

Games Design Theory Report

Abstract

This report aims at giving a clear overview of the author's thoughts on several core design aspects and how these have been formulated after careful consideration of various literature sources.

The report outlines the thinking process on several different aspects of design theory throughout the whole semester. Each chapter focuses on a specific design topic, providing a brief description of it together with critical reflection and final conclusions for each topic. Several sources of information are used for comparison and analysis; reference can be found at the end of the document to provide further reading material. The final chapter explains how the discussed topics affected the design choices of the author with regards to the contrast theme developed by the team.

Contents

Abstract	1
Game Balancing	2
Player Types	5
Ludology Vs. Narratology	9
Violence in Games	10
Contrast Project	12
Reference	14

Game Balancing

Game balancing is the area of design theory which deals with making success in any given game directly dependant on the player's skills and abilities rather than offering a dominant strategy or a best choice.

To give a quick example:

Imagine a real time strategy game in which one of the selectable races has a particular unit which is significantly stronger or is produced significantly faster than its counterparts. This would push players into using that specific race to play with as the stronger unit grants an automatic advantage over every other race, slimming, if not even nullifying the player's abilities.

Picturing a game as the sum of forces at play can immediately give away a lack of balance. This doesn't necessarily mean that all forces must be equal and opposed (although that would provide a primitive form of balance), but rather that the sum of all forces at play should be equal to 0 (zero). Hence, should the just mentioned game need a stronger unit, for narrative or mechanic sake for instance, the designer must make sure that all other races have some sort of countermeasure for it; like the ability to gather resources faster in order to produce extra units for example.

Balancing a game is one of the hardest and most important tasks for a designer, as thousands (or even millions) of minds playing a game will always find a way to upset the established balance.

The two most used methods to balance a game are:

- Static balancing
- Dynamic balancing

Static balancing consists of calculating and producing a default balance for the game. This is achieved mostly by using payoff matrices in which each element (or "force") at play is given a numerical value which is then used to achieve the overall sum of zero. Assume the choice is "should your character turn up on time at work?", and the reward expressed in generic points.

A simple payoff matrix can be used to balance this option:

MATRIX	Boss already in	Boss not in
Turn up late	-100	+50
Turn up on time	20	-25

Although this matrix would need to take into consideration several other factors such as what can be achieved before turning up late for work, the reaction of colleagues, etc; it can already give a first look on how balanced the outcome is. Looking that there is a 50% chance of the boss being already in or not, the result of 2 (two) days for each option would be:

Turn up late: -50

Turn up on time: -5

This immediately shows that currently the game has a clear dominant strategy (be on time!).

This example however is excellent to understand why a designer might need an “unbalanced force” within a game (imagine if one could turn up late everyday with the same result as not being late... nobody would be on time anymore!).

For this reason, this specific mechanic would require another “unbalanced force” to compensate for it (one that generates only positive outcomes).

It is easy now to understand how huge and complex payoff matrices can get when speaking about a triple A title.

Other methods of static balancing are:

- **Trade offs** (close relative of payoff matrices, dealing with the chance of choosing over several bonuses/items/talents, each of which has specific pros and cons)
- **Combination** (used together with payoff matrices; 1 gunner is weaker than 1 grenadier, 2 gunners are equal to 1 grenadier however)
- **Symmetry** (self explanatory really, applied to maps or to the earlier discussion of all forces being equal and opposed for example)
- **Emergence** (this method consists of a set of basic rules which generate complex mechanics once implemented together; “must get from Isle A to Isle B” and “Player can’t swim”, these two open a variety of complex mechanics, for example: build a raft? Learn to swim? Take a plane?)
- **Feedback loops** (this is divided in positive and negative feedback. Eventually positive feedback brings the game to an end; negative feedback can be used to slow down the effects of positive feedback. Many RTS for example, allow for players to convert enemy units, this positive feedback is countered by the necessity of paying all required upkeep values of the converted units; negative feedback)
- **Transitive relationship** (bind all elements one another, if 3 beats 2 and 2 beats 1, then 3 also beats 1, although shadow costs must be considered)
- **Intransitive relationship** (relate all elements one another, 3 beats 2, 2 beats 1, 1 beats 3, limiting but very effective)

Dynamic balancing on the other hand, are systems used to “upset” the default balance of the game as it is played, such as reducing the enemy’s health after X failed attempts, or increasing their armour if the player finishes levels too quickly.

Several variations of dynamic balancing are currently adopted, all of which aim at adapting the game experience to the performance of the player:

- **Difficulty** (mentioned above, adapting the level of challenge according to the performance of the player)
- **Challenge level** (very closely related to difficulty, aimed more at producing a good challenge curve throughout the entire game)
- **Fairness** (closely linked to challenge, any tweak applied should always leave the player perceiving the game as fair)
- **Stagnation** (offer direct or indirect help/clues if the player becomes stuck during a particular task)
- **Trivial decisions** (enable the game to “understand” the player and perform trivial decision for him/her. E.g. “which area should be boosted by the income?” when the player has been building an army for the past 25 minutes)

Dynamic balancing is often criticised by a wide group of gamers for several reasons, the most common being:

- A player cornered in a multiplayer game should not receive any advantages but rather confront his fate and improve his abilities.
“You only get smarter by playing a smarter opponent” (The fundamentals of chess, 1885)
- Players feel offended if a single player game automatically becomes easier, denying them the chance to learn and improve.

As games spread over a wider demographic range, static balancing became more and more of an issue for designers; this is due to the wider level of skills and expectations from gamers, as well as their “maturing” as gamers. It is in fact impossible to create a game which is balanced by default for every player, even if the target audience is extremely focused.

This is one of the reasons why dynamic balancing started to emerge, in order to provide support to the now “outdated” static balancing.

It is this author’s opinion that dynamic balancing possesses a major fault however. It changes the user’s experience of the game without asking or even informing the most important element in the equation, the player. Some titles using dynamic balancing offer an option to turn it off, this however is far from the level of control that gamers came to expect from their games.

Imagine if in one of the famous Rocky sequences Sylvester Stallone could feel the crowd in the movie theater wanting him to “go down already” and actually lost the fight...

Would it still be the same movie?

After analysing several sources as well as the progression of game balancing as games became more and more complex, this author feels that a new method of game balancing should be taken into consideration. This new method would involve giving every single player the ability to balance the main aspects of the game directly. This translates into creating a “balance” screen within the game’s options which lets players adjust, with a slider for example, the main forces of the game such as drop rate, enemy’s toughness and A.I. level. This would allow for each player to experience the game as he/she feels best without removing the possibility of getting a hardcore challenge at any given time.

The just mentioned system however, can only be applied to either single player games or room driven multiplayer games as titles with massive online communities would simply get spoiled and milked for every “special” item they have to offer, factually destroying the economy system.

A rudimental version of this concept can be seen as far back as Tetris, where players could select the difficulty level to start from.

The criticism which this author had to confront with the most with regards to this idea is: “This would allow players to factually cheat, making the game easier than easy”

The author’s reply to such statement is that IF a player feels happy about going through an entire game without facing any real challenge why should designers deny that possibility? If then those players find like minded players to compete with inside an “easier than easy” multiplayer room, why shouldn’t they be allowed to do so?

Player Types

Understanding and identifying player types is vital to a game designer. Not only it helps to understand a game’s target audience, but it also helps greatly in the design of the game itself.

Much speculation has been done over the years about player types, how many they are, how to identify them, how to stimulate the growth of a particular type of players within a game, how each player actually taps into several different types, etc.

One of the most acknowledged lists of player types is the one defined by Richard A. Bartle in his “*Who plays MUAs*”, later expanded in his “*Players who suit MUDs*”.

In these papers, Mr. Bartle identifies four main player types with regards to multi user dungeon games, following is a brief description of each of them:

- Achievers
- Explorers
- Socialisiers
- Killers

Achievers

This type of players includes all of those who set themselves game related goals and strive to achieve them. This generally includes finding particularly rare items, slaying the most fearsome beast of the game, etc; Achievers find fulfillment in gathering the most unique stuff and titles.

Explorers

This type of players includes all of those who explore the gaming world to understand its workings, discover flaws, workarounds and similar; Explorers find fulfillment in discovering.

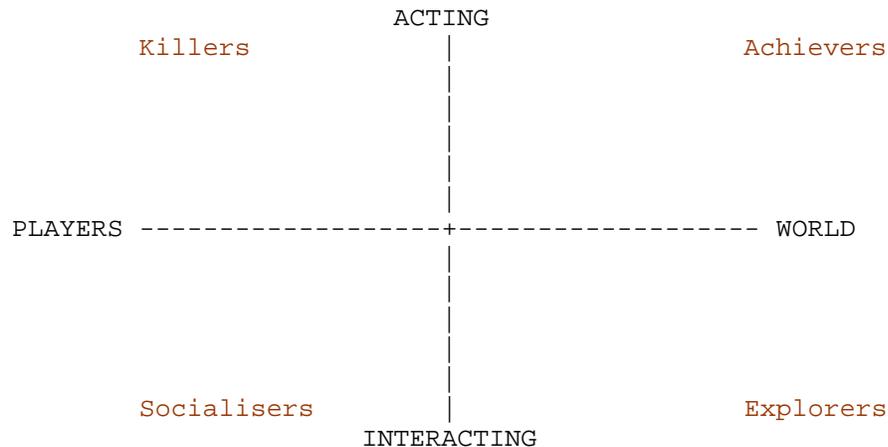
Socialisers

This type of players includes all of those who play games to entertain relationships with other players, whether the topic is game relevant or totally unrelated doesn't really make a difference; Socialisers find fulfillment through interaction with other players.

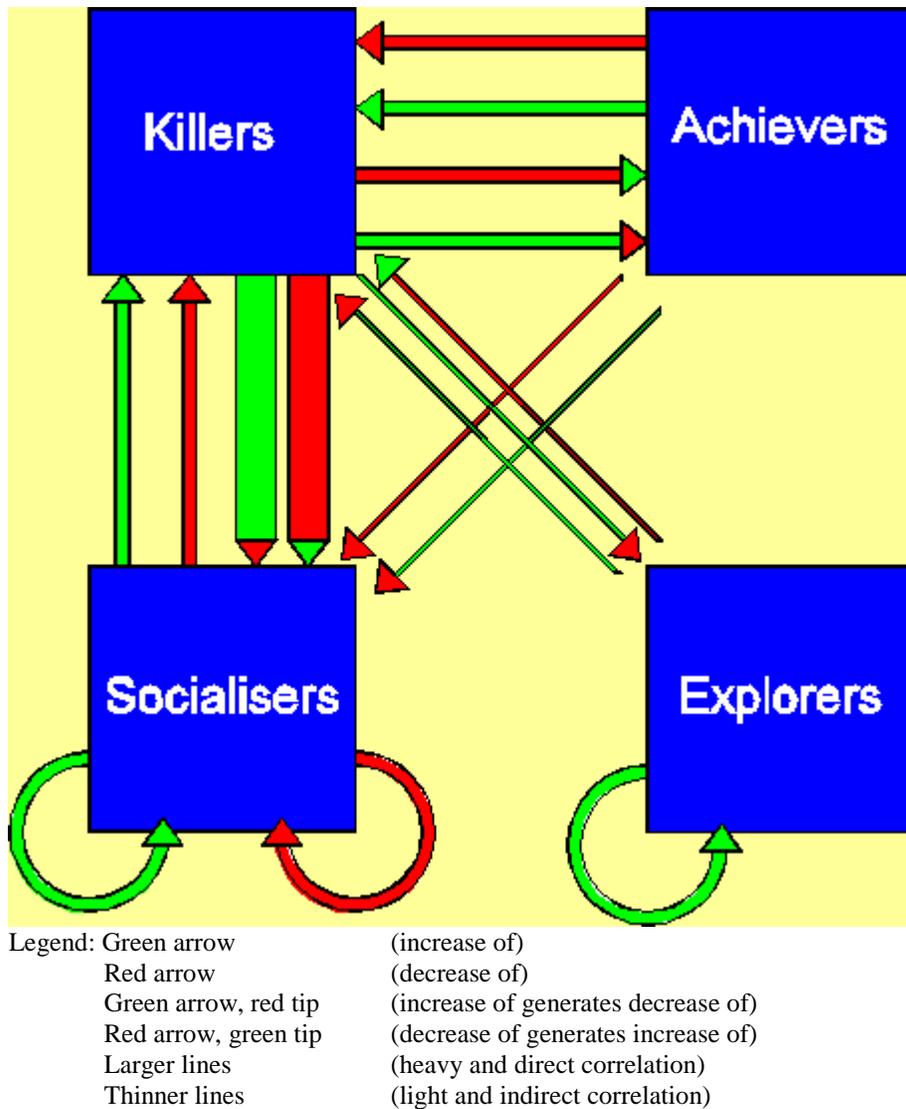
Killers

This type of players includes all of those who aim at the annihilation of every single other player in the game; Killers find fulfillment through causing distress to other players.

Mr. Bartle further expands his research by providing a simple graph to explain the interactions between the player types and the gaming world:



In his second paper on the subject, Mr. Bartle also identifies the interactions between the different player types:



Although these player types are quite strict, Mr. Bartle acknowledged that each of the four types often taps into a different type, claiming however, that each “tapping” is carried out purely to help their primary type. In other words, a Killer will become an Achiever for a short period of time in order to get that unique sword with whom he can then proceed to fulfill his Killer drive.

These player types were meant to be used within a multi user dungeon game, but as games expanded adding a bit of all flavours to their arsenal, these types became widely known across the whole gaming industry.

Later on Erwin Andreasen and Brandon Downey went on to develop what came to be known as the “Bartle Test”. Expanding from Bartle’s 1996 paper, Mr. Andreasen and Mr. Downey created a series of 30 (thirty) questions to determine which of the four Bartle types suits the tester.

The questions range in content but they are all related to MUDs gameplay and are aimed at discovering the areas of play which most interest the tester. Following is the result of this test taken by the author:



Source: <http://www.gamerdna.com/quizzes/bartle-test-of-gamer-psychology/>

The author thinks that whether the tester identifies with the result is heavily dependent on the tester psychology and on how strong is the need of the individual in terms of communal aggregation; this need is addressed in several psychology studies and papers.

In 2009, Dan Bress published a paper titled “*Bartle Player Types Revisited*” on gamasutra.com, in which overall agrees on Mr. Bartle’s ideas, while pointing out that years have taken its toll on the module proposed by Mr. Bartle.

Mr. Bress argues that within each of Bartle’s player types, there are several other types which are not taken into consideration and furthermore, that current generation game titles need to take into consideration several sub-types within each of Bartle’s types. To conclude the article, Mr. Bress talks about the “*Bartle Test*”, pointing out flaws in the question’s structure and then defines some personal player types. These types can be seen as sub-sections of Mr Bartle’s types and Mr. Bress also agrees that only few players fall in just one type, while most of them tap constantly into several.

This author feels that the need to put players into categories for design and marketing reasons has pushed the industry to come up with quick and mostly wrong answers. Since the four types introduced by Mr. Bartle, player types have been revised and updated with extra types like a matryoshka, this does nothing but underlying a very basic concept:

Players are human beings; human beings tend to be similar with uniqueness.

The latter half of this concept has been known in psychology since the dawn of time and it can easily be connected to several basic laws of nature. While the need for player types is clear, the answer is still far from being found, as gameworlds are the places where anything can happen. A wide range of players for instance, creates “online personas” which have nothing in common with whom they actually are, this means that all those players might switch their personas at any given time, just to see how the game experience is from another player type point of view. Some even go as far as setting online personas according to the type of game they are playing, so they might always be lone killers in first person shooters and team achievers in massive multiplayer online games for instance.

Ludology Vs. Narratology

This topic is one of the most discussed within the gaming industry, mostly because it has no definitive answer and because one would likely pick his side based on his interpretation of a few keywords.

The narratologist argument is that at the base of every game there is a story; therefore narrative plays a fundamental role in every game.

On the other side, Ludologists argue that games do not need to tell a story, as the story can easily be created by players around the game's mechanics.

Ludologists will push forward the example of tetris, where a simple set of rules and a scoreboard created one of the best games ever without the use of any story. Narratologists on the other hand, will reply that nowadays players expect more from games and that the top rated games all depend on a well structured story.

While both views are absolute truths, neither of the two parties seems keen to acknowledge it.

This disagreement is possibly due to the narratologists seeing games as another form of entertainment, like movies or books, while ludologists have completely embraced the new factor of interactivity and created a new media around it. Many within the two groups however, seem to be keen in believing that computer games are a mix of the two ingredients, but then again, they all disagree on the dose of each element.

Looking at different genres of games, a striking difference can be seen between those based around ludology and those based around narratology. Massive Online Multiplayer games for instance, spend a huge amount of effort on the story in order to provide players with reasons to do anything, from slaying a dragon to pick pocket the king while he is visiting the market. Opposite to these are First Person Shooters, which often offer similar reason for the player to carry out the various tasks, by simply dressing up the same old story of "somewhere there's a bad guy, go get him" in a different way.

This difference may lead to think that different genres depend on narratology in different measures. While this seems to be true in the current state of the gaming market, this author feels that the discussion should be taken one step further.

This clash could also be seen as Interactivity Vs. Cut-Scenes, as of today very few games managed to deliver a well structured story in an effective way without taking control away from the player to show them a cut-scene.

An interesting example about this topic is the game Half-Life (First Person Shooter), in which not only the gameplay is heavily story based, but the story is delivered without taking control away from the player, using dialogues and ingame scripted sequences.

A limitation of avoiding cut-scenes is that nothing can be shown that happens outside the player's field of view, so classic elements of narratology like flashbacks, "meanwhile" and similar, cannot be used, making the whole process of story telling much harder.

Reality is that games surely can benefit from a well planned and told story, but do not need to have one in order to be fun to play. Besides the “depth of content” advantage which can be subjective, a well planned and delivered story allows a game to reach a wider range of players, which can’t possibly be seen as a bad result.

This author thinks that narrative is a very important aspect of any given game, as it can enhance player’s experience and add hours of content in the form of side quests and similar. This however should not become the dominant factor, as a game is interactive by definition and must therefore maintain its uniqueness at all times in order to keep its edge over other entertainment media.

This dispute does not need to be solved in one way or the other; a simple way of skipping dialogues and cut-scenes can solve the problem for those players interested in the ludology side of the game, while players involved into narratology can enjoy a well structured and presented story.

Obviously this conclusion is not “administrative” friendly as it would mean investing money on a feature which is already known, will not be enjoyed by the whole of the game’s population. However, this author did not choose to become an accountant but rather a designer, therefore will leave the money related discussions to those competent on the subject.

Violence in Games

This topic is possibly the most controversial one that ever surrounded the gaming industry.

The general public opinion is split into two main chunks.

One group sees violence in games as damaging and counterproductive as well as unnecessary. The other group thinks that violence in games makes no difference at all and that a game depicting a violent reality is not to be blamed anymore than a violent movie.

The main reason behind the “no violent content in games” is rooted in the unique aspect of games, interactivity. The argument is that, differently from a movie, a computer game is interactive, making players mock the very violent actions depicted within it.

Countless amounts of studies can be found everywhere online and in written papers about the correlation between playing violent games and displaying violent behaviour. The vast majority of these studies bring forward brain activity analysis of violent games players as proof to sustain their point. Other studies show an increase of violent behaviour towards a game character in those subjects who played violent games as opposed to those who played non violent games.

With the debate gaining public interest, the whole discussion became an easy cause to pick up in order to gather consent from the public, which produced even further studies on the damages of violent games on gamers.

All of the studies analysed by this author were however flawed by assumptions which are not necessarily true or by ignored fundamental elements.

Few examples are:

- The lack of consideration for previous violent behaviour
- The assumption that an increase in brain activity in the region associated with violence actually creates long lasting violent behaviour
- Lack of consideration for previous mental illness conditions

Just as these studies can be found, a whole lot can be also found about the non correlation between violent content in games and violent behaviour.

A study published in the “Psychology Crime and Law” journal for example, outlined that only subjects with unstable personality are actually affected by violent games.

The test consisted in monitoring the anger levels of 110 children (average age of 14.6 years) before and after a 20 minute session of play with the game *Quake II*.

The results showed 77 subjects being unaltered in their anger level, 22 subjects showed an increase of almost two times the initial value but 8 displayed a reduction in their anger level.

The conclusion, after correlating the results with personality profiles, has been that those player with stable personality are unaffected by violence in games, while those with unstable personality are. Within the latter group however, the change showed to be dependant on the initial state of the subjects; in other words, agitated players will cool off while calm players will get agitated.

The study also reported how within the highest levels of anger registered, only 2 could have been reason for concern.

Furthermore, the fact that test subjects display an increase of activity in those areas of the brain associated with violence while playing violent games does nothing but prove that nature is working just fine, allowing the brain to respond to the perceived situation.

Whether this reaction is more or less intense might simply depends on the level of immersion of the players (which again, is an element often overlooked in those studies claiming a solid link between violent games and violent behaviour).

Following the “mocking violence in games produces violent behaviour” concept, soldiers, policeman, thugs and similar should all be prone to violence since they not only interact with violent situations, but they also live them in first person. Furthermore, if playing violent games would really be correlated to violence, judging by the amount of hardcore gamers that play so called “violent games” the world would be filled with homicidal maniacs in a matter of weeks, possibly days.

An interesting quote about the effects of games on players is by Kristian Wilson, CEO of the Nintendo Gaming Corporation:

“Computer games don’t affect kids; I mean, if Pac-Man affected us as kids, we would all be running around in darkened rooms, munching pills and listening to repetitive music”

Contrast Project

This chapter outlines how all the mentioned topics affected the individual contribution to the group project developed throughout the module, giving a brief overview of the developing process.

The first brainstorming session produced a wide range of options from which to start developing the design.

The ideas presented to the team covered a wide range of the contrast concept, to cite a few:

- Fight Vs. Flight
- On Vs. Off
- Wet Vs. Dry
- Calm Vs. Agitated
- Hunter Vs. Prey

The latter being the one produced by this author.

After deciding upon the On Vs. Off theme, each member created initial level layout concepts in order to be able to test the possibilities of the project.

The final concept consists of a trivial game based on two worlds, one red and one blue. These worlds cannot exist simultaneously and the player must decide which of the two should be active at any given time (exceptions to this rule are some levels in which the switch between the worlds is automatically activated).

Balancing this concept has been somewhat easy as there are not many elements to take into account when producing payoff matrices. The steps to grant balance to the developing idea were:

- Steady increase in level complexity
- Suited reward for achievements
- Clear explanation of the task
- Balance between the need to use the two worlds
- Transitive relationship between the blue and red worlds

This project also took into consideration all of Mr. Bartle's player types:

Achievers may test their skills obtaining all the different rewards for completing elite levels, timed competitions and tournaments.

Explorers may spend their time looking for alternative ways of completing a given level, find shortcuts and similar (as was the case with Valve's Portal).

Socialisers may interact with the online community and take part in the various scheduled events.

Although the project doesn't include direct player versus player mode, **Hunters** can still enjoy crushing the competition in head to head timed challenges or in team competitions, where all players play the same level (or set of levels) in order to achieve the best time.

Several methods of keeping a constant flow of new players while maintaining the old ones are also in place; things like downloadable content and personalised tournaments both produce extra replay content.

Ludology versus Narratology has been discussed fairly deeply before deciding to create an artifact based almost entirely on Ludology. This enables players to set their own themes for their own challenges and left more time and resources to the creation of concepts levels which take full advantage of the possibilities offered by the chosen design. With the implementation of several different mechanics, like moving platforms, physics based puzzles and combination gates, the game allows for countless amount of possible situations; the heavier injection of Ludology however, is the freedom left to player to create custom levels.

The controversial issue of violent games was left at the door as the team felt there simply was no need to complicate the project by adding some form of physical interaction between players. That being said, some may find throwing a cube around a maze to be a violent action.

References

“*Game Balancing*”, Anonymous (n.a); School of Computer Science and Engineering at the University of New South Wales.

<http://www.cse.unsw.edu.au/~ge8001/gamebalancing.pdf>

“*21st Century Game Design*”, Chris M. Bateman; Richard Boon (2005).

<http://prism.talis.com/bolton-ac/index.php>

“*Fundamentals of Game design*”, Ernest Adams; Andrew Rollings (2007).

<http://prism.talis.com/bolton-ac/index.php>

“*Better Game Character by Design*”, Katherine Isbister (2005).

<http://prism.talis.com/bolton-ac/index.php>

“*Community and Human Social Nature in Contemporary Society*”, Lucius & Lucius (2004). http://www.analyse-und-kritik.net/en/2004-1/AK_deVos_2004.pdf

“*Interactive Multi-User Computer Games*”, Richard A. Bartle (1990).

<ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/mudreport.txt>

“*Bartle’s Player Types Revisited*”, Dan Bress (2009).

http://www.gamasutra.com/blogs/DanBress/20091013/3305/Bartle_Player_Types_Revisited.php

“*Who Plays MUAs?*”, Richard A. Bartle (1995). <http://www.mud.co.uk/richard/wpm.htm>

“*Players Who Suit MUDs*”, Richard A. Bartle (n.a.).

<http://www.mud.co.uk/richard/hcde.htm>

“*Bartle Test*”, Erwin Andreasen; Brandon Downey (1995).

<http://www.gamerdna.com/quizzes/bartle-test-of-gamer-psychology/>

“*Theory Wars: An Argument Against Arguments in the so called Narratology/Ludology Debate*”, Celia Pearce (1995). <http://www.digra.org/dl/db/06278.03452.pdf>

“*Build It to Understand It: Ludology Meets Narratology in Game Design Space*”,

Michael Mateas et al (2005). <http://www.digra.org/dl/db/06278.41489.pdf>

“*A Touch of Medieval: Narrative, Magic and Computer Technology in Massively Multiplayer Computer Role-Playing Games*”, Eddo Stern (n.a.).

<http://www.digra.org/dl/db/05164.03193.pdf>

“*Exporting Wars: Literature Theory and How it Explains The Video Game Industry*”, Mikolaj Dymek (2007).

<http://www.digra.org/dl/db/07311.32393.pdf>

“*Ludologists love Stories, Too*”, Gonzalo Frasca (2003).

<http://www.digra.org/dl/db/05163.01125.pdf>

“*A Brief Note on Games And Narratives*”, Jesper Juul (n.a.).

<http://www.gamestudies.org/0101/juul-gts/>

“*Psychology Crime and Law journal*”, European Association of Psychology and Law (n.a.).

<http://www.law.kuleuven.be/eapl/>

<http://arstechnica.com/gaming/news/2007/04/study-finds-stable-personalities-unaffected-by-violent-games.ars>

“*No Link Between Violent Games and School Shooting*”, Anonymous (2009);

GamePolitics. <http://www.gamepolitics.com/2009/01/21/researcher-no-link-between-violent-games-amp-school-shootings>

“*Violent Video Games can Increase Aggression*”, Craig A. Anderson; Karen E. Dill (issue: April 2000); *Journal of Personality and Social Psychology*.

<http://www.apa.org/pubs/journals/psp/index.aspx>

<http://www.apa.org/news/press/releases/2000/04/video-games.aspx>