# Interactivity in Games: The Player's Engagement

Stépane Natkin

# Interactivity in Games : The Player's Engagement

Stéphane Natkin

CEDRIC CNAM 292 rue St Martin 75141 Paris Cedex 03, France
stephane.natkin@cnam.fr

**Abstract.** Is the core of a video game a story or a gameplay system? Out of this scholastic debate we try to show in this paper that the main difference between games and other types of media is the player's engagement. We consider two radically different games, an interactive fiction designed by the student's of ENJMIN, "Fear Window" and a formal probabilistic game based on the finite drunkard's walk process "Drinking around Crocodiles". We try to show that, in both cases, the core of the game design and, as a consequence, the aesthetic of the game is the way to let the player feel his responsibility in the progress of the game.

## 1. Introduction

When, in 2001, a group of people started to create the pedagogical contents and the spirit of the graduate school of games, ENJMIN (http;//www.enjmin.fr), I had to write some document to explain what was the differences between this formation and, for example, a graduate degree on digital arts or on cinema? A way to answer to this question is another question: what is the difference between computer games and movie or other form of linear storytelling media ?

This leads to the well known opposition between narratology and ludology:. This debate can be considered as a theoretical subject: from the narratology point of view, games are novel forms of narrative; from the ludology point of view games should be understood as formal systems of rules [1].

But the same debate arises from Game Design practices. For example David Cage, the creator of *Omikron: The Nomad Soul* (1999) and *Fahrenheit* (2005) designs his game mainly as interactive stories. In the opposite Will Wright, the creator of *Simcity, Sims* and *Spore* has a much more sandbox point of view:

"Other games, the games that tend to be more creative, have a much larger solution space, so you can potentially solve this problem in a way that nobody else has. If you're building a solution, how large that solution space is gives the player a much stronger feeling of empathy. If they know that what they've done is unique to them, they tend to care for it a lot more. I think that's the direction I tend to come from." [2]

Eric Viennot, the creator of *In Memoriam*, has another way to think the relationship between the gameplay and the story:

« Is the story that inspires the gameplay or the opposite? Many students, journalist or even gamers use to ask me this question. In my case both have to work together. If the principle of game often starts from an idea of gameplay, it will certainly evolve with the story… Reciprocally some ideas coming from the scenario leads to new gameplay principles… Both have to be tightly related…"

http://ericviennot.blogs.liberation.fr/ericviennot/2008/11/loeuf-ou-la-pou.html#more

In this paper we will consider this subject from another point of view: the player's engagement. We consider two radically different games, an interactive fiction designed by the student's of ENJMIN, *Fear Window* and a formal probabilistic game based on the finite drunkard's walk process, *Drinking around Crocodiles*. We try to show that, in both cases, the core of the game design and, as a consequence, the aesthetic of the game is the way to let the player feel his responsibility in the progress of the game.

## 2. Aesthetic of Games

Probably everybody agree that the main difference between games and other types of media is interactivity. But what is the meaning of interactivity in games? We start from Jesper Juul's [3] definition of game:

"A game is a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable."

From the player's engagement importance point of view, the fact that the player exerts effort in order to influence the outcome, and feels attached to the outcome is the core point.

To point out the important components of a game, it is necessary to coin a definition that leaves aside the game's dynamics structure and focuses on video games from the player's point of view.

Robin Hunicke describes a game using a Mechanics, Dynamics and Aesthetics (MDA) framework [4]. Mechanics are the tools we use to build a game (e.g. physics engines, path finding algorithm...), Dynamics describes the way the Mechanic's components behave in response to the player, and Aesthetics is the desirable emotional responses evoked to the player. Of course, the design goal is the Aesthetics, that is to say the player's emotions.

Umberto Eco's book *The Open Work* is a fundamental research about interactive art's aesthetics [5]. Umberto Eco states that when we face a piece of art, we are interpreting it, seeking patterns, looking for information. Depending on our culture and knowledge, we will find something to grab on within the stimulating field of the piece of art. But then we will go further, and find another interpretation and feel lost for short moment, while shaping our new pattern. Moreover, when a piece of art is interactive, the aesthetic value comes both from the tension resolution and from the fact that this resolution is a consequence of our choice. Assuming that a video game is an open work we can propose a similar analysis. Every time the player faces an obstacle, he gets lost. Then he has to find and choose a pattern, to press the right buttons, and takes pleasure both from resolving a tension as a consequence of his choice. Thus, we can draw from Umberto Eco's work that in video games, challenge is fundamental because it creates tension situations that the player must solve through meaningful choices. This leads to the famous point of view of Sid Meier "A [good] game is a series of interesting choices". Thus, a definition of a game from the Aesthetic point of view and centered on challenges could be:

"The aesthetics of a game is created by tension / resolution cycles, where the resolution of a cycle are felt by the player as some consequence of his choices.'

This definition doesn't take into account every aspect of game aesthetic but is focused on the player's personal engagement. In the next sections we consider two examples to show how the engagement of the player can be the consequence of quite different design choices.

## 3. Fear Window

Fear Window is a first year project of the ENJMIN Master It was developed in 2007 by four students: Pascal Allançon, (Game Design), David Hart (Programming), Alexandre Marie (Art Direction) and Xavier Montels (Sound Design).

"It is an interactive experience where the act of taking a life is non-trivial, opposite to what happens in most videogames. This game was not meant to be "fun", and such it wasn't designed to reward or punish the player. This experience puts you in the place of a sniper stalking the windows of a big city apartment. It's the end of the day, and you're waiting for your target to arrive… It is a digital "huis-clos" with theatrical intentions that pays tribute to Alfred Hitchcock's 1955 masterpiece, *Rear Window*. You're "stuck" at the window and can only fire once. This project wants to show murder as a horrible, yet touching act to the player. The shot is hard to shoot, not technically (you have just one button to press), but in a humane way. The player should have to force himself to pull the trigger, struggling against himself. The team focused on creating an immersive, captivating experience, which appeals to the player's empathy. We also tried to raise questions about the way violence is portrayed in most media, video games, but also in movies and television. The other aspect we wanted to speak

about was the notion of role-play, trying to see to what lengths can a player stray from the designer's original intention, even refusing to play the game for moral or emotional reasons. Other games have flirted with this idea, *Shadow of the Colossus* being one of the best examples of the player's struggle between duty and will.

One of the objectives of Fear Window is to get the player to think about what he has just done. We are going to show to him the target's wife and daughter before he arrives to his apartment. When he does, he will almost never be alone, making it hard for the player not to kill him in front of his family. To enhance this feeling of unease and doubt is the fact that the player knows nothing of his target's identity and personality, nothing about "himself", the shooter, nor anything about the person who gave you the target. He will only know his orders to kill someone. This should lead the player to wonder whether it is right to shoot, taking a life he knows nothing about with the push of a button." [5]



**Fig. 1** Looking through the aim in Fear Window

Fear window is built as an interactive movie. When the game start, a voice phone call tells you the following:

"This afternoon, the owner of an apartment in Paris will be informed of a very important secret. In any case this secret must not be disclosed. We have manage you a sniper position, you are in charge to kill this person and any other people who may be aware of the secret"

Then the game starts: you are looking trough the aim of a gun and you hear all the things happening in the apartment in front of you. You can only do four things: move your aim, zoom in or out and fire.

You discover the wife and the child of the man you are expecting though the windows of the apartment like Chinese shadows. Some every day events happen: the little girl was slightly injured in a garden. The woman is angry against her husband who should be already back home as it is the little girl's birthday... At a given time the man comes back, has discussion with his wife, stay a little with his daughter and then get a phone call on the terrace outside the apartment...

The scenario is built such as you may think at several times that somebody knows the terrible secret: before the husband's arrival the woman receive a mysterious phone call, a delivery boy lives a parcel, the little girl open the parcel...

Each time you are implicitly urged, from a classical game point of view, to shoot somebody. In the opposite the dialog is constructed to create some empathy with the family. You are faced with an interesting choice based on the conflict of your first person shooter practice and your feeling of guilty to kill innocent people. This player's choice design is based on classical narrative principles: a dramaturgy curve, actor's management, dialogs construction...
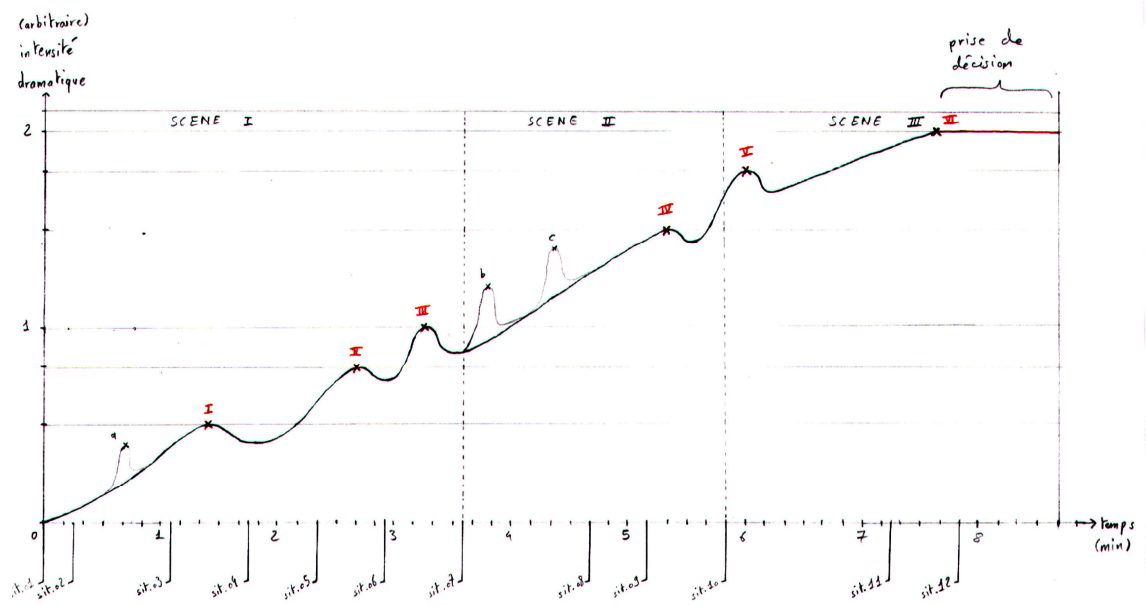
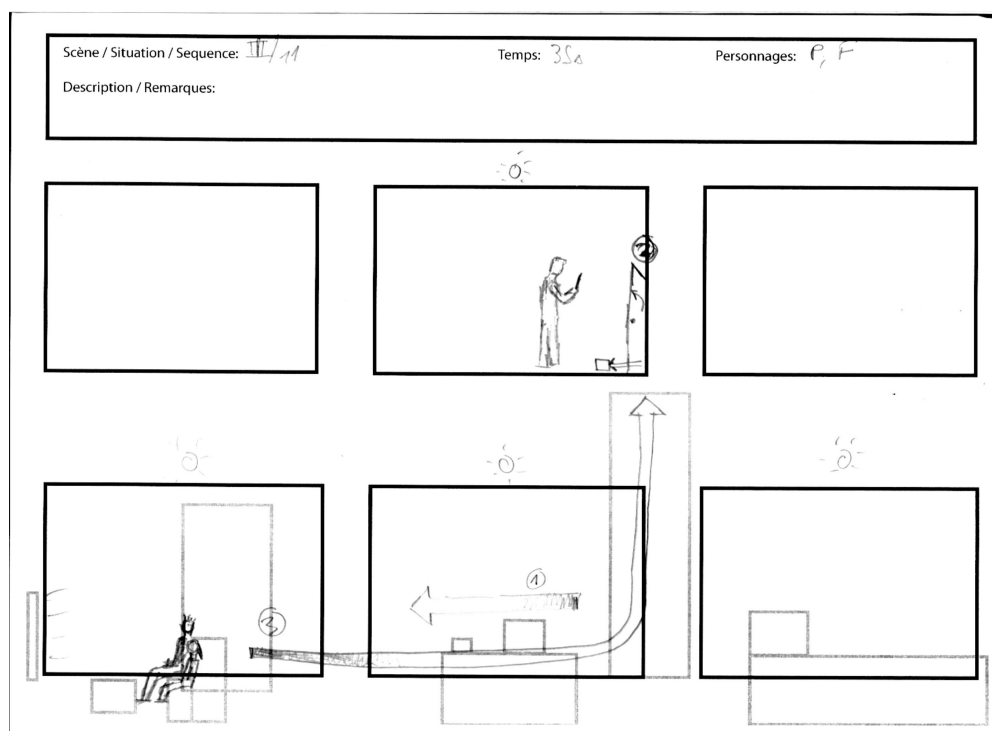**Fig 2.** Fear Window: The dramaturgy tension curve



**Fig.3** Fear Window: the storyboard

From this analysis we can state the three following consequences:

- Fear Window is not exactly a game according to Juul's definition, but it has the core aesthetic feature of this new media: the player's engagement.
- Interesting choices does not necessarily mean pleasant or funny.
- It is possible to engage the player's in an interesting choice using narrative techniques

## 4.  Drinking around Crocodiles

Let's now consider the following formal definition of a game:

```
Pick a random number N such as 0<N<P
Player choose either I:=Head (H) or I:=Tail (T)
k:= N
While k>0 and k<P do
      Player runs a coin
      If outcome =I k:=k+1 else k:=k-1
Endo
If k=0 player wins, if k=P player looses
```

Of course this game is not really interesting, it is just a complex version of Head or Tail but, as it is derived from a well known stochastic process called the finite drunkard's walk (finite discrete time birth and death process with two absorbing states [6]), we can use the historical anecdote and restate the game in a more narrative form:

You are a drunker leaving in Crocodile City. Your home is on a road at a certain distance (P steps) from the Crocodile River. One night, you wake up somewhere (position N) between your house and the Crocodile River. As you have drink a lot, and not only water, you walk randomly step by step. At each step either you get closer to your house (one step right) or closer to the river (one step left). The game ends when either you are back into your bed or you have felt in the river and been eaten by crocodiles.

Of course this is a little better: the designer can use some funny graphics and the sound of a clock for crocodiles like in the Disney movie *Peter Pan*. But even with this little story, it is difficult for the player to be really involved in the choice between Head or Tail.
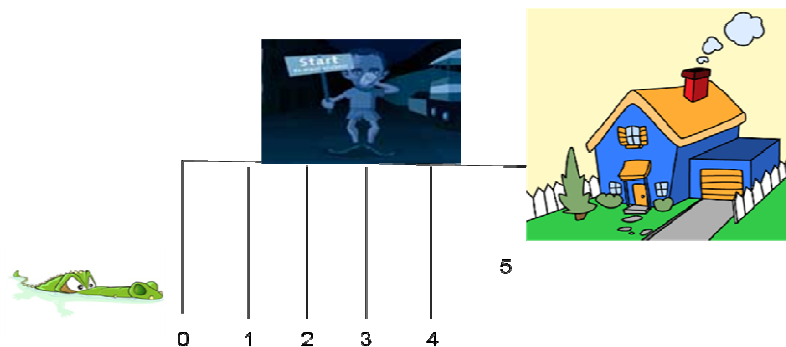


**Fig. 4** Drinking with Crocodiles

So let's change slightly the rules:

```
Player chooses a number N such as 0<N<P
k:= N
While k>0 and k<P do
      Player runs a coin
      If outcome =H k:=k+1 else k:=k-1
Endo
If k=0 Player lose N
If k=P Player wins k-N
```

Now the player does not have to decide between Head or Tail, which is for a balanced coin a fake choice, but he chooses his initial position. In crocodile's style the game can written as follow:

```
Player chooses an initial position N on the road
While he is still alive (position>0) and not at home (position<P)
     Player runs the dice
      If outcome =H walk one step on the right else walk one step
    on the left
End while
If the Player is in the river eaten by crocodiles he loses N
billions of dollars
If the player is back into his bed he wins P-N billions of dollars
```

The difference between the two games seems to be small, but now the player can have a strategy. If he is a risky player and he can start near the Crocodile River (N=1). He may fall quickly but if he is lucky he can win P-1 billons dollars. On the opposite, if he is a wise player he can choose to start near his home (N=P-1). He has less chance to be eaten but he may only win one billion dollars. He can also choose an intermediate strategy. The game becomes much more interesting for the player feels, at least partly, responsible of the game issue. This feeling is mainly subjective as, whatever is his initial choice, his expected reward is null (see [6] for the whole mathematical analysis of the game), but from the engagement point of view it is drastically different.

The main problem with this last game is that there is only one initial choice, after the game works automatically like a slot machine. But there is many ways to add the feelings of engagement and to choose personal strategies in this game. For example the game can ask at each step if the player wants to drink more or want to be teetotal. If he drinks the rule are unchanged. If he does not drink, he walks one step in the direction of the house. But, in this case, the amount of money he may win decreases.

```
Player chooses an initial position N on the road
While he is in life (position>0) and not at home (position<P)
     Player chooses either
     to drink once more (run the dice)
          If outcome =H walk one step on the right
          else walk one step on the left
          end if
     Or to be teetotal
          walk one step on the right
          N:=N+1
End while
If the Player is dead he loses N
If the player is at home he wins P-N
```

## 5. Conclusion

In this paper we have tried to show that the main originality of a game as a media is the player's engagement trough a fine tuning of interactivity. Main level design techniques, like the player difficulty curves [7], rely on the same principle: the player must be able overcome game challenges with the feeling that he the main author of his victories. In the two examples given here there is no apprenticeship mechanism. One is a simple interactive narration, the other a minimalist random game. But in both cases the game is built in a way to give to the player the feeling of engagement. Another significant example is a game like Guitar Hero. From a gameplay point of view, the game can be played without sound using any device with colored buttons, which transform this game into a psychomotor test. There is no story in a classical sense. To be interested the player must dress up himself as Van Halen or Stevie Ray Vaughan and feel as a Guitar Hero. So, whatever technique is used, the originality of video games as a media is the player's engagement. This is, from our point of view, a way to define interactivity in games.

## References

[1] Aarseth, E. J. *Cybertext: Perspectives on Ergodic Literature*. Johns Hopkins University Press., 1997,  ISBN 0-8018-5579-9.[Allancon 2007] Allançon P., Fear windows: Concept, ENJMIN students project description, Angoulême, 2007

[2] Pearce , Sims, BattleBots, Cellular Automata God and *Go* , A Conversation with Will Wright by Celia Pearce, Game studies, Vol 2, issue 1 July 2002, http://www.gamestudies.org/0102/pearce/

[3] Juul, J.: Half-Real : Video Games between Real Rules and Fictional Worlds. The MIT Press November 2005

[4] Hunicke, R.: The case for dynamic difficulty adjustment in games. In: Advances in Computer Entertainment Technology,2005, 429{433

[5] Eco, U.: The Open Work, Harvard University Press, 1989

[6] Kemeny J. G., Snell J.L., Knapp A. W. Denumerable Markov Chains, Springer-Verlag, 1976.

[7] Aponte M.V., Levieux G., Natkin S., Scaling the Level of Difficulty in Single Player Video Games, Proceedings of ICEC 2009-Entertainment Computing, Springer Verlag, 2009

[8] Howard R.A., *Dynamic Probabilistic Systems Vol I Markov models*, John Wiley and Sons, New York, 1971

[9] Bogost, I.. Unit Operations: an Approach to Videogame Criticism. MIT Press., 2006 ISBN 978-0-262-02599-7.

[10] Natkin S., Video Games and Interactive Media: A Glimpse at New Digital Entertainment. AK Peters Ltd (2006)