

# Passive Interactivity, an Answer to Interactive Emotion

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**Abstract.** Sadness is a negative emotion, which aims at a deactivated physiological and behavioural state [21] and so this is easy to develop in film experiencing, where the viewer is passively watching and feeling. Interactive storytelling supposes active physiological behaviours and this raises the problematic - how to create sad deactivated moments during interactive sequences. In this paper we intend to develop and present different ways to approach this problematic and methodologies to implement interactive sad moments in virtual environments, as videogames. These moments will be defined as situations of affective attachment supported by virtual body touching, visually represented by virtual gently stroking body parts (shoulders, hands, hair), bear hugs, soft kissing and lying against each other cuddling.

**Keywords:** emotion, videogames, film, interactivity

## 1 Introduction

It has been recently verified that the interactive storytelling finds a barrier regarding the elicitation of sadness. We have come to this conclusion thanks to some results given on a study supported by INSCAPE<sup>1</sup> Project [26]. None of the videogames used on the referred study could elicit the Sadness cluster (as we can see on figure 1). On the other hand the other clusters proposed by Russell's theory [21] were elicited by at least one videogame.

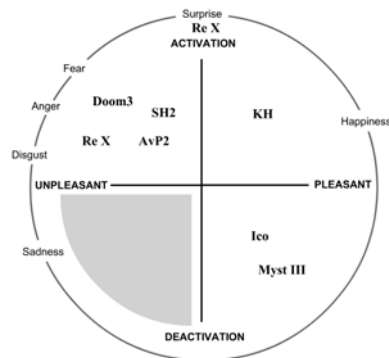
The videogames industry has been trying to supplant this emotional difficulty. To achieve this objective they were using filmic language, which consists on interactive suspension moments (e.g. Max Payne [30]). These processes are designated as "cutscenes", FMVs (Full Motion Videos) or simply film clips. It is important to remark that this kind of video games' moments brings about a very low level of interest, as we found in our study [26]. Therefore it seems that there is a clear connection between the interest in the object and the interaction possibility. This may be explained through the users' expectations about the playing games activity (they usually expect real interactive moments).

It is known that the range of game players is very restricted. For instance, the majority of them are medium age men as the Microsoft's Corporate vice-president J. Allard, at E3 2005, pointed out - "the 18 to 34 year old male is the backbone of the

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<sup>1</sup> INSCAPE Integrated Project (EU RTD contract IST-2004-004150): [www.inscapers.com](http://www.inscapers.com)

industry" [18]. As result we hypothesise that these restrictions on the target public are correlated with the emotional limitation referred. A reason to believe in this hypothesis is that the emotional limitation restricts the contents that can make the games more appealing to a specific public. As far as this hypothesis is concerned we can make reference to Fillingim's study as well, which demonstrated that gender exerts effect on experimental pain, with women exhibiting lower pain thresholds and tolerance [8]. These emotional differences between men and women supports the hypothesis that different emotional stimulus can be a focus for a different target public.



**Fig. 1.** Emotional Videogames Circumplex [26]

As result this study has the intention to give a possible way to solve this emotional difficulty. To get this purpose we will present a new concept of interactivity which we have designated as *passive interactivity*. This concept has foundation on a recent analysis of the sadness ways present in entertainment films [25]. The foundation is linked to the cognitive psychology [9] and neuropsychology [7] as well.

## 2 Interactive Emotion

Izard and Ackerman [14] argued that “induced emotion guides perception, increases the selectivity of attention, helps determine the content of working memory, in sum, it motivate, organize and sustain particular sets of behaviours”. Thus emotion is a central cognitive and motor mechanism. As result it is clear that emotion is important in the interaction with video games, and this is the central phenomenon in this study.

The emotional basis of the fictional artefacts derives from the Interest [24]. Interest “motivates exploration and learning, and guarantees the person’s engagement in the environment” [14]. We hypothesise that the origin of the Interest is on the emotional diversity of the artefact. We believe that it is not possible to get the player’s engagement in a storytelling environment which presents a persistent tension, calm or euphoria. Instead of it, it is necessary an emotional alternation. This is the difficulty faced on the videogames in comparison to the cinema, which gets a wider emotional alternation.

The videogames industry has tried to find solutions to this problem of interactive sadness for a long time. In 1982 the Electronic Arts (EA)<sup>2</sup> in order to launch itself in the videogame industry initiated an advertising campaign which was based on the following announcement: “Can a Computer Make you Cry?”. To Murray [19] this procedure led this institution to the interception between videogames and the storytelling old forms.

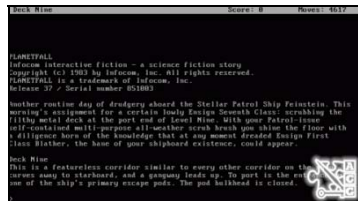


Fig. 2. Planetfall (1983)



Fig. 3. Final Fantasy VII (1997)

In 1983 the Infocom, more precisely Meretzky, became EA’s rival with the game which has been recognised as the first being able to induce cry. Meretzky declared it later on an interview<sup>3</sup>. “Planetfall was an Infocom text adventure in which you spent a fair amount of time in the company of a rather smart-alecky robot named Floyd. Eventually, however, Floyd gave up his life for you, and there was no way to avoid it. It was a sad moment” [1]. Although this artefact is an interactive fiction, i.e. it consists on a text in which the only interaction is writing more text and which doesn’t involve any visual form (see fig. 2). We know that the difference between literary fiction and cinematography fiction lies in the kind of the story presentation (the literary fiction lies in the “tell” while the cinematography lies in the “show”). If we attend to this difference we can easily understand the great difference present between an interactive text object and an object contained in a virtual narrative environment.

1997 was the year when the second key moment happened in the history of videogames interactive emotion. Final Fantasy VII has one of the well-known videogame sequences – the “Aeris death”. It is the sequence when Aeris (who follows the player almost all the time of the game) is murdered by the evil of the story (Sphiroth). If we search for “Aeris Death” on Google we find hundreds of crying descriptions. However the problem of this moment is once more the interaction. The RPG<sup>4</sup> games are recognised for their narrative capacities and for their low interaction level as well. A wide number of RPG games consist on reading messages or watching films with a little level of interaction on some battles and limited displacement. So, the Aeris death is a big cinematography moment which contains Cloud carrying the death loved inside a sparkling blue lagoon with a sad music (see fig. 3).

<sup>2</sup> Eletronic Arts (EA) is the biggest company of the world on videogames production. It produced videogames as Sims, Harry Potter, Lord of the Rings, and the majority of sport games.

<sup>3</sup> “There was a little touch of a budding rivalry there, and I just wanted to head them off at the pass.” [20]

<sup>4</sup> RPG – Role Playing Game. “is a type of game which players assume the roles of characters and collaboratively create narratives.” (wikipedia.org, 2006).

In 2004, Steven Spielberg affirmed “I think the real indicator will be when somebody confesses that they cried at level 17” [4]. Finally in 2005 the EA contracted Steven Spielberg and announced through its sub-president (Neil Young): “We're trying to answer the question: Can a computer game make you cry? [...] Partnering with Steven, we're going to get closer to answering it, and maybe we'll answer it together.” [23]. As we can realise through these statements this question is still very current (after 25 years) because the answers given are very unsatisfactory.

### 3 The Inactivity Paradox

The interactivity is generally an actions' cyclic process between men and machine. To Cameron [5] interactivity “means the ability to intervene in a meaningful way within the representation itself, not to read it differently”. This presumes always the existence of an active user which involves a cognitive activity and also a motor activity because it is necessary that the interactive cycle continues and consequently the interaction has the expressivity needed at the representation level of the artefact. The interactivity lies in a user's action over the object in order to make this significant. Therefore the user's action is the energy point that produces the interactive art.

Art is always naturally dependent on the person who experiences it to make it happen. However the interactive art needs more action by the user than the traditional narratives. On the traditional art it is needed that the person who is experiencing does a cognitive activity about the representation. On the interactive arts it is needed that the user interacts with the representation to make it happen.

Concerning the Sadness emotion on its physiological component, if we attend to the circumplex model of Russell [21] we observe that this is characterised by motor inactivity. It is positioned on low left cluster which represents a physiological reaction of negative valence with a low or null activity (see fig.1).

We are confronted with a clear paradox because we need an active user to make the artefact work and on the other hand the sadness emotion needs an inactive user to be elicited.

Everyone knows that there is a big distinction between games and films in what concerns the motor action. This difference can explain the Gross [11] study's results. It is easier to develop states of sadness on films than on games because the spectator is on a passive mode of visualisation. We believe that we have found one of the possible causes of the problem linked to the answer of EA from 25 years old ago - “Can a computer make you Cry?”

Attending to what we have presented above and also to the fact that the activity on sadness cluster doesn't need to be null, we hypothesise that the interactive environments need to develop interaction structures which demand a low level of user action in order to stabilise his/her physiological state to be able to answer to an elicitation of sadness.

## 4 Design of Sadness Actions

It was necessary to analyse the genres and actions used on narrative cinema in order to find answers which promote solutions to the problem of inactivity paradox. As result we proceeded with a formalist study [25] of films' sequences tested by Gross and Levenson [11]. The highlights of this study are especially related to the influence of characters on spectator's emotions, originated by processes such as empathy, mental simulation, emotional contagious and memory resonance [25]. And regarding the narrative events we have realised the constant rupture of attachment relations [2] previously created by the narrative.

Accordingly to these results it is easy to understand our purpose to elicit sadness emotion on videogames which consist on three distinct phases: 1) The attachment – in which it is necessary to develop an attachment relation between the user and the artefact character 2) The rupture – in which it is created a situation that leads to a rupture of the attachment developed 3) Passivity – the creation of passivity in order to maintain sadness at least during a short period of time.

### 4.1 Attachment

The attachment is “the propensity of human being to make strong affectional bonds to particular others” [2, p.39]. This linkage established is constituted by a system of self-regulated “attachment behaviours” as cry behaviour. The intensity of individual emotion is amplified and generated through phases of “the formation, the maintenance, the disruption and the renewal of attachment relationships” [2, p.40]. As result the emotion is very dependent on the attachment systems.

Relating to attachment creation with fictional artefacts, if we take in consideration our film study already mentioned the characters would be the most important elements on the process of attachment relation creation. It is acknowledged that our empathy capacity depends on the presence of “other” similar to us. The “mirror neurons” concept [10] certainly justifies this last idea because it substantiates that we reproduce innately the behaviours of the other person. The empathy is apparently based on our neurological characteristic in order to experience the outlook of another being within oneself [29] – not through an identification process, but through recognition and understanding of the states of mind of others which are followed by an emotional answer state [27].

The ability to develop attachment behaviour through the process of empathy requires firstly the development or presentation of a situation of attachment between narrative characters. To get this attachment it is necessary to present an attachment relation that should be familiar to the user in order to foment the empathy between user and artefact. The most used relation on films is the parent-child and this is maybe the most efficient on fictional sadness elicitation too (e.g. in “The Champ” when the father dies [3]). However there are other ways to develop adult sadness on films and they are very used (e.g. romantic/love relationships or deep friendship relations).

## 4.2 Rupture

A relation's rupture moment is a clear stimulus of the biological answer of sadness specially if it is irreversible [9]. It isn't correct to see Sadness as an avoidant or unnecessary emotion. Sadness has to be seen as a normal and healthy reaction to a bad thing Bowlby [2]. It is natural that the user doesn't consciously look for a negative emotion because it denotes that something bad related to the artefact has happened. However people who usually look for fiction frequently recognise the motivation to feel Sadness. This emotion enables us at least to learn how to react in a certain real situation through the fictional environment.

For that it will be necessary to proceed to the rupture of this attachment after its creation and maintenance. It is the empathy assimilation of the rupture that can elicit the sadness emotion. However the user ability to feel this emotion depends on the success of the first phase – the attachment creation. Because the capacity to feel sadness after an attachment rupture depends on the deepness level of the immersion achieved which develop the interest for the characters.

Regarding the events usually used to elicit sadness on films, there are a set of them which we can mention but the death event is the most used on the cinema and certainly the one which has the strongest impact event that can elicit sadness. Bowlby defends this point of view [2, p.7], on arguing that the "loss of a loved person is one of the most intensely painful experiences any human being can suffer". Other researchers as Spitz [22] have supported empirically his ideas. A very relevant characteristic on the intensity of reaction to the rupture is the irreversibility. Death is the null extreme point of the reversibility continuum; consequently the sadness reaction is the most durable and intense too.

## 4.3 Passive Interactivity

After the creation of the sadness situation it will be necessary to create a situation adjusted to the user's sadness physiological state. Thus it is necessary to create a situation which enables a user's passive behaviour (related to the inertia state usually felt).

We want to develop this phase with the creation of interactive ways after the rupture moment of sadness creation. By now we have come to know how to develop the attachment and provoke the rupture of it but we haven't found out yet how to proceed after that. We don't know how the user should interact once he/she is in a sadness state composed by inactivity, without motivation to interact actively.

In order to achieve our purpose we will firstly dedicate to understand the relation of user, artefact and narrative. We know that the "mental simulation" [6] and the "mirror neurons" can help us realise the idea of "somatic displacement" defined by Holopainen and Meyers [13] as the "ability of a person to project the mental model of his or her own identity into another physical form, which represents the player in an alternate environment" [13]. This concept is on virtual reality basis and is behind what enables us to perform tasks inside virtual environments using a virtual hand as a visual connection to our own real hand [16].

If we follow this concept we can distinguish the character of the virtual narrative environment and the user who controls it and see it as a self projection inside the virtual universe. As result it is easy to understand the impact of a virtual touch on a user. It isn't a real touch but a visual communicational component (see Fig.4), however important on the communication of the necessary passive comfort during a sadness moment.



**Fig. 4.** Film, moment of body touching [3]



**Fig. 5.** Game, one virtual touch [31]

This situation should be more perceptible in environments experienced in third person, i.e. in which the user controls a character inside a world that he can see and manipulate simultaneously (in Fig. 5, ICO is a third-person game, in which, the player is controlling a boy, through whom he can hold the girl's hand). On the other side in the first person environment (see Fig.6) the user can only see the others NPC<sup>5</sup> and not the main character (Gordon Freeman), having nothing more than the hand to project himself inside the virtual world. Subsequently the somatic displacement should be more efficient in the third person environment because it is possible to project a full body with behaviours/movements into the body of the character (see fig. 5).



**Fig. 6.** Game, first person shooter [32]



**Fig. 7.** Film, first-person [28]

This third person environment, can also be seen as deeper on the empathy process because it consents the user a double way of elicit emotion. This way the user can feel emotions on experiencing the emotions of the character within oneself and experiencing emotions for the character and the world. While in the first person environment

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<sup>5</sup> NPC non-player characters: "a character in the game story that is not controlled by the player, but by the game engine or AI" in <http://www.igda.org/writing/WritersGlossary.htm>

the user only feels for the world, that he experiences as a character himself and so having no empathetic character/object to feel for. In Fig.7, we can see one of the rarest movies [28] that made use of a first-person view during the entire movie, being scenes with mirrors the only sequences where viewers could see the hero/character, as in the figure. It was, completely unsuccessful, mainly because of the impossibility to establish empathy with the hero, because of the lack of an image of a body and all his communicative cues, a body-person to whom the viewer could build attachment.

If we understand the process of the relation man-machine this way we can apply the necessary activity actions to the moments after the rupture, i.e. it is necessary to look for actions which create comfort and lower activity actions (which involve lower displacement). These actions can involve attempt actions of reattachment of attachment relations or of the creation of new attachment relations which can be initiated by the virtual touch between the characters. Therefore body virtual touching is a way of sensitive comfort that the character can look for and consequently which the user can feel by somatic simulation. Moreover it can help the user with the continuity of the sadness moment. The body touching can be defined through different behaviours, which express affection on body language (e.g. to do give pats in the shoulders or hands, to slip the hands on the hair or body, to hug, to kiss, to seat or to lie down leaned). The importance of body touching has been well highlighted since Harlow's study [12], in which he concluded that the comfort of body touching is determinant for the attachment creation. The fact that attachment propitiates sensations of security is already known and therefore the existence of body touching at this phase is crucial. The knowledge of the importance of body touching is supported by ethologic studies about "appeasement behaviours" as well. From this point of view the important social mechanism of "Human appeasement involves affiliative behaviours such as smiles and physical contact" [15, p.361].

## 5 Conclusions

As far as the emotions are concerned, the words are less important than non verbal language. The body expressivity and the relation that we may have with it in a virtual world are very important regarding the creation of a wide range of emotions by those who experience the interactive virtual fiction.

Despite our solution proposal, the creation of the interactive sadness emotion is a design process which will keep on suffering from different problems.

Because our purposes are especially related to the moment after the sadness elicitation hence it will be necessary to develop the precedent phases in a better way. The two first phases are very important to achieve the elicit sadness because it is on these phases that a strong attachment and consequently a profound immersion will be set up, which will subsequently predict the rupture impact.

We can as well suggest that the methodology suggested to the last phase related to passive interactivity can be also applied to the first one to promote the user attachment.



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