

THE 6-11 FRAMEWORK: A NEW METHODOLOGY FOR GAME ANALYSIS AND DESIGN

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ABSTRACT

This paper describes the “6-11 Framework”, a new game analysis and design methodology defined to help game designers in the process of crafting emotionally engaging and, ultimately, “fun” experiences. The framework is contextualized in an existing and well known model, the MDA, and then explained through relevant examples and case studies.

INTRODUCTION

Being able to quickly capture the essence of a game and understand what makes it “fun” is a required skill for any game designer. Unfortunately, due to the subjective nature of fun itself, too many analyses proposed so far tend to be quite subjective as well or to be applicable only in specific cases. Among the different approaches and models that have been proposed to explain why games can be so immersive and engaging, the MDA model (Hunicke et al. 2004) is the most well known and it is widely used across both the game industry and academia to analyze and formalize game ideas at different levels of abstraction. The MDA is based on the concepts of Mechanics, Dynamics and Aesthetics defined as follows:

- Mechanics: the game rules, i.e. basic, atomic actions that players can do to play the game.
- Dynamics: the gameplay, i.e. the complex actions that unfold as a result of applying the mechanics.

- Aesthetics: the emotional response evoked in the player, ultimately leading to a “fun” experience.

“Aesthetics” are the most challenging aspect to analyze, as they can be extremely variable and personal. The MDA model faces this issue by proposing the “8 Kinds of Fun”, a taxonomy introduced to explain different types of “fun” by relating them to experiences like problem solving (“Fun as Challenge”) or role playing (“Fun as Fantasy”).

This classification, while insightful and fascinating, provides only a very high level description of what is happening inside the players’ mind at an emotional level. In the end, it may not be very straightforward to relate a particular “kind of fun” to a specific in-game dynamic, especially for beginning game designers and students.

The “6-11 Framework” (Dillon 2010) tries to address these issues by providing a new taxonomy for game aesthetics which should be easy to relate to actual game dynamics. This process should result in a clearer and easier to understand picture of why a game is “fun” and how players’ emotional experience develops throughout the game.

THE 6-11 FRAMEWORK

The 6-11 Framework proposes that games can be so engaging at a subconscious level because they successfully rely on a subset of basic emotions and instincts which are common and deeply rooted into all of us.

Specifically, the framework focuses on six emotions and eleven instincts that are recurrent in psychology and widely analyzed in a number of well known treatises (Izard 1977; Plutchik 1980; Weiner and Graham 1984; Ekman 1999).

In particular, the six emotions are:

- Fear: one of the most common emotions in games nowadays. Thanks to the newest technologies, it is now possible to represent realistic environments and situations where fear can easily be triggered: think of all the recent survival horror games or dungeon explorations in RPG games for plenty of examples.
- Anger: A powerful emotion that is often used as a motivational factor to play again or to advance in the story to correct any wrongs that some bad guy did.
- Joy / Happiness: Arguably, one of the most relevant emotions for having a fun gaming experience. Usually this is a consequence of the player succeeding in some task and being rewarded by means of power ups, story advancements and so on.
- Pride: rewarding players and making them feel good for their achievements is an important motivational factor for pushing them to improve further and advance in the game to face even more difficult challenges.
- Sadness: Despite being an emotion that doesn't seem to match with the concept of "fun", game designers have always been attracted by it as a way to reach new artistic heights and touch more complex and mature themes.
- Excitement: most games worth playing should achieve this and it should happen naturally as a consequence of successfully triggering other emotions and/or instincts.

While the eleven core instincts taken into considerations are:

- Survival (Fight or Flight): the most fundamental and primordial of all instincts, triggered when we, like any other living being, are faced with a life threat. According to the situation, our brain will instantly decide whether we should face the threat and fight for our life or try to avoid it by finding a possible way of escaping. This is widely used in many modern videogames.

- Self Identification: people tend to admire successful individuals or smart fictional characters and naturally start to imagine of being like their models.
- Collecting: a very strong instinct that can link to a variety of different emotions and it has always been widely used in games.
- Greed: often we are prone to go beyond a simple "collection" and start amass much more than actually needed just for the sake of it. Whether we are talking about real valuable items or just goods and resources we need to build our virtual empire in a strategy game, a greedy instinct is likely to surface very early in our gaming habits.
- Protection / Care / Nurture: arguably the "best" instinct of all: the one that pushes every parent to love their children and every person to feel the impulse for caring and helping those in need.
- Aggressiveness: the other side of the coin, usually leading to violence when coupled with *greed* or *anger*. It is exploited in countless of games.
- Revenge: another powerful instinct that can act as a motivational force and is often used in games to advance the storyline or justify why we need to annihilate some bad guy.
- Competition: deeply linked with the social aspects of our psyche and one of most important instinct in relation to gaming, e.g. leaderboards. Without it, games would lose much of their appeal.
- Communication: the need for expressing ideas, thoughts, or just gossip, was one of the most influential for human evolution and it can be used to great effect in games too, while seeking information by talking to a non-playing character (NPC) or while sharing experiences with other players in chatrooms and forums.
- Exploration / Curiosity: all human discoveries, whether of a scientific or geographical nature, have been made thanks to these instincts that always pushed us towards the unknown.

- Color Appreciation: scenes and environments full of vibrant colors naturally attract us, including the more and more detailed and colorful graphics we see in modern games.

The main idea behind the 6-11 Framework is that these emotions and instincts interact with each other to build a network or sequence that should end with “Joy” and/or “Excitement”, so as to provide players with a meaningful and fun experience. This network can then be related to game dynamics by realizing that, when different emotions are naturally aroused in the player by the game, these will trigger different instincts. These instincts, in turn, will force the player to act in the game, ultimately showing how the whole aesthetics can be linked to actual gameplay and game mechanics.

EXAMPLES

To gain a better understanding about the possible interactions between emotions and instincts we can describe by using this model, let us imagine we are designing a hypothetic action/adventure first person game where we start by immersing the player in a beautiful and colorful environment.

The luscious environment will naturally resonate with our “color appreciation” instinct, giving the player a sense of well-being and an early feeling of satisfaction/joy. This, together with the “self identification” instinct we stimulated through a proper first person perspective and, possibly, a compelling background storyline, will also help in triggering the player’s “curiosity” which, in turn, will drive him to explore the surroundings. Once this happens, a “fearful” emotional state can be easily induced by a sudden encounter with a hostile creature, triggering the “survival” instincts with consequent “excitement” for the ensuing battle and confrontation.

The whole gaming experience, and the corresponding sequence of emotions and instincts, can be represented through a diagram, shown in Figure 1, where we see how specific emotions lead to instincts that, in turn, push the player to act into the game by means of the game dynamics, which are then made possible through particular mechanics. For example, here, our curiosity will make us explore the environment, walking around and eventually solving some environmental puzzle by opening/unlocking hidden passages, and then, once the dangerous encounter has been set, it will be our survival instinct to naturally drive our actions, for example by fighting

the monster or by trying to escape to a safe area. Either way, the resulting experience and adrenaline rush will definitely bring excitement and, ultimately, deliver a fun experience to our brave adventurer.

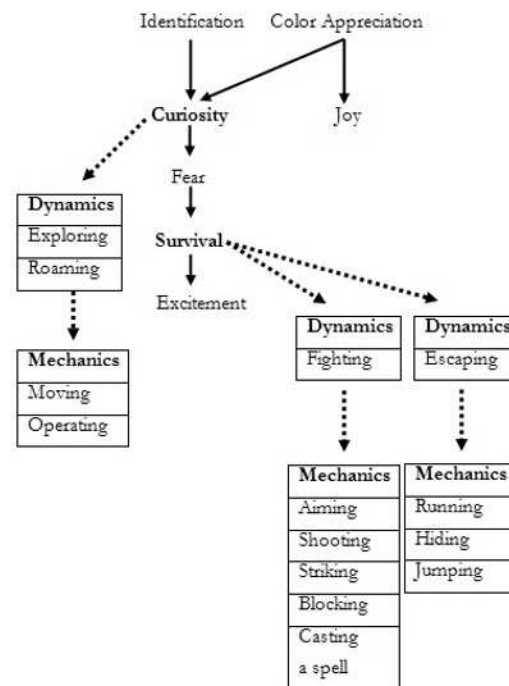


Figure 1: a diagram representing an analysis for a hypothetical action adventure game. Curiosity and Survival are the main instincts responsible for identifying the game aesthetics and are the main emotional factors driving the gameplay.

We can now try to analyze a commercial game, like the award winning mobile game “Angry Birds” (Rovio 2009) to see the framework at work on an actual, well known and best selling game.

In angry birds the player is tasked with the duty of driving a family of birds in their revenge against a group of pigs that stole their eggs. A well crafted cut scene starts the game by providing a very simple yet engaging background story to make the player sympathize and identify himself with the birds. This also fuels anger towards the pigs, motivating a revengeful feeling that will actually drive the whole playing experience through a carefully crafted dynamic of destroying the pigs’ fortifications thanks to each bird’s unique abilities (which will identify the individual game mechanics).

But there is more to analyze to fully understand what makes this game so compelling and engaging.

Besides very colorful graphics, which will help in increasing the player's curiosity to see the next scene and progress in the simple storyline, the possibility of recording our scores, on local and worldwide leaderboards alike, adds a very strong competitive element that will make players proud for their achievements and results. This pride will also be greatly enhanced by the possibility of collecting different bonus items, like golden eggs and stars, which will rise the overall score and will keep players interested for a long time.

By using the 6-11 framework, all this can be easily and concisely summarized in a diagram like the one in Figure 2.

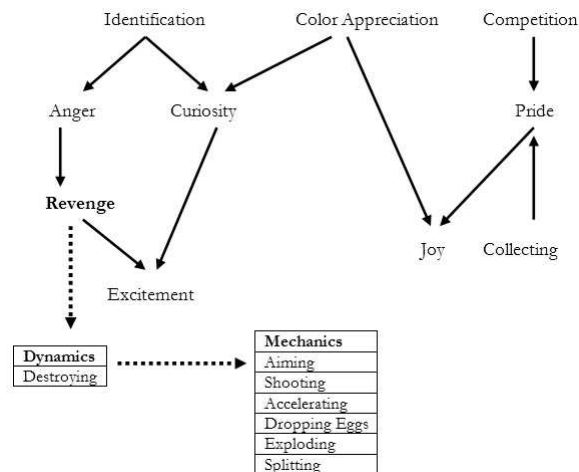


Figure 2: a diagram describing Rovio's game "Angry Birds". Several different instincts work together to deliver a very fun experience that is basically driven by the revengeful instinct to punish the pigs for stealing the birds' eggs. It's also important to note how the competitive and collecting instincts work together to make players proud for their achievements. This is fundamental to keep them engaged even once the action is over and motivate them to play again and improve their results.

CONCLUSIONS

The "6-11 Framework", especially when used in conjunction with the MDA model, seems like a very reliable approach for game designers to analyze games from many different genres. By explicating "aesthetics" in terms of familiar emotions and instincts, it can be used also as a design tool for organizing a game's inner working into a meaningful high level structure which will be more likely to subconsciously resonate with prospective players and successfully capture their total attention.

The proposed framework is also successfully used to teach game analysis in undergraduate level courses at DigiPen Singapore, providing students with a robust tool to break down any game into different layers of abstraction and then gain a proper insight not only on how a specific game works but also on the reasons why it is appealing to players and ultimately able to deliver a fun experience.

The use in class also provides plenty of opportunities for testing and validating the model in practice. Indeed, students' analyses shows that, while there can be slight variations from student to student, people tend to perceive a specific game experience in the same way. For example, when faced with a game like Battlezone (Atari 1980), most students easily identify a structure like the one represented in Figure 3, where the player gets immersed in a first person 3D environment and then needs to fight and escape from the enemy's line of fire.

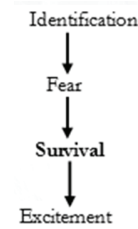


Figure 3: an analysis of the game aesthetics at play in Battlezone according to the 6-11 Framework

Similarly, when analyzing another classic arcade game such as Pac-Man (Namco 1980), all analysis identify how the fear to be "eaten" by the ghosts, together with the defenseless nature of our character, stirs our revengeful instincts as described in Figure 4.

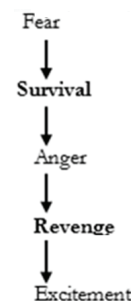


Figure 4: when analyzing Pac-Man, students identify a sequence where Fear and the following escaping action lead to a strong revengeful feeling which is then satisfied once the player is finally able to chase back the ghosts later in the game.

While more rigorous testing is certainly needed to validate the proposed model, these first results, showing common analyses and positive feedback from the students, seem to confirm that the set of emotions and instincts included are actually meaningful while also being general enough for describing games belonging to a wide variety of genres and styles.

Today” and at events like “Sense of Wonder Night” at the Tokyo Game Show.

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BIOGRAPHY

ROBERTO DILLON was born in Genoa, Italy and holds a Master and a Ph.D. degree in Electrical and Computer Engineering from the University of Genoa. After having worked both in the software/multimedia development industry and in prestigious academic institutions across Europe and Asia, such as KTH in Sweden and NTU in Singapore, he joined the Singapore campus of the DigiPen Institute of Technology where he is currently an Assistant Professor lecturing a variety of game design subjects including “Game Mechanics” and “Game History”. Prof. Dillon has led high profile research projects on innovative game mechanics and designed serious, educational and experimental games that were showcased internationally on newspapers like “USA