gamification that the player is involved in and are in continuous interaction. (Janaki Kumar 2013)

5. Manage, Monitor and Measure

Once the whole process is designed and put in place, the implementation and technology aspect of it has to be managed and monitored so that there can be changes done leading to an efficient process of gamification. All the mechanics also needs to be measured continuously which would also enhance the efficiency

as well as give more deep insight into the individual elements of the process based on the player's actions. (Kumar 2013)

This is one of the widely used designing process that covers all the elements in the gamification at an enterprise level. This brings about a meaningful play and makes the engagement loop more effective. This is the same that is stated in the gameful persuasive model to form the engagement loop. The below figure 5 shows the gameful the persuasive model which would be the case if effective designing of the process is done. (Mead 2011)

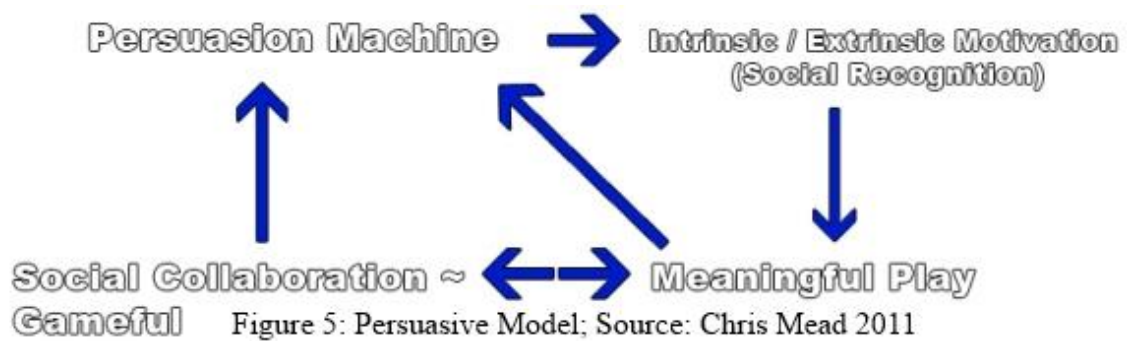


Figure 5: Persuasive Model; Source: Chris Mead 2011

2.1.4 Gamification Frameworks

There are close to about eighteen frameworks that are in existence and practiced which fall both in the categories of generic as well as business specific frameworks. (Moreno 2015) The list includes the most known frameworks like the 6D framework (Werbach and Hunter 2012), GAME and RAMP frameworks (Marczewski 2013), Octalysis Framework, etc., One of these frameworks is explained below in detailed to give a complete picture about the whole process of Gamification and the elements

involved with it. The list of these existent frameworks are given in detailed in Appendix 2.

2.1.4.1 The Octalysis Framework

One of the earlier complete frameworks for gamification was brought about by Yu-Kai Chou that gives a clear picture about all the components and the core drivers involved in gamification. This is one of the most accepted frameworks that got translated into various languages and is used as the classic teaching literature worldwide in the gamification space. (Chou 2015)

This framework is based on the concept of Human focused design which also takes into consideration the feelings and insecurities of people in the process. This is totally different in the way of approach where it optimized human motivation in the system or the process rather than the process itself. Yu-kai Chou, the one who designed this framework also takes into consideration the process how the games are designed to understand the concept of Gamification. While he was studying about how the games were in the process of designing, he made few remarks that made the gamification work. He says that

” Games have no other purpose than to please the individual playing them.. different types of game techniques push us forward differently: some in an inspiring and empowering way, while some in a manipulative and obsessive manner.

Since games have spent decades learning how to master motivation and engagement, we are now learning from games, and that is why we call it Gamification.” (Chou 2015)

The Octalysis is basically an Octagon shaped analysis framework to check and understand which core drivers are taken into consideration in the gamified campaigns, the projects or the processes that were designed. It can be used to evaluate and analyze any point or stage in the gamification process and it would give the complete picture on what is being covered. This framework puts the motivation of the user at the heart of the design. (Coppens 2014). This framework consists of 8 core drives that are placed in an octagon shape and a hidden core drive called Sensation. All the gamification processes will surely pertain to one more of these core drives. Also, the sides of the octagon, the left and the right represents the side of the brain that it influences psychologically and also the top and bottom being divided into white and black hat

gamification respectively. (Tondello 2015) Please find below the detailed figure 6 of the Octalysis Framework:

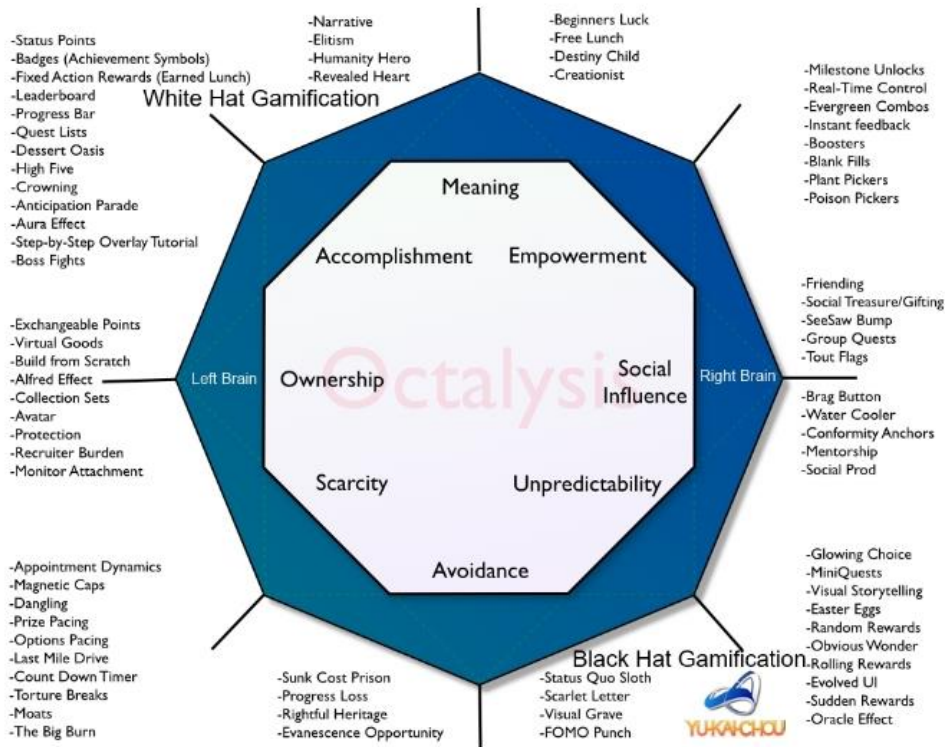


Figure 6: Octalysis Framework
Source : Yu Kai Chou 2013

The eight core drives of Octalysis framework that give a clear picture on the process of Gamification are:

1. Epic Meaning & Calling:

This is the drive that brings about a big sense of self-belief in the player in the process where he elevates himself in doing more than he can or feels as the chosen one to do it. This also addresses the feeling of luck that the player has where it brings about a sense of responsibility of being there and doing

something as the player believes that the luck plays a role and it brings about engagement and motivation.

2. Development & Accomplishment:

This is more of an innate driver that brings about enhancing skills to make progress and completing the challenges in the process there by experiences a feeling of sense of accomplishment. This plays a major role in the most of the current gamification processes designed around points, badges and leaderboards. The challenge in the process plays a crucial role as it is because of overcoming it that the player gets the achievement.

3. Empowerment of Creativity & Feedback

This drive is when there is a lot of engagement of the player in terms of their creative thought process and try new and different things. It is also when there is a lot trial and error process where the mistakes are allowed. The importance is also given not just to be creative but also to see the possible outcomes of it and work it out after the feedback is got. Most of the gamification processes built around art such as painting falls under this where different ways of the same activity is done repeatedly leading to different outcomes, feedback and response until it is achieved. This brings about active engagement as well as keeps the same activity going and keeps it fresh.

4. Ownership & Possession:

This is the drive is in which the players believe that it is their own. This brings about an innate motivation to excel and enhance the present status of the

possession and it builds exponentially when there is this sense of ownership. This is also a motivating factor in terms of wanting more to become better. This drive is a major factor in the gamification processes involving puzzles, avatars, etc.

5. Social Influence & Relatedness:

This drive is related with all the social activities of the player especially the main factor is being competitive. This involves all the social aspects such as mentorship, self-respect, social acceptance and community. This brings about a sense of belongingness to anything that the player can relate to. This is quite significant as it plays a major role in optimization where the more the player can relate to, the more the engagement and participation.

6. Scarcity & Impatience

This drive brings about the feeling of wanting something that is presently not available. As the resources are kept scarce, it brings about this impatience in the player where it motivates the player and not lose the focus about getting it when it is available at the earliest. This is one of the drive that is presently being used in most of the processes even in the daily life.

7. Unpredictability & Curiosity

This is one of those drives that keeps the player on the toes of knowing what would happen next. Because of the feeling of unknown this keeps the player engaged on continuously thinking about the activity. This is one of the drives that also has bad effects on the player in different situations as gambling, lottery,

etc. where there are high chances of addiction. But this is the drive that that many people have when watching the movies or reading the novels that lead them to think about it, be engaged and drive it to completion.

8. Loss & Avoidance

This is one of the oldest drives that comes from the saying of prevention is better than cure where the player tries to work on the activities to avoid something negative from happening. This also brings into picture the opportunities that are available at the present moment where the demand goes up for it and there is immediate action as the player wouldn't know when this opportunity would cease to exist. This can be related to simple tasks such as saving a document while working on it so that it would not be lost.

2.1.4.1.1 Left Brain Vs Right Brain Drives:

These drives in the framework on either sides of the octagon as shown in the above Figure are also divided where the ones on the left represent the left brain drives and the right represent the right brain drives. This has no significance in terms of psychology or science but serve as an easier way to relate to them. The ones on the right are more related to self-expression, creativity and also the social behavior and aspects of the player and the left are related to logic, math and a sense of possession or ownership.

The left brain drives deal the motivation that is more of extrinsic where the player is motivated because of a reward because of what was done and achieved. The

right brain drives deal with the intrinsic motivation where it is an innate feeling of the player to be content with what he does and it works as a self-reward because of what was done or achieved. This also gives a picture on how both the left and the right brain drives have to be in balance and have to work together. If the process is not balanced and works only on the left brain drives which deals with extrinsic motivation there would be loss in the engagement of the player once the reward is stopped or taken away from the process but at the same time it is needed to keep the player moving forward. At the same time even intrinsic motivation coming out of the right brain drives have to be also put into use and in fact is more important than the left brain drives as it gives the player a sense of self satisfaction and a feeling of achievement in the big picture leading to a continues engagement and progress.

2.1.4.1.2 White Hat Gamification Vs Black Hat Gamification:

The drives in the Octalysis framework are also divided based on if it has a positive impact or a negative influence of the process on the player. The drives that stand in the top of the octagon are related to positive motivations and the techniques involved with that is called White Hat Gamification whereas the drives that stand in the bottom of the octagon bring about more of negative motivations and the techniques involved with these is called Black Hat Gamification.

The drives at the bottom dealing with the Black hat gamification makes the player motivated out of feelings such as fear, uncertainty, loss of opportunity, etc. where

even these keep the player engaged but might have a negative impact on the player and also the process on a long term. These negative emotions would lead the user on a long term in leaving the system or the process easily and sometimes with great determination such as in the cases of processes that lead to an addiction. The drives on the top representing the white hat gamification keeps the player engaged because of their skill, achievement and success, creativity keeps the player positive and leads to effective engagement. Each of these techniques have their pros and cons and need to be considered in a balance to make the process productive, engaging and healthy.

Based on these techniques and the overall experience of the framework there is score given on a scale of 0-10 for each of the core drives based on which the shape of the octagon varies. These individual scores are summed up to give a final score that gives us a clear and deep insights on that specific gamification process which is being analyzed. A study was done on Facebook based on the Octalysis Framework. It is observed that the Facebook is very strong on the right brain drives which deals with deals with more intrinsic motivation as compared to extrinsic motivation. This is the Level one of the Octalysis framework formed by Yu-Kai Chou and is also extended to more levels for a much deeper insight in terms of user types and all the phases of Gamification such as Discover, Onboarding, Scaffolding and End game. (Beerda 2014) All the dynamics in this framework gives us a clear understanding on all the elements that are involved in the process of Gamification.

2.2 Measures of Effectiveness of the Gamification Process

2.2.1 Motivation & the Gamification Process

One of the main key elements of the gamification process is the motivation and even various frameworks that were mentioned earlier take into consideration the importance of motivation that gamification brings to the picture. Specifically looking at in terms of motivation at work, Harvard Business review in 2010 had revealed the results on a study that they have done on what motivated people at work. It was a study that was done over years of close to 12000 diary entries and a deep analysis was done on this data. The figure 7 below shows the results and the main conclusion that was drawn is that the workers or the employees are more motivated on those days where there is a sense of progress. (Amabile and Kramer 2010) This is absolutely true even when it comes to the process of gamification and serves as an effective measure to evaluate the process. (Kleinberg 2011) The same was found when Forbes stated that Groupon was one of the fastest growing companies and the reason for that was the game mechanics and dynamics that were used in their online website which shows a sense of progress as well. (Steiner 2010)



Figure 7: Employee Motivation Survey Results
 Source: Harvard Business Review 2010

Groupon used all the elements of online games and there has been a study that was done by Nick Yee that gives us the results on the 3 main components that brings motivation in online games which are achievement, social and the immersion components. This study also took into consideration the Bartle's taxonomy of player types. The below table gives us a broader insight on all the three components and also the sub-components that are involved in the three components of motivation. (Yee 2006)

Achievement	Social	Immersion
Advancement - Progress, Power, Accumulation, Status Mechanics – Numbers, Optimization, Templating, Analysis Competition – Challenging Others, Provocation, Domination	Socializing – Casual Chat, Helping Others, Making Friends Relationship – Personal, Self-disclosure, Find and Give support Teamwork – Groups, Collaboration, Group Achievements	Discovery – Exploration, Lore, Finding Hidden things Role-Playing – Story Line, Character History, Roles, Fantasy Customization – Style, Appearances, Accessories, Color Schemes Escapism – Relax, Escape from real life, Avoid real life problems

Table 1: Main & Sub components of Motivation; Source: Yee 2006

Even though this study focuses on online games, will hold true even for the gamification spectrum. As the effectiveness of the gamification also bases itself on the psychology of motivation, before we dive deep into the effect of gamification on motivation, there is a need to look and understand the motivational theories that gives us a clear insight on human motivation. Maslow’s hierarchy of needs is one of the models that talks about the needs of human which lead to motivation accordingly. (Griffin 2014)

Maslow's hierarchy of needs is triangle model which was first introduced in the year 1943 by Maslow in his work called a theory of Human motivation. This model comprises of 5 steps in it, the first step which is at the base of the pyramid is the physiological needs which deals with the basic necessities such as food, water, shelter, etc. The second step after all the basic needs are met is the security needs which deals with protecting the basic needs that are acquired. It is also observed that that this need is less aware in adults but in children, it is seen more prominent in terms of feeling insecure and a need to be safe. The first two steps are more of a personal needs and this leads us to the third step which is the love and belongingness needs or can also be termed as social needs that deals with interaction, relationship with other people that brings about a sense of acceptance. This also involves both taking and also giving the love, affection and also the sense of belonging. (Jerome 2013) The fourth step is the esteem needs that deals with the status and recognition that brings about a value to the player in feeling important and respected for the work that that the player does in the group or community. This also deals with the approval of the other members in the community. (Kaur 2013) The fifth and the last step of that is at the top of the pyramid is the self-actualization needs which deals with the belief of achieving something. This is a very personal, more about self and internally motivated which doesn't need to have any external signs. It is also observed that the first four levels are more of deficiency needs that are needed for the well-being of the person and last level is a growth need. (Martin and Joomis 2007)

This Maslow's model is based on only the needs and not the wants of the player. It is an ascending approach from the base, the first step to the top which is the fifth step where the previous step has to be fulfilled to move further. Pink further explains Maslow's model and states that except for the last step which is self-actualization that comes from the intrinsic motivation, all the other steps are automatically fulfilled. (Wu 2014) To achieve this step, Pink states three factors that are needed which are purpose, mastery and autonomy. Both Pink and Maslow state that motivation is totally based on the needs of the player and these things when put into game mechanics can make wonders as this is the core of the process of gamification. (Griffin 2014) There were also studies that gave clear idea on all the motivational theories to the human related needs. The models that were taken into consideration are Maslow's and Pink's coded as M & P respectively which were discussed earlier, Reiss profile that talks about the 16 basic desires which is coded as R (Reiss 2004), Herzberg's two factor theory that specifically talks about factors of job satisfaction and dissatisfaction which is coded as H (Herzberg 2008), McClelland's Need theory which talks about achievement, power and affiliation from a managerial context which is coded as C(McClelland 1978) and also Deci and Ryan's self-determination theory which is coded as S that talks about competence, autonomy and relatedness. (Deci and Ryan 2000) Below is an extract of the table that shows us the human needs mapped to the motivational theories: (Thomas and Stefan 2014)

S.No	Human Needs/wants	Mentioned in (Models)
1	Social Exchange/Belonging	R M H C S
2	Image/ Recognition	R M H C
3	Influence/ Power	R C
4	Competition/ Status	R H C
5	Achievement/ Reward	M H C
6	Mastery	H C P S
7	Self- Expression	M C
8	Relevance/ Purpose/ Idealism	R M P S
9	Autonomy/ Independence	R C P S

Table 2: Human Work Related Needs; Source: Thomas & Stefan 2014

This gives us a clear understanding on all the factors of the human motivation which is a key in the gamification process. (American Library Association 2015)

S.No	Player Type	Motivated by
1	Player	Extrinsic Rewards
2	Socializer	Relatedness
3	Free spirit	Autonomy
4	Achiever	Mastery
5	Philanthropist	Purpose

Table 3: Bartle's Player Types – Motivation; Source: Marczewski 2013

It is also necessary to map the types of players to how they are motivated. Marczewski uses the Bartle's taxonomy of players to map them to the motivations. The below table gives a clear picture about it: (Marczewski 2013)

All the motivation theories that define the needs by which different players are motivated brings the context to two main types of motivations – Intrinsic and Extrinsic motivation which play a major role in the gamification process. The intrinsic motivation is in an internal motivation of a person which is about doing something because of the innate interest about doing it where extrinsic motivation is an external motivation factor of a person where the player or the person is doing something because it is leading to an outcome. (Ryan and Deci 2000; Richard and Edward 2000) A few examples of intrinsic motivators in terms of gamification include learning, mastery, meaning, love, curiosity, belonging, autonomy, etc. and for extrinsic motivation are badges, competition, fear of failure, fear of punishment, gold stars, money, points, rewards, etc. (Kumar 2013) Intrinsic motivation is more about the self and not based on the world around but extrinsic motivation is driven by all the elements of the world around. There are various old beliefs and claim that the intrinsic motivation is more important and is more meaningful on a long term compared to the extrinsic motivation in the case of gamification to be efficient it is needed to align the extrinsic rewards with the intrinsic motivation so that all the player's motivation states are accepted as they are and the process is designed accordingly. This will bring in a good and balanced extrinsic motivation which would lead to the intrinsic motivation of the player where the player

finds meaning to be a part of the gamification process. (Zichermann and Cunningham 2011) One more important thing to note is to design the process in such a way that it is not totally dependent on the extrinsic rewards which are more of a utilitarian when compared to the intrinsic that are more hedonic to avoid the long-term negative effect of this on the gamification process. (Kim 2015)

This gives us a deep insight into a player's motivation that is one of key objective of gamification that would help measure the effectiveness of the process itself.

3.1.1 Engagement & the Gamification Process

Once there is a clear understanding of how to keep the player motivated to get into the process it is also important to keep the player engaged. Engagement plays the next key to the gamification process that also defines how effective the process has been. Few of the main concepts that need to be understood for getting an insight on the engagement of any player are Lombard's concept of presence and the Csikzentmihalyi's flow model. The Lombard's concept states that there is always an illusion that is created by the mediated process where in this the gamification process is not mediated. (Lombard 1997) This actually is true in terms of players where they get disconnected between their actual reality and get immersed into the virtual reality of the process that they are involved in. This can be clearly understood by studying the flow model. The flow model gives the emphasis on how the players get totally involved and immersed in the process thereby entering into a flow zone and nothing else is considered important

except for the experience that of the process. (Anderson 2012) Please find below the figure of the flow model which takes into consideration the skills and the ability of the player to the level of challenge in the process.

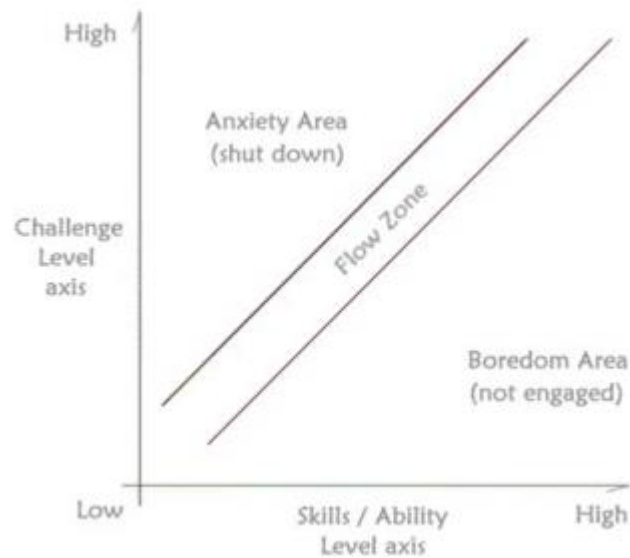


Figure 8: Flow Model; Source: Csikzentmihalyi, 1990

Both of these factors have to be accounted at a balance to achieve the flow zone where is the challenge is higher and skills of the player of less leads to an anxiety area and the process collapses and also the flip side being high skill and less challenging activity that leads to a boredom. Both of these, boredom and anxiety would lead to the failure of the activity. (Csikzentmihalyi, 1990) The key even for the gamification process to be more engaging is to maintain the flow zone by taking into consideration the balance between how challenging the process is designed and also by understanding the skills and abilities of the player. (Philips 2014) There have also been observations

that the external factors such as feedback also brings an impact on the flow zone which needs to be considered while designing the process of gamification. (Hamari & Koivisto 2014)

The main instrument that is used in terms of design to achieve the engagement to use various types of effective mechanics. There are three categories of game mechanics which are behavioral which are designed focusing on the way that the player behaves, feedback that makes the continuous engagement loop working and the progression which gives the structure for the process and also makes it possible to track the activities and leads to accumulation of all the meaningful skills achieved during the process. The below table gives us a clear understanding of the game mechanics that can be used mapped to the category that they belong to and the player types involved with it. (Gameswiki 2014)

Category	Game Mechanic	Personality type
Behavioral	Behavioral Momentum	Achievers, Explorers, Socializers, Killers
	Blissful Productivity	Achievers, Explorers, Socializers, Killers
	Community Collaboration	Achievers, Explorers, Socializers
	Discovery	Explorers, Achievers
	Epic Meaning	Achievers, Explorers, Socializers, Killers
	Free Lunch	Achievers, Explorers, Socializers, Killers
	Infinite game play	Achievers, Killers

	Loss Aversion	Achievers, Explorers, Socializers, Killers
	Lottery	Achievers, Explorers, Socializers, Killers
	Ownership	Achievers, Explorers, Socializers, Killers
	Status	Achievers, Explorers, Killers
	Urgent Optimism	Explorers, Killers
	Virality	Achievers, Explorers, Killers
Feedback	Appointments	Achievers, Explorers, Socializers
	Bonuses	Achievers, Explorers, Socializers, Killers
	Cascading Information theory	Achievers, Explorers, Socializers, Killers
	Combos	Achievers, Explorers, Socializers, Killers
	Countdown	Achievers, Explorers, Killers
	Quests	Achievers, Explorers, Killers
	Reward & its schedules	Achievers, Explorers, Killers
Progression	Achievement	Achievers, Explorers, Killers
	Levels	Achievers, Explorers, Killers
	Progression	Achievers, Killers

Table 4: Game mechanics – Player types; Source: Gameswiki 2014

Adding a few more to the ones above, some of the important game mechanics relevant to the designing of a process for enterprise gamification that help in the engagement are explained in detailed below: (Kumar 2013)

- Points – These are basic units of measurement of the progress in the process. All the actions that are taken by the player in the process can be associated with points.
- Badges – To bring about a sense of achievement, badges are used to award players once they reach a certain number of points based on their actions. They are related to extrinsic motivation which gives a positive motivation. This is one of prominent mechanic that is specifically used in all the online websites bringing about a more personal and valuable community. (Peters 2011)
- Leaderboards – To bring about a sense of competition, by displaying the ranking of the players that are in the process based on the points and badges. This is one of the social aspect of the game mechanics. This is one of the element that has to be handled with extreme care as this gives the overall details about the whole process. (Staubitz 2014)
- Relationships – Players are given options to create a profile and allowed to socialize within the gamified process which is also social aspect of the process leading to the motivation of connection.
- Challenge – Various challenges are incorporated into the design of the process that bring about a sense of meaning. This is one of those mechanics that deals with the motivating the players to act to achieve something.

- Constraints – Various constraints are also embedded within the design to such as deadlines. These help in bringing about a sense of urgency to positively motivate the players to act and be more productive. This is made with urgent optimism which leads to extreme self-motivation.
- Journey – This is an element of the design that makes the player believe that there is a personal journey of self being present in the process. This can be implemented in various ways at various processes in the organization such as Onboarding where a new player in the process is tagged to this that help the player understand the features and functions to motivate the player to start the journey in the process. Scaffolding, which helps the new players in limiting their mistakes or errors by leading them to a positive accomplishment. Progress which is basically the process of getting a feedback of the journey of the player bringing about a sense of encouragement.
- Narrative – This is one of those mechanics where the player is brought into a built in story of the game where the main objective of this specific game mechanics element is to let the player do the action without knowing about it explicitly.
- Emotion – This brings about a sense of inspiration for the game where elements such as design, quality and content are made with high sense

of emotional quality within the design will positively enforce the player to be engaged emotionally.

- Game rules – Once the desired mechanics are put in place in the gamification process, the rules are framed for actions, points, achievements, etc. which will define the whole process.
- Engagement Loop – By using the game mechanics and providing feedback loop gives a sense of positive motivation to the players to be more engaged in the process and make progress.

These are some of the game mechanics that play a crucial role for the engagement of the players. One more important factor that has to be taken into consideration are the resources that game provides that would help build the connection between gamification and the workplace engagement. All these put together at an enterprise level will lead to personal growth and development, reduce the demand in the job and also help in achieving all the goals. (Kent 2015)

Once the game mechanics are put in place, there are five ways in which the engagement can be measured. Recency which gives a picture about the average time gap between two consecutive activities, Secondly it is frequency that gives us the quantity on the number of times an activity is done by the player in a certain period of time, Duration that gives the time taken to participate in any given activity, Virality that helps understand the rate at which the activity moves on from one player to the other and the last way is by ratings that gives the customer ratings. (Fu 2011)

3.1.1 Performance & the Gamification Process

By knowing the effective ways to bring about motivation and engagement of the players and implementing them in the process of gamification leads to change in behavior and enhance the performance. One of the models that helps in understanding the behavioral change is the Fogg Behavioral Model. According to Fogg, there are three elements that are needed to bring a behavioral change which are motivation, ability and a trigger. It is also believed that the failure for a change means there is a one of these three elements missing in the process. The figure below shows the Fogg Behavioral model.

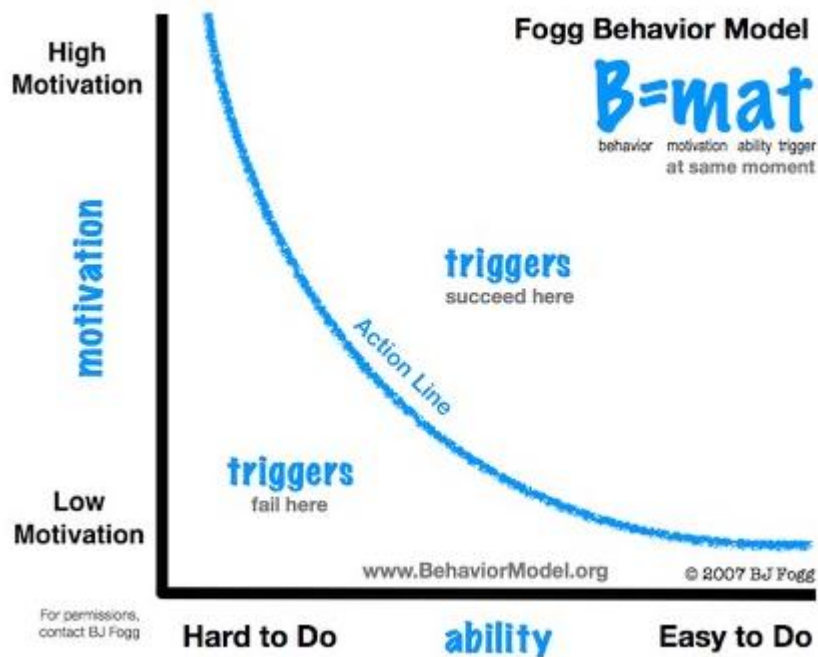


Figure 9: Fogg Model; Source: Fogg 2007

The action line that is represented in the graph has an effective behavioral change if the three elements are balanced optimally. This elements of the model have subcomponents that help in identifying the factors that are involved in a specific behavioral change. There are three core motivators for motivation which are pleasure/pain, hope/fear and social acceptance/rejection; six simplicity factors for ability which are time, money, physical effort, brain cycles, social deviance and non-routine and also three types for the triggers which are facilitator, spark and signal. This model also gives a clear picture that the ability and the motivation are indirectly proportional where a high motivated player doesn't need a higher ability and vice – versa. (Fogg 2007)

The most important factor that increases the overall business performance is the engagement of the employees leading to a better customer experience. (Bunchball 2016) Taking the model of Fogg into picture in the enterprise gamification space to improve performance of the employees, Chuck Coonradt who is also known as the Grandfather of gamification states that “*Gamification should be something done with employees, not to them*”. (Buckner 2014) There are various researches and surveys that were carried to out to measure the effectiveness of gamification in the organizations to increase the performance or the productivity of the employees. According to the research that was done by the corporate leadership council, the higher-committed employees of the organization try to work harder which are at 57%, perform better which constitute 20% and there is more retention and loyalty to the organization that is

87%. (Corporate Leadership Council 2004) Forrester through the research also confirms the fact that higher employee engagement ratings would lead to higher profit margins. But the survey that gives us a clear picture that there is a lot of room for improvement in the performance through effective engagement is done by Gallup where it shows only 13% of the employees are engaged at work and of the remainder of the 87%, over half of them constituting 63% are not engaged and 24% are actively disengaged. (Gallup 2013) There was also research that is done that shows that by using gamification there was an increase in productivity for over 90% of the employees and increase in the awareness by 86%. The main outcomes of the process of the gamification according to the survey were desire to be engaged at 30%, inspired to be productive at 27% and focus at work and avoidance of distraction at 20%. This also shows the importance of gamification to improve performance and it is also important to note that only 31% of the employees are motivated by extrinsic factors such as money, salary or rewards and 69% are motivated only by the payout which is emotional such as job satisfaction, better performance, etc. (Badgeville 2015; CiscoConnex 2016)

The main business impact on engagement leading to the higher performance is mainly concentrated on the rewards that leads to engagement, retention and also with an effective on-boarding process. According to a Globoforce report 71% of the US workers that get rewards for the work done are more motivated and engaged and more likely to have employer loyalty. (Scott Buchanan 2013) The three main components that need to be taken into consideration in the designing of the gamification process to

improve performance are keeping it simple, more personalization and focus on the results and feedback. (Apparoud 2014; Ethan and Shirley 2014; Mills 2014) One of the components that was very discouraged in terms of performance improvement was the leadership boards where it is observed that because of this 80% of the employees get disengaged. (Buckner 2014) But on the flipside, these boards when used by the management would know the better performers and also the influencers thereby increasing productivity and helping in the growth and development of the organization. (Elkins 2016)

Considering all these facts from the researches and surveys into consideration it can be concluded that gamification is one of effective ways to improve employee engagement leading to increasing productivity and improved performance. To foster this the gamification process and to maintain a balance, there are three main aspects to be looked at which are neurobiology, expectancy theory and goal theory. All these three are interconnected but it starts with the science where because of the triggers as stated in the Fogg model there will be an increase in the dopamine levels from the sense of excitement and as there is progress that is achieved by exploring the process. This leads us to the next aspect, expectancy theory which is a formed by neurobiology and the rewards that were obtained because of the progress in the process. Expectancy theory works on three key elements which are expectancy, the belief to achieve the desired outcome and the effort that is put will lead to the performance level in achieving that, instrumentality which is the belief that if certain things are met the desired outcome will

be achieved and lastly valence which is the value on the desired outcome based on personal needs. This leads us to the last aspect which is the goal theory that is a combination of goal theory with continuous gratification. Goal theory is a concept that believes in achieving something big by solving complex problems one step at a time. By using all these aspects in a balanced way in the process of gamification leads to an improvement in the performance which would serve as a measure of one of the effectiveness of the gamification process. (Walz 2016)

3.1.1 Sustainability & the Gamification Process

The last measure of the effectiveness of the gamification process is sustainability of the process itself. The main failure of this process of gamification happens because it is designed very poorly. The Gamification like many other processes is not a one size fits all solution and has different aspects to it which have to be looked at carefully to achieve the desired outcomes. (Phan 2014) This also brings about the sense of the process looked at it in a long term perspective which is also stated by Kris Duggan who is the founder of the gamification platform Badge Ville *“Gamification is not a project...it’s a program that gets invested in for the long-term. Those that understand that see the most impactful and meaningful results”*. (Zichermann 2013) There are various aspects that fall into making the process of gamification sustainable that are explained by in the book Gamification at work and also the framework that stands this is the SGI framework that stands for Sustainable Gamification Impact framework which would be analyzed in detailed to understand this measure.

The SGI framework is basically drawn from Flow theory of Csikszentmihalyi, Pinks elements for driving motivation and also Self-determination theory by DiTommaso which is a psychological theory. (Samuel Kenyon 2011) As shown in the figure below of the framework it involves five main elements:

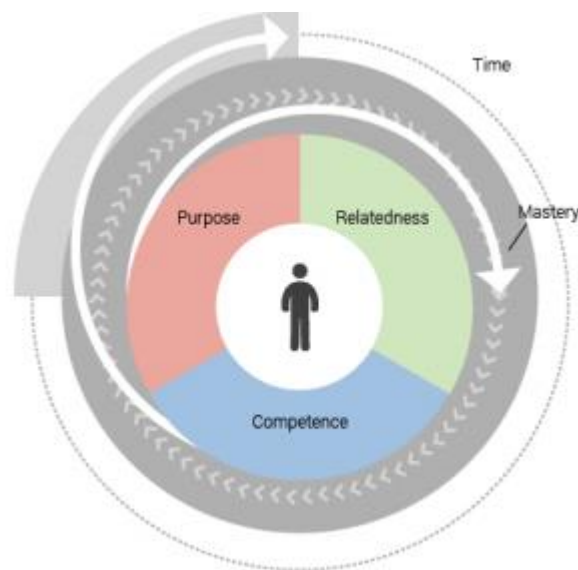


Figure 10: SGI Framework; Source: Csikszentmihalyi 1993

The first element of this framework is flow which by definition as explained earlier is the how a player gets involved in an activity. This is very important in terms of sustainability of the process as it deals with the four main components which are control, attention, curiosity and intrinsic interest. This also brings in meaningful goals, feedback, focused concentration and also autonomy into the process. (Csikszentmihalyi 1993). The second element is relatedness which can be defined as the basic need of the player in the process

to interact with the others. This brings all the social activities that the player does in the process in a meaningful way. (Groh 2012) As Lazzaro clearly explains why we play games and the importance of social interactions in it is very important, this relatedness element plays a key role in bringing the sustainability of the process as it brings in social context, autonomy and also competence into picture. (Lazzaro 2004) The third element is the purpose which tells about the sense of self fulfilment by being in the process for the overall achievement. According to Hamari, in gamification the best way to apply a sense of purpose in the process is to transform the approach of utilitarian to hedonic. (Hamari 2013) In this framework it refers to meaningful and customizable goals and also forming the feedback loops that are relevant and all this being considered in terms of achieving the users goals. The fourth element is autonomy which is basically the feeling for the player of having self-control. This is needed for a sustainable process as it brings in control and enjoyment that will enhance the intrinsic motivation. This leads to the last element which is mastery that deals with desire of getting better at the activity that matters. This helps in bringing suitability as the player always aims to be better and by including the patters that are time based, tracking of progress, engagement that is social and emotional through curiosity and fun which would lead to enhance the mastery. (AlMarshedi, Wanick and Ranchhod 2015)

Janaki Kumar and Mario Herger also explain three aspects that need to be considered for a sustainable gamification process which are managing the mission that involves periodical evaluation and adapt and change if needed, monitor player motivation which is important for player engagement and delight and if handled well would deal with the concern of player fatigue. The third aspect is measuring the effectiveness of all the game mechanics used in that particular process which is the key performance indicator of all the users. The big data that is collected here helps in the analysis of patterns that are not effective which would help in changing the process accordingly. The other important elements that are necessary for the sustainable process that were got from the research of the SCN which is the SAP community network include designing and defining of metrics, rules and effective monitoring, deal with cheating, provide periodic positive reinforcement and also be ready for unintended consequences. (Kumar and Herger 2013)

This also brings into picture the transition from Gamification 2.0 to Gamification 3.0 to where the process is presently headed towards for more sustainability. The Gamification 3.0 is a combination of the traditional gamification and the social and insight driven experience of the Gamification 2.0 where this also gives importance to big data analysis, neuroscience, etc. which leads to more of a personalized and contextual experience. The below

figure shows the evolution of gamification which is making the process more and more sustainable. (Rao 2014; Kuo 2013)



Figure 11: Gamification 3.0; Source: Rao 2014

2.3 Analysis Parameters of the Effectiveness of the Gamification Process

The Analysis parameters which that are used for studying the effectiveness at various levels were department or function in the organization, position or level of the employee in the organization and also the culture. These are one of the key elements of the Gamification 3.0 as mentioned earlier which is more personalized taking into consideration the players department or function and also the position or level of the player and also the culture which gives the context to it. Research is being done on these parameters and how it effects the overall effectiveness of the process of Gamification.

2.3.1 Department or Function in the Company & Gamification

Knowing the target audience is very important in designing any process and is the same even with the process of gamification. The target audience can be customers, users, employees, etc. (Leadtail 2013) To be effective the strategy for gamification is to know and understand the target audience and the first step to it is finding the persona of the target group. It is also necessary to view the process from the player's point of view. (Meister 2013) One of the main aspect of persona of the player is function or the industry that the player belongs to. This is a very important aspect because of the unique norms and practices that the industry has. The motivation pull and also the mechanisms and the game elements would be different for different target groups as they have different goals to achieve. (Michael, Jan, Heinz and Markus 2013) All of these have to be taken into consideration especially also the competitive element while defining the process of gamification to be effective. Even if it is the creation of the process that goes across the functions it is important to know and understand various target functions so that it will give transparency to the process and also help in defining the common vision. (Kumar and Herger 2013)

Gamification is being used in various industries and the related functions in the organization such as Education & Training for making the implementation and delivery more fun and effective, Human Resources for recruitment, onboarding processes and also in process involved with employee engagement, Marketing & Branding such as customer loyalty programs, etc. (Badgeville 2012; Onpoint digital Inc 2015; Forbes

2012) It is also believed that the other organizations or industries that should be using gamification where it would be effective is healthcare, government and the environmental movement. (Watson 2015) Organizations are using the game mechanics for not just for effective participation but also for solving problems of the organization. (Ambuj 2012) Based on the goals of each industry even the game mechanics that are being used differ as they need to also drive different types of behavior. For example, in a low skilled function or department it is easy to use scripted game design which is simple where the motivation comes from recognition that comes out achieving more quantity of work or making the process more challenging to motivate the low skilled workers to become better in the sense of mastery. The same in knowledge work or high skilled workers emergent game structures are preferred and are used in relative to scripted game structures. This structure deals with definite rules, goals, tools and an environment of play but the actions that is supposed to be done is not scripted keeping the end result unknown. This involves more of exploring with unknown end result but working towards a specific goal. (Burke 2012) Already many organizations have a gamified solution present which would help in different business functions addressing different target audience. The main challenge that they face is how to leverage gamification with the specific skills that are there and also are required for that specific function or business area or project.

The key for the effective gamification in different functions is also understanding the KPIs which stands for key performance indicators, balanced

mechanics and also have meaningful rewards. Mechanics deal with the competition and progress where the functional goals have to be considered while framing them, meaningful rewards deals with the incentivized progress and here it is important to understand the target audience from different functions or departments as the motivation might not be the same for all the functions. Thirdly the KPI's which serve as measure for achieving the goal need to be set carefully where the efficiency of the employee differs based on the work allocated in the function it is related to. (Erich 2015)

2.3.2 Position or the Level of the employee in the Company & Gamification

The position and the level of the employee also affects the effectiveness of the process of gamification. In other words, the generation gap between the employees in an organization affects the overall performance and one of the ways in which the organizations are dealing with is implementing the gamification processes as it can tap into the competitive nature of all the individuals. This is becoming very important as with increase in the digitalization of the businesses, the traditional processes are getting out of date and are becoming dormant paving way for new technologies. Even though this is increasing the overall productivity of the organization, it might still alienate more experienced employees in the organization who are still comfortable and used to the old ways. An environment that is gamified is believed to be effective in building this gap. (Pepijn 2015) One of the examples for this specifically in the health care industry is of AETNA where they used an online social game to improve the wellness and the health of their employees and also the online courses in the insurance company Allstate that

helped employees understand the risks of privacy and security online. Mixed reviews were observed where the entry level employees are more comfortable with the concept and the experienced but the gamification factor increased the overall participation and engagement. (American Hospital Association 2014)

According to the ASTD – American Society for Training and Development and Social Scientist for Organizational Change David Maxfield, it is observed that the productivity is weakening in the organizations in America because of the unresolved issues between the various levels of employees from different generations and there is a loss of close to 12% of the work week. (Sherwood 2014) By 2020, 50% of the work force will be comprised of the younger generations which will cover the entry level and the mid senior positions in the organizations. Considering this, it is very important to understand the younger generation's interests, different motivations and goals between the younger generation and the senior level employees to design any processes and especially the gamification processes that are being catered. (Connor 2015) It is also very important for gamification to consider the different levels of generations and levels of employees as a survey that is done by the Badgeville in a varied levels of positions comprising of 60% of managers, 20% of mid-level employees, 16% of executives and 4% of entry level employees showed that 91% of these employees believe that gamification improves their work and experience. (Badgeville 2015)

Based on a study, the various generations that currently has their presence in the work place are categorized into three, Baby boomers that are in age range between 49

and 57; Generation Xers that fall in the age range of 34 to 48 and the Generation Y and millennials that fall in the age category of 13 to 33. This can be related to the position or the level of the organization as Millennials being the entry level and the mid senior; Generation Xers at the Managerial positions and the Baby boomers at the senior executive positions. The various concerns that these generations face are that Baby boomers comprising the senior management are concerned that all the other employees lack discipline and focus. They also think that the entry level employees lack commitment. Gen Xers comprising the managers think that the senior management is very resistant to change, incompetent and lacking in creativity and the entry level or the millennials arrogant. The millennials also think the same about the senior management as the managers where there is slow response, resistance to change, and also insensitive. The entry levels also think that the managers are slow to respond and have very poor problem solving skills. The study also found that when resolving these differences the younger employees hesitate to hold the older employees accountable, more experienced employees had issues with temper and entry level were the least confident in the ability to handle difficult conversations of conflict. (Sherwood 2014) In a survey that was made, 63% of millennials, 73% of the Gen X and 53% of the Baby boomers were fine with making everyday activities more like a game. (Boudinet 2015) It is also observed that the Gen Y or millennials are familiar with technology, the social efficacy and also the social capital is easy to design for the millennials as it can be achieved both through virtual and physical rewards. (Front Psychol 2015) Zichermann emphasizes on the fact that there should be a clear understanding on what every level or generation makes while

the designing of gamification process is done. (Duleep and Max 2014) Gal Rimon states that in reality workforces are always a cross-generational affair and gamification would work for all the generations and level of employees since game mechanics always are adaptive based on the context. The same was the case when it was tried in various organizations such as KPMG where it there was 21% increase in the process goals that it was used in. (Rimon 2015)

There were various key elements and factors that were observed when the gamification was used in the context of engaging various levels of employees in organization such as SAP, Microsoft, Nitro and including KPMG, etc. The main elements that all of these processes had to consider in the process of gamification and implemented were transparency, Goal setting, competition, levelling up, adjust and check behaviors, team building and collaboration thereby building also effective communication leading also to conflict resolution. (Bunchball 2012; Meghan 2013; Jenkins 2015)

2.3.3 Culture & Gamification

The third main analysis parameter is the context of the culture of the employee and organization and its take on the effectiveness of the process of gamification. Culture is one of the difficult terms to define and according to Hofstede it is defined as collective programming of mind that distinguishes the members of one group or category from the other. Culture is more of a learned than an inherited part of an individual which is

balanced by human nature on one side and also the individual's personality. Hofstede also describes culture as it is the software of the mind. (Hofstede 1996) It is also a shared and learned phenomenon. According to Huizinga and Caillois who researched on the game studies and culture to find a relationship between them, there were three main areas that the studies revealed. They are representation of culture and different cultural groups in the games, appropriation that was done among various cultural groups with the video games, development of subcultures. (Huizinga 1995; Caillois 2001; Spencer-Oatey 2012) This shows the importance of culture in the individuals and also the how it is associated to the culture of games.

With organizations growing more international and having a multi-national work force collaborating with each other from different cultures, it is important to understand the cultural differences when designing the process of gamification. It is very to note the different cultures need different adaptation of games based on the context to be effective. (Kuip 2012) As gamification works on the concept of persuasive design making it more engaging it is important to use these techniques consistently keeping in mind the cultural beliefs, using element of it thereby bringing about a change in the attitude and behavior. On analyzing the literature on various cultures that are involved in the process of gamification in an organizational context, it is observed that there are three specific cultures that will eventually define the effectiveness which are the personal culture of the employee, organizational culture and its values and the culture of game and the process itself. Organizational core values and culture become a

mandate in most of the gamification efforts that is done within the organization. (Cognizant 2015; FEEK, Pécs 2014) There are also science that is attached to different cultures on how each culture responds to different stimuli. This becomes a major aspect to be considered specifically in terms of how the competition is handled and maintained by the players from specific culture leading to the engagement.

Herger explains how some players can be hyper-competitive while some others fail when exposed to the same stress. These groups are represented as warriors who see a challenge as an opportunity and the other group is the worriers which see the fear of losing and wouldn't take the risk when both of these groups are exposed to the similar activity. The prefrontal cortex region of the brain is responsible for differentiating thoughts that are competitive and tries to resolve them and Dopamine is the neurotransmitter associated with this. This one other words is also known as reward transmitter and when in extra amounts of this leads to overactive state called overload. The enzyme COMT which stands for Catechol-O-methyltransferase is produced by the body to regulate the dopamine that is present in two types which act at different rates fast and slow. Relating this to culture, among Europeans 50% have both forms of enzyme and 25% have the fast one and the rest have the slow type which constitute the rest 25%. Relating this to gamification, the 75% that has the fast type can cope with the stress well whereas the 25% that has the slower type will overload faster. This makes the process relative as the 75% need stress to be competitive and can become competitive in stressed situations while the 25% tend to be lesser competitive. It is also

observed that the group with the slow type of enzyme perform well in situation of exploration and mastery. This leads them to outperform the group with fast COMT enzyme type whereas this is opposite in the situations involving more creativity. Other neurotransmitters include oxytocin which matters in the social context of bonding with others, serotonin that deals with the mood and the level of happiness and also endorphins which helps handle stress. (Marczewski 2015)

It also brings to the context of rewards where the process that is designed in the US will give much emphasis on as it is culture of mastery. The rewards in the US culture might seem normal but is strange when it is perceived from an egalitarian culture and societies of Netherlands, Germany or Austria where there is envy and instead of motivating the person will tend do the opposite. Asian cultures do well on a social context where they promote and prefer group harmony where competition generally doesn't work effectively in these contexts. It is also considered where close values between different cultures are perceived closely but distinct values such as egalitarianism and harmony are perceived in a different way (Chou 2013; Khaled 2011)

Even though it is important to keep culture in mind to design the processes of gamification there should be a balance that is to be maintained in taking the culture into context and using the game mechanics accordingly. This would make the gamification process effective by choosing the desired game mechanics based on the context including culture so that there would be effective engagement, easier and quicker acceptance based on various behaviors of different cultures. These are the factors that

are learnt by experimenting various adaptations and ultimately maturing the process of gamification making it an effective process. (Khaled 2011; Kuip 2012)

3. Research Methodology

This chapter gives a clear picture of all the research methodologies that can be used for understanding the effectiveness of the gamification process in an organizational context and the methods that were chosen. It gives an in-depth idea on how the analysis is done, participants for the analysis, interview methodology used and how the data is presented.

3.1 Interview – Qualitative Analysis

Qualitative research method was used to gain deeper understanding of the underlying reasons, beliefs and motivations of an experience that the users have. There are majorly three types of methods in qualitative research which are in-depth interviews, observation and group discussions. (Hennick and Hutter 2010) The in-depth interview method is chosen as it gives a broader and especially a deeper understanding of the preferences.

In-depth interviews is one of the main qualitative research methods which can be defined as involving “conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program or situation”. (Boyce and Neale 2006) There are three different types of interviews structured which have an order and series of predefined questions, unstructured where

no questions are prepared prior to the interview and is the most un-reliable form of interview and semi-structured which includes both the aspects of structured and unstructured. (Dudovskiy 2015) The type that is used in this case is semi-structured where the interview was structured with the series of pre-defined questions in an order as shown in the Appendix 3 but also there were questions that were asked to clarify or further explain certain issues and experiences. A leading US based multinational Information Technology company was chosen for analysis and the questions were framed keeping in mind the culture and the context of work. The company name would be maintained anonymous and would mentioned as ITS which would stand for Information technology solutions in this thesis due to the confidentiality.

3.2 Review of the Gamification process presently used

The other research that was done was on the gamification processes that are already being implemented and practiced in the ITS. The ITS uses the process of gamification in various functions of the organization such as Human resources, Software development, Project management and also in Learning & Development. The process that was chosen to analyze was in the core process of the organization which is software development and how the project was managed by optimizing the process with Gamification.

It is done more in the form of an observational research of written materials, where observational research is done on the data which is the secondary data. One of

the reports of the organization explaining on how the process was gamified and the outcomes were studied and analyzed.

3.3 Participants

There were a total of ten participants that were chosen for the interviews to understand the effectiveness of gamification process within ITS. Considering the analysis parameters which included the level of the employee, culture and also the function in the organization, care was taken to select the participants to cover all the aspects of this for the interviews to be done. There were three participants that were selected from three different functions of the organization which are Information technology, Consulting and the Human resources. This gives us a total of nine participants from the three functions emphasis was given on maintaining different levels of position of these three participants from each function. The three levels that were chosen were entry level, mid-senior and the senior level which also took account the aspect of different generations. The tenth participant was in the center of excellence that played a role in designing these processes. This gives us a 360° feedback on the implementation, design and also the overall experience as it participants are spread across functions, levels and also different cultures.

The names of the participants would be anonymous as well and also would be mentioned with pseudo names in this thesis due to the confidentiality and regulations.

3.4 Data Analysis

All the interviews were recorded with the consent of the participants and the data that was retrieved was analyzed and studied using the method of coding. The coding methods that are used in this thesis are based from the book “The coding manual for qualitative researches” by Johnny Saldaña.

There were various coding methods that were proposed and the coding is done in different cycles. In this analysis, the two specific coding methods that were used were first cycle coding methods and the second cycle coding methods. The first cycle method includes attribute coding, structural coding, descriptive coding, and in vivo or initial and/or value coding serves as a foundation for all the data and the second cycle coding method deals with the patterns that emerge out of these methods. (Saldaña 2009)

4. Observations and Analysis

4.1 Gamification process within the software development team

In the software development, ITS used the gamification techniques both for the both for the development of applications and also in the application value management. There were two specific process that were studied which are for improving the closure rate of the defects and also improving the quality of the code and performance in software development.

The major concern in terms of increasing the rate of closure for the defects was the lack of motivation from the employees. So they initiated a gamified process to solve this using the game mechanics of leadership boards with a single mission of closing the defects. This gave way increase in motivation and also effective engagement that lead to increase in the fixing rate of over 75%. The second was for maintaining the code quality in developing applications which also used the game mechanics of leadership boards to track the progress but the other mechanic that was used was incentivizing and rewards where there were recognitions for top performer of the week. This lead to more control over the leakage of defects, progress could be easily monitored and also significant reduction in performance related issues in later stages of the development cycle.

The main observation that were seen in these two processes was actually the sense of competition that drove the process. The motivation was more of an extrinsic than intrinsic which arose due to competition to stay on the top of leadership boards or achieve the recognition. Even though there was significant increase in the desired outcome, there are two things in this design of the gamification that wouldn't make it effective on a long term basis making it more sustainable. The two factors are no emphasis on intrinsic motivation and also the use of the leadership boards for a longer duration. As it was proven in the studies earlier, it the intrinsic motivation of the player that increases the effectiveness and makes it more sustainable where the processes here are focused only on extrinsic rewards and recognitions. Maintaining the leadership boards

would lead to active disengagement on a long term as only the top players would engaged and bottom players would get motivated negatively and get disengaged. The main aspect these processes put into picture was the nomenclature that was used to name the gamified process and elements inside it which goes in tandem with the culture of the target audience of ITM belong to. There was also a good emphasis on mastery and the goals and the desired outcomes were clearly defined. But from a culture where mastery is not considered important these processes would not be effective.

4.2 Analysis of the Interviews

There were in-depth semi-structured interviews that were conducted with the participants mainly understanding their awareness of gamification and the experience of various processes of gamification that they have undergone in ITS. The interview mainly focuses on the measures of effectiveness which are motivation, engagement, performance that helped them undergo the process of gamification and also what elements that will make the process sustainable. It was also understood on how different parameters such as culture, position or level of the employee and also the function affects the effectiveness and also the design. There was a deep insight on what the participants think are the challenges for gamification from the experience that they have on it.

Based on the coding the data from the interviews was analyzed in two cycles, elementary and exploratory methods were used in the first cycle and the pattern coding

in the second cycle. In the first cycle there were the attributes and feelings that were observed. The first attribute in terms of the gamification was the awareness and knowledge of the process itself. Almost all the participants were aware of the concept of gamification and the elements involved in it except for one participant at the entry level who didn't know what gamification was but was able to relate the concept where Ms. Thomas stated it as "*something related to the mode of a game*" The next attributes that could be coded was the experience and participation of gamification processes within ITS where the most prominent process in various types that the participants experienced were the Learning & Development processes. There was also a pattern that was observed where in all the participants were exposed to the process of gamification except for in the consulting function where even though there was interest shown to the process of gamification, there was no opportunity for the participants from consulting function to experience it. This can be clearly understood from what Mr. Alex who is in the mid-senior level in the consulting function said when explained how gamification can be effective he stated that "*There are lot of work and activities that I didn't find fun to do, very monotonous and making this a gamification process would make it more motivating and interesting to work*" There were also observations from the senior level in the consulting function where Mr. Jose feels that the gamification is more relevant in processes such as marketing but relatively not relevant in the processes of the organization. It is also observed that the participants from the Human resources function were very aware and have experienced various processes that are gamified. By taking these observations into consideration we can see a pattern of imbalanced awareness,

knowledge and the importance of gamification that the employees understand across functions and levels in the ITS.

The next attribute that was coded is the limitations of the process leading to a pattern in motivation. One of the main limitation that was observed was the participants feeling that gamification would not work and is not relevant if it intervene with the core day to day activities. Ms. Riya who is mid-senior level emphasizes this and we can understand from what she states that *“I feel gamification can happen only for critical and important tasks in the workplace and if it gets in the way of the day to day work it will definitely take a hit”* This was the same pattern that was observed in all the functions and the level of the employees. The next attribute was the feedback process involved in the process where the participants felt that by having a continuous feedback there is a possibility to learn from the mistakes it brings in positive motivation. The attribute that was next observed was competitiveness and Mr. Jagan who is at a senior level at ITM human resources stated that *“The biggest driving force that gamification brings is the competition environment and the competitiveness that it brings”* This was mostly observed across the participants from the human resources department and when asked about the attributes that lead to the motivation in a gamification process, the elements that were observed from various participants were fun, excitement, rewards, competition, challenging, etc. It was also observed that the making the process mandatory to do even if it is gamified has both positive and negative motivations to do it. Mr Shan who is a senior level employee in the human resources function of ITM who

is involved in designing the processes for the employees states also brings about the neuro-science that helps in motivation where he states *“when designing we look at dopamine levels why people get motivated because of various triggers”* The next attribute that could be coded was the type of motivation and the pattern that was seen was either a balance of both intrinsic and extrinsic or more of just intrinsic motivation which also confirms the fact that many frameworks discussed in the earlier chapters stated thereby making the process effective.

The next attribute was the engagement where Mr. Visu covers all the aspects of it where he states *“For engagement mainly I would say is the design, the looks and the first impression...the UI(User interface) how interesting and intriguing it is, secondly how clear things are...it should not be too simple that interest is lost nor too tough... what do we get at the end of it”* This shows the importance of the balance of how simple and challenging the individual activities can be and why it is important to consider every detail while designing the gamification process. The main elements that the participants pointed out to maintain effective engagement are it should be entertaining that covers the fun aspect, easy to grasp, and team work was preferred to individual competitiveness, alignment to the core work elements. The next attribute for that was formed with the help of coding was performance where Mr. Daniel who is a mid-senior level employee at ITM in the core IT function feels that *“It was not so entertaining but was helpful....the gamified process gave the opportunity to perform more as I was able to do it with more interest”* and was the same with the other participants as well where

more elements that were aligned to coding of performance were progress tracking, more consciousness and alert and also receptive to learning, more agility of the process, social efficacy and peer pressure. The next attribute that was coded is sustainability with the subcategories as positive elements and negative elements. To increase sustainability the positive elements were active engagement, need for rewards and recognition, updated technology and apt context, marketing and visibility, novelty, competitiveness, zero play, skills and passions of the target audience, mystery and challenging and the negative elements included over complexity, influence of the external factors such as the facilitator that would jeopardize the natural response of the player, the basic mechanics such as interaction and fun environment which were not given importance Riya also point out that the processes that are already well established and set, having clearly known concepts will be effective and easy to gamify as it would leverage on the knowledge.

This leads the coding and analysis of the parameters that were used as a layer to measure the effectiveness, the first attribute is culture. The strong bias on the opinions with the participants was with culture where even though it was observed that there was a need to consider the knowledge involved with cultural differences that have to be taken into consideration while designing, the preferential order of cultures were different. From the perspective of Mr. Shan who plays a key role in framing the processes states that *“Game culture would saturate the other two cultures”* which are personal and organizational culture. No specific pattern was found in the preferential of

cultures but it can clearly be observed that the design is based on game culture superseding the other two cultures but is not the same that was perceived from the participants who underwent the gamification process. Then come the next attributes which are level of the position of employee and also the function that the employee belongs to where in this case there was a pattern that could be coded where the entry level employees feel that as the level or the position increases, the engagement in gamification processes decreases. Mr. Thomas explains the probable reasons as to why it happens, he states *“maturity varies with levels...mainly because as the seniority grows people find very less time on these processes”*. He also brings out the preference of the senior employees to the core processes than that of the additional processes of gamification. Mr. Shan in terms of the designing of the process feels and states that *“the game board deals with the core emotions and ...not so much interest in functions and levels in the organization”*. This leads us to last attribute which is challenge that deals with the future challenges of gamification where the participants observed game design itself as a challenge, not finding relevance of gamification to organizational processes, the engagement in a constrained environment, future in virtual reality, post program follow up and a sense of purpose, approval and Mr. Shan states that *“it all brings down to the context and content”* where deciding on these two factors need a lot of study to design the process.

Please find below the table clearly showing the two cycles of coding process done. First cycle showing the attributes and the second cycle showing the patters in the research.

S.No	First Level(Attribute)	Second Level (Pattern)
1	Awareness & Knowledge	Self-Aware/ Poor Communication in the organization
2	Participation & Experience	Opportunity
3	Limitations	Relevance
4	Feedback	Motivation α Feedback (directly proportional)
5	Competition	Competition α Engagement (directly proportional)
6	Mandatory	Positive Vs Negative Engagement
7	Type of Motivation	Intrinsic Vs Extensive (Balanced)
8	Engagement	Specific elements of process design leading to positive and negative engagement
9	Performance	Process aligned to personal goals α performance (directly proportional)
10	Sustainability(Positive & Negative elements)	Positive elements vs effectiveness (more sustainable) Negative elements vs effectiveness (less sustainable)
11	Culture	Strong bias in perspectives – design vs experience
12	Culture preference order (Game culture, Personal Culture, Organizational culture)	Strong bias across participants – No clear preference
13	Level of Position	Position Vs Engagement (Inversely proportional) Position Vs Maturity (Directly proportional) Position Vs Preference of core activities to other activities (Directly proportional)
14	Function	Interest to process Vs Function (Neutral pattern) – No major effect to the process
15	Challenges	Study on Challenges leading to better design Vs Engagement (Directly proportional)

Table 5: Coding of the Research Analysis

Considering the observations from the data analysis of the interviews we find that the process of gamification is not fully effective at all times in the company ITM. The main elements of the process that were missing were marketing and communication of the process where the participants and more employees might not know the concept of gamification thereby reducing the importance of it, monitoring and adaptation during the process where the process that the participants experienced were more standard and static and no changes were done at a later stage, centralization of the process because of which there was autonomy in designing but no collaboration between various functions to achieve better results. It was also observed that in terms of culture perceived from the designing of the process perspective to the participant's perspective is totally different leading to different outcomes.

5. Recommendations:

After detailed analysis and study of the experiences and the data from the participants and also the review of the literature that is done defining all the elements of making the process of gamification very effective there can be three main recommendations that can be given to ITM. They are:

- **Marketing & Communication:** For any process to be successful in an organizational context, there has to be effective communication so that the employees have awareness and the knowledge of importance of that particular process and the same is the case in gamification process too. Considering a

diverse organization such as ITM that has over 200000 employees and having a presence in over 50 countries, it is necessary for the organization to invest in letting the employees know about the concept of gamification as it is being extensively used already in various processes. This would give the employees a clear understanding on the objective and motive of the gamification process thereby motivating and engaging the employees to participate in the processes that are gamified leading to improved performance.

- In-depth analysis on the Target Audience: As it is observed that the perceived perceptions of the employees are very different in terms of the mission and motive of the gamification process that they experienced and also is decreasing the effectiveness and importance of the process accordingly, it is necessary for more detailed research to be done on the target audience to understand their needs and goals leading to an efficient design. This would not only help understand the key elements that need to be incorporated into the design of gamification but also eliminate the gaps of generations, level or position of the employees, cultural differences, etc. leading to an efficient process.
- Establishment of Center of Excellence for Gamification: Taking into consideration the various processes that are presently being gamified, it is necessary for ITM to establish a Centre of excellence (Coe) to standardize and monitor the processes of gamification. We observed that the processes are being developed by the individual functions which are driving and improving the

desired outcomes. By establishing the Coe it would also help make these processes portable and compatible with other functions and also the overall organization there by increasing the performance by gamifying the necessary processes. By standardization there would also not be bias in the design of the process and the perceived perception of the participants which leads to an effective desired outcomes. Also, by monitoring, studying and researching on the processes that are being implemented presently would help the future processes to be more sustainable.

As the challenges are perceived in terms of future of the gamification within ITM where if the Coe is established further research can be done in terms of virtual reality, big data analysis where the data received from the implementation of the gamification can be analyzed leading a deeper understanding of the effectiveness, incorporation of artificial intelligence, portability of the processes and also dealing with the constrained environments.

6. Conclusion:

Today, all the products and the services that are offered are all considered as commodities and the competitive edge that the companies presently have is not fully sufficient. We can also observe that there is need for increase in productivity and overall a higher performing workforce within the organization. There is also room for various

innovative and creative processes that need to be incorporated into the organization for the growing need of a motivating and engaging the employers as well as the customers in a ways that are stand out and effective at the same time. Organizations are in need for long term processes and solutions that are very effective and also highly sustainable. As it is discussed in this thesis, gamification is one of those processes that gives that competitive edge as well as it is unique, effective and sustainable when it is designed carefully by maintaining the optimal balance of all the elements that get into its process.

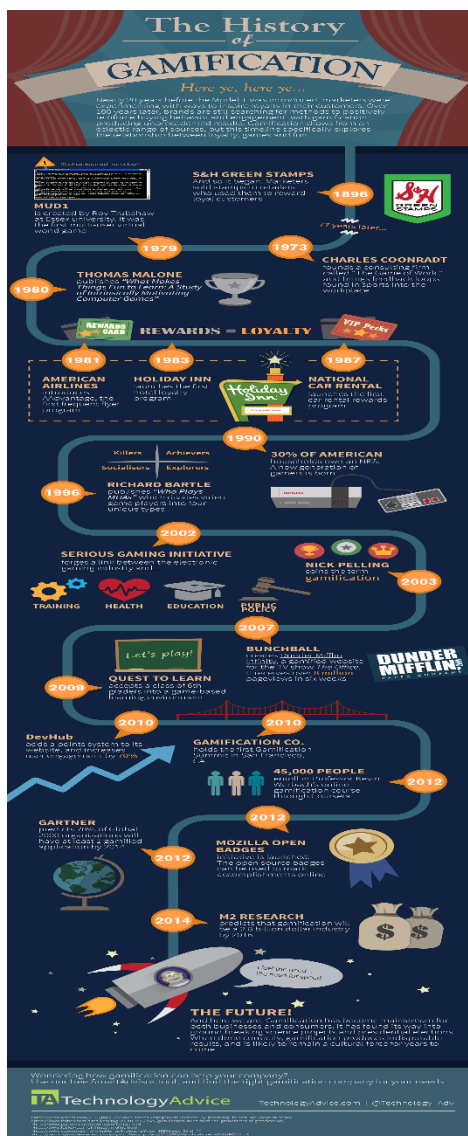
Gamification has evolved over time and various elements and frameworks have been formed, tested and are presently in use. By using the effective and the appropriate game mechanics into the non-game context processes in the organization this can motivate the workforce to be more engaged thereby increasing the performance. Once the process is adapted accordingly on close monitoring and managing the implementation of the process to the target audience, a long term sustainable process can be formed. All this is possible by one key element of understanding the target audience to whom the process is being designed to. One of the uniqueness of the gamification is also that it appeals to a wide range of age groups and generations and is easy to implement. The process of gamification has also been proven to be successful in various industries and organizations being used in various processes.

Gamification is also evolving as there is constant update in technology leading to increased efficiency. It is important for the organizations to give emphasis to use gamification with the technologies that are present now and find ways and take

measures to make it more effective. While doing this, it is also equally important for the organization to stay up to date and maintain the Recency by looking at processes from a different vantage point as concepts such as Gamification 3.0 come into existence. The gamification 3.0 brings to the table the concepts and new technologies and insights from big data analysis, autonomous activity tracking with the help of artificial intelligence and also the virtual reality. This makes the process more agile and also adaptable making it more efficient and giving the organizations the competitive edge. Gamification when used in the appropriate manner has the potential for great break through and making way for various opportunities for the organizations across industries.

7. Appendices:

7.1 Appendix 1: Timeline of the History of Gamification



Source: Technology Advice 2014

7.2 Appendix 2: List of frameworks

S.No.	Frameworks
1	A Framework for Success. Di Tommasso (2011)
2	Six steps to Gamification. Werbach and Hunter (2012)
3	Gamification Framework. Marczewsky (2012)
4	Gamification Design Process. Marache-Francisco and Brangie (2013)
5	Steps to Gamification. De Paz (2013)
6	Robinson and Bellotti taxonomy (2013)
7	Francisco-Aparicio et al. framework (2013)
8	A moral framework for taking responsibility. Versteeg (2013)
9	Octalysis: Complete Gamification Framework. Chou (2013)
10	A Framework for Sustainable Gamification Impact. AlMarshedi (2015)
11	Player Centered Design Methodology. J. Kumar (2013)
12	Role-Motivation-Interaction Framework. Gears (2013)
13	Gamification Framework model. Jacobs (2013)
14	A framework for gamification suited for marketing. Julius and Salo (2013)
15	Theoretical Model for Gamification in Workplace IS context. Li (2014)

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7.3 Appendix 3: List of Questions used for the Semi-structured interview

The below questionnaire was used for the research:

1. Do you know what Gamification is?
2. What do you think is Gamification?
3. Have you had any experience with it?
4. How did it motivate you?
5. Was the motivation intrinsic or extrinsic?
6. Were you engaged in the process?
7. What were the main elements that kept you engaged?
8. Did the gamified process increase your overall performance? How?
9. What are the factors that are to be considered for making the process sustainable?
10. Do you think culture plays a part and need to be considered while designing the gamification process?
11. Order of preference of cultures: game culture, organizational culture, personal culture
12. Do you think the function in the organization matters for gamification? Why?
13. Who do you feel is more engaged in gamification in terms of level of the employees? Why?
14. What do you think are the future challenges for gamification?

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