

# Understanding emotions in drama, a step towards interactive narratives

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## Abstract

This paper discusses the importance of emotion modelling if one is to deal with interactive drama. As a position paper, it describes the emotion mechanisms in place in traditional drama and considers the possibilities to transpose these in regard to interactivity. We also, in this document, look with a critical eye at the necessary changes to be made in the general perception of drama, more particularly, the role of the user if dramatic enacting has to be rendered interactive. Beside the very much-discussed topic of narrative considerations, we draw attention in this document to the necessities of considering the preponderant role that emotions have in regard to the articulation, comprehension and perception of drama. For these reasons, this paper aims at understanding the emotional dynamics involved in interactive storytelling and establishes links between emotional rendering of information and the appreciation of the drama itself.

## 1 Introduction

With growing technology allowing for faster processing, higher graphic definition and greater realism, digital entertainment seems likely to represent the next step in entertainment. Whilst the video-games industry has already firmly established itself in our everyday life and culture, game developers are now starting to reach new markets and new audiences. In a society relying more and more on computational technology and with a population increasingly computer-literate, everything seems set for the next generation of digital entertainment to finally take off. Indeed, we have witnessed in the last few years a growing acceptance of the digital media to the point that digital entertainment does not seem anymore to be restricted to certain educated communities (i.e. video-games, digital art). The range of video games has also been broadened and new audiences are being targeted (i.e. the women audience for Nintendo) with clear apparent success. Also, sign of

the times, in a typical cinematic fashion, (i.e. more often than not, with no scientific grounding), contemporary science fiction has also been exploring the theme of Virtual Reality in several successful productions (i.e. the matrix [1], existenz [2], 13<sup>th</sup> floor [3]). The general public seems also to be well aware of the realities and possibilities of the virtual reality technologies.

When combining the potentialities of diverse technologies, we seem to be a small step away from an entertainer's dream. Indeed, one could imagine with not too much difficulty, one day living or experiencing an interactive drama from the inside, within the boundaries of a realistic-looking virtual environment. One could also think of an environment where a user could be free to explore a digital experience and play an active part in an immersive narrative production.

Despite futuristic projections over the possibilities of developing technologies, we, however, have to question whether or not it is indeed the right time

for such a cultural and technological revolution in entertainment to take place. Are the digital media companies ready and willing to develop digital experiences with the capabilities to move a user emotionally in the same manner as a movie does? Is this all technically feasible? Are we, as part of a potential audience, ready to interact with the characters of such dramas? For a certain number of very good reasons, very few people would risk predicting how close we are from such an entertainment vision. Some might reckon 5 or 10 years, others might think it much further in the future. As of today, there is however one thing we know with certainty. The development cost (i.e. research, technological innovations) for such a digital experience would be far too great for any video-games company to even attempt it.

As often with technology related innovations, making the vision a reality depends very much on the availability and costs of technology. Moreover, there are other obstacles far greater than technological issues to contend with. Greatest of them all is the ability to do as classic narrative media (i.e. cinema, literature, theatre) do and generate powerful emotions for spectators or readers. We believe that the overall issue of emotion generation should be at the centre of investigation into engaging digital interactive experiences. In addition to studying the different links between emotions and drama, we will look, in this paper, at identifying the emotional mechanisms involved in the assessment and interpretation of dramatic narratives (i.e. emotional empathy, believability). We will also consider with particular interest certain issues surrounding the overall concept of interactive narrative, and more particularly, the importance of understanding emotional dynamics when designing such applications.

## 1 Interactive dramas and the case for considering emotion

When reflecting on the nature of dramas and the way we appreciate and remember them, one must recognise the tight ties that link drama and emotions together. This is indeed a very well documented relationship [4], and we do not here attempt to offer anything new on that topic. What intrigues us is this relationship seems relatively neglected in research into interactive narrative. On the other hand the agent-based approach undertaken in our emergent narrative research [5,6,7] was bound in our view to consider the representation of emotion as an integral part of intelligent agent technology. However we found that there have been surprisingly few publications, at least in this particular research field, on the preponderant role played by emotion in the understanding and communication of drama.

Much has been said about the major changes required to make drama interactive in terms of structure, perspective, narrative articulation, protagonist roles and story management [8,9,10,11,12]. In comparison, very little has attempted to assess the emotional bonds we, as part of an audience, build with characters. Emotional empathy is however essential to audience bonding with characters in any drama; it is what makes us like or dislike a particular character and it is also a tool used by directors to build on cinematic effects and techniques such as surprise, suspense or tension. Our ability to emotionally relate to characters also partially determines the degree to which we enjoy or dislike a whole narrative production, be it a novel, a film or a theatre. Indeed, we tend to remember movies for instance; according to how much they made us laugh or cry. In the same way we like actors for their talents in making us believe in the characters they play and for their abilities in generating emotions via a character interpretation as if the character were a real person. From the criteria of predicted interest graph charts in cinema magazines [figure 1] [13] to comments made by moviegoers at the exit of a showing (i.e. it made me laugh, cry, - kept me on edge all along), emotional response summarise the whole impact of a piece.

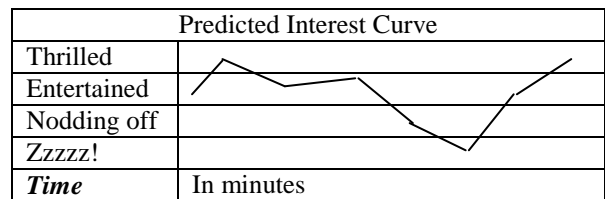


Figure 1: Example of movie evaluation in film magazines

Emotion seems so important in determining the outcome of a narrative experience that one should indeed question the worth of evaluating stories purely from an approach based on the interest of the spectator in the movie. In fact would seem that an emotion-based assessment might reproduce more accurately the impact a production has on its subject.

Independently of the particular personality or emotionally sensitivity behind individual emotional reactions to a narrative production, there are techniques and mechanisms built into a scenario or story whose purpose is to influence the audience into certain affective states at different points within the unfolding of the drama. These mechanisms have been developed specifically for each narrative medium. The techniques used to generate tension and terror for instance in literature are different from the ones used in cinema. Where literature would most certainly rely on describing the internal emotional

state of terror of the character a movie would rely on more visual clues such as shadows or a close-up shot of the terrified character's eyes.

The shift in perspective from a spectator in traditional drama to a participant (or user) in interactive drama, coupled with the introduction of interactivity, suffices to define Virtual Reality (VR) as a new emerging narrative medium. We believe that, as with the other narrative media previously mentioned, VR will need its own specific set of techniques and mechanisms in order to manage itself structurally, which is what the virtual storytelling community is currently trying to achieve [7,8,9,10,11,12]. Also, it will certainly need to establish mechanisms and techniques to manage emotional input, outputs and emotion generation with great efficiency if it is to develop.

## **2 Emotional empathy and the understanding of drama**

The way, in which we relate to drama, as spectators, is determined and influenced by many factors on different levels (i.e. context, personal history, political affiliations, cultural environment, beliefs, social situation etc.). It is up to the director or producer to assess and tune up a potential scenario in order to generate the scenario-specific right types and levels of emotions. The level of emotion generated is highlighted there and shows how difficult such an exercise is. Not only the types of emotions must be prompted in the first place in an efficient manner if they are to reach the majority of the audience, but they also should not rise to a level where they become overwhelming. For instance, many people would have found it highly controversial if a terrorist plane hijacking drama had been released straight after the tragic event of 9/11. The potentially high emotional response generated by such a production would have been too great of a risk for any production company to even consider such release.

Independently to the storyline and overall plot, as members of the audience, our reaction to a narrative production relies on how we feel about it, on how much we felt entertained, frightened, sad or amused. These emotions are brought to the spectator via several narrative elements, mainly, the context, the characters and the plot events. The emotion planning for any production could actually be seen as a combination of two different factors. The techniques generating these emotions vary and are balanced according to the different production genres.

One particular approach is to provoke an emotional response from the spectator by manipulating the image, the sound and/or context. This role is assumed by the director and lies in his/her ability to produce images or sounds prompt in raising certain emotions for the user. A very good example of ex-

ploiting sound to this effect is the manner in which it is used in *Jaws* [14] and how effective the theme tune was actually in generating apprehension and tension whilst the camera would only show an empty sea. The imagery in *Seven* [15] also reflects this by constantly showing in the background rainy weather. It played a big part in setting up a slightly depressing feeling attached to the movie, so that the spectator would be more prompt in developing negative and dark emotions as the events unfolds. Finally, French director Laetitia Colombani illustrated the importance of contextualisation in regard to emotional responses from the audience in her 2002 debut movie *He loves me, he loves me not* [16]. In this movie the audience witness a love story depicted from the angle of one of the protagonist and is lead into forging an opinion and emotional bond with the characters, only to find out in the other half of the movie that these emotions were indeed biased by the context in which the characters were presented. These techniques are common in today's cinema and can be observed in many movies.

The other approach commonly used in drama for provoking emotional responses from the audience lies in characterisation, the art of writing interesting and compelling characters. This process assumes that a well-designed character would, if properly interpreted, be able to carry the audience emotionally through its own different emotional states when required by the director (i.e. if the director is not using context information to manipulate the audience's feelings). Such practice lies entirely on our natural tendency to feel for others and our "ability to understand and share in another's emotional state or context" [17]. This natural aspect of the human being is described as affective empathy. This can be demonstrated when analysing an audience's reaction to the tragic death of Alfredo (Philippe Noiret) in Giuseppe Tornatore's "Cinema Paradiso" [18]. Although viewers have bounded with the character emotionally, it is not their sadness for the loss of the character that they respond to. Tears from the audience are indeed reflecting upon the terrible melancholia and sadness that inhabit Alfredo's friend, Salvatore (Salvatore Cascio) rather than the death of Alfredo itself.

Empathy is very much the mechanism that allows a spectator to fully engage with a character. It allows a spectator to connect emotionally with a character and understand and sometimes feel the same emotions as the ones inhabiting the character. Writers continuously exploit such phenomenon in order to impact emotionally on the reader or spectator. Characters are purposely written in a way that they can display a rich emotion set and engage with the spectator's natural ability to care for others.

### 3 Emotional considerations for Interactive narratives

Building interactive narratives certainly represents a challenge in many aspects and appears not to be only restricted to the sole domains of narratology and story structures. As described in the previous sections, we believe that the emotions felt by the user are of prime importance in producing compelling and engaging interactive dramas. Although we argue in this paper for the necessity to design generative mechanisms that would allow a narrative system to reflect on the user's emotion state, it is however important to consider the meaning of interactivity in narratives. There are indeed two different ways to view the term interactive narrative. One could see there the possibility for a user to create a story or participate in the authoring of a story, whilst others could interpret the term from a character-based perspective in which the user is playing an active role in the unfolding of the story. In fact the very nature of the necessary changes to be made to the way we approach story design in regard to emotions depends directly on the type of interactivity considered. Indeed, the emotion requirements for an authorial consideration of interactivity will necessarily differ from a character-based approach. Whereas in the first approach, the users would be involved in designing and creating emotional planning and mapping for a production, they would be, in the case of a characterisation, experiencing and acting the drama from an insider's perspective, with all the emotional involvement it requires.

An authorial take on interactive narrative would aim at providing the user with tools and techniques that would allow for the generation of certain emotions from a static point of view, in a similar manner to the way in which cinema manages emotions such as tension, fear, passion or laughter. Since in such an approach, the users are indeed playing the role of a director. One could imagine that an interactive storytelling system would aim at interacting with the users in such a way that they ultimately produce with the help of the system a story involving characters, sets and actions that could rival on the same emotional scale the impact of its cinematic counterparts. Although complex to build, such system could probably be developed as of today as either an entertaining and compelling experience from a user's point of view or as a professional tool in assisting creative writing and scenario or plot development. The fact that such approach does not differentiate itself too much from already existing practices in the cinematic domain means that the techniques and practices necessary for the development of such systems are known and

can potentially be applied or modified to fit the requirements for an automated generation via the use of technology. An intelligent system, from an emotional perspective, would aim in either identifying emotions from user input (i.e. actions, plot event) and suggest a course of actions in order to reach such actions in a scenario along with the intended emotions; or analyse user input and drive the scenario creation from an emotional point of view, recommending the next emotion or set of emotions to aim for. Such an approach implies although not explicitly, production of dramas that would conform to the traditional concept of storytelling as seen in cinema, theatre or literature. Works in this area are generally sharing a vision of drama where the audience occupies a rather static role (i.e. no possibilities for intervention or interfering in the plot development) and onto whom the dramatic performance is displayed and presented. The fact of the matter is that, currently, research in the area tends to be divided in between authorial and character approaches. However, one should not dismiss one for another in the sense that in one way or another, research carried out in one sub-branch of the field will benefit the other and vice-versa. From a character-centred perspective, it is an interesting prospect to indeed contemplate the possibilities to at some point in a near future, use authoring tools for the generation of interactive narrative that would manage characters and story world creation in a similar manner in which authorial approaches are today undertaking research in the field. Indeed, such a division could prove to be a beneficiary factor for the whole community as time unfolds.

The consideration of a character-based take on the interactive narrative issue brings however more complexity to the problem. The main obstacles to successfully communicate emotions to the users lie in the fact that users are by definition, in this concept, non-static and that the lack of apparent structure in the unfolding story does not allow for the use of most traditional emotion building techniques such as the ones developed for static audiences (i.e. cinema, theatre, literature). Indeed, if we take for instance the way in which tension is built in a movie (i.e. via camera angles, music, and montage), it seems that the very idea of a non-static users that could possibly not witness any of the tension building elements because exploring other areas of the story-world, does not allow for the use of such techniques. This feeling is reinforced when one considers that emotion-building techniques are integrant to the process of scenario development and that they are determining the final form of the scenario and the way in which the storyline will unfold. With such a prominent role in the development of a scenario, it seems difficult to

conciliate such practices with the idea of emerging and non-deterministic storylines and structures. Attempts to address this particular issue can be observed in video games and the manner in which emotions and plot events are in no subtle ways forced down to the user. Although players can enjoy a certain freedom in terms of movements, the story structure is generally such that players will not be able to progress in the game unless certain events have happened. When it does, the players are generally forced into actions or have to reverse into a static role, losing any freedom allocated to them by the developers, whilst a cinematic or scripted animation is played to them. Emotions are generally conveyed with no subtlety via the use of cinematics. The way in which emotions are generated and managed in video games provides reasons for the research and development of narrative and emotion building techniques and solutions adapted to an interactive user or player.

It is apparent that the commonly used techniques with regard to emotion generation and communication in drama do not provide a viable and ideal solution to the introduction of interactivity from a non-authorial perspective. We believe that character-centred concepts should be looking at the characters' internal states of emotions and their reasons, causes and consequences in order to communicate emotions and feelings rather than relying on agency techniques. Indeed, although plot event or even random narrative events should still be means of generating interest in an unfolding story, the focus should be on the reaction of the characters rather than the overall story. The fact that the users are immersed in the story-world and have no access to the overall plot, should allow for the development of story or interest relationships between users and other characters hence, providing the users with an understanding of characters' motivations, personalities or back stories. In a sense, what is expected from the users is not to grasp the overall plot described to them and absorb the drama emotionally as we are used to in films or books, but to actually understand the characters emotionally as well as strategically in regard to a real-time unfolding narrative. By bringing the users closer to the characters, we argue for a shift of emphasis on the means of conveying emotions to the users. Indeed, we argue for an active role of the users where they do not only receive the information from visual, audio and contextual clues, but instead interpret and understand the emotions and feeling of characters and personal contexts, while still being conscious of the impact of their own actions on others. Our emergent narrative system focuses on making the transition between the passive role of a spectator and the active role of a character.

In order to achieve success with such approach, one should regard to main research topics with interest. Particular interest should be oriented towards the way in which the character or agent in case of computational application, assess and process emotions. In general terms, independently of the acting method followed, a good actor is able to feel the same emotions of his/her character and express them in front of a camera or on stage. More often than not, the quality of an interpretation depends on the actor's ability to identify with the character emotionally. Therefore, it is conceivable that a virtual actor (i.e. intelligent agent), if in a position to interpret and feel emotions in regard to a particular character (i.e. personality, emotion tendencies, emotional responses), could indeed make decisions that would reflect on its internal emotional state in the same way an actor would do in acting a given scene. Although, lots of ground has been covered in the last few years in emotion modelling and intelligent technology, it seems that it still would take a lot of effort and investment in order to get an agent reacting and behaving convincingly, in the same way an actor would. However, the technology is currently being developed and such vision appears totally feasible. An agent-based approach would allow for a dynamic assessment of situations and stimuli prompt in generating emotions and would also be a determining element in managing context related actions or reactions. We believe that an agent-based solution would be particularly suitable for this type of application as opposed to a more generic framework that would manage all of the characters. It would be more complex for a generic, non-agent framework to actually keep track of feelings and emotions for each character in a given story experience and process them in real-time. Affective agents have been built to this purpose in the European framework V project VICTEC [19] and make their decisions according to their emotional state and their feelings within each other. We will describe some of the implementation work on these agents in the next section.

The other important consideration in terms of emotion in regard to a character-based approach to interactive storytelling lies in the way user emotions are assessed. As far as research in the field is concerned, it doesn't appear as if there are any other solutions than assessing the user's emotional state via its action-decision behaviour. Indeed, for the characters of such interactive drama to react emotionally to events and user interventions, they must therefore be able to interpret and analyse the user's decisions and actions. This approach is similar to the one we ourselves undertake everyday when making decisions. We make decisions in regard to our knowledge, mood and needs. This can be simulated and reproduced within an intelligent agent providing

that it has been given the means to interpret user input and refer to its own emotional state in order to react or build plan in regard to internal goals. For this to be possible, one must consider emotion modelling and implementation within an agent-based framework.

There are grounds in determining the emotional impact of actions or plot events within an agent framework prior to a performance. Also, although this approach allows the characters to get a feel of the user's emotional state and allow them to display a certain number of emotions and behaviours seemingly adapted to the situation in real-time; one could raise the issue of contextualisation and highlight the potential problems linked to the use of deterministic reactions.

#### 4 The FearNot! agents, building emotionally driven characters

The research work carried out for the VICTEC project aimed at building an agent framework whose functionalities would allow for the creation of emotionally driven characters, with a particular view towards interactive drama and virtual storytelling. The agent architecture [figure 2] developed for the project focused on the importance of emotions in regard to action-selection and decision-making mechanisms. The agents in the FearNot! (Fun with Empathic Agents to Reach Novel Outcomes in Teaching) Software are emotionally driven and react or plan their next actions in regard to their dominant emotional state. Such an approach allows for the articulation of an emergent narrative approach [5,6,7] and provides flexibility in regard to story articulation as envisaged in this particular narrative concept.

In reference to what has been mentioned already in this paper, we believe that for such a character-based system to function successfully, the agents need to be able to relate to each other emotionally. This particular idea is indeed at the centre of the FearNot! agent architecture and has been implemented in regard to the emotion definition presented by Ortony, Clore and Collins (OCC) [20].

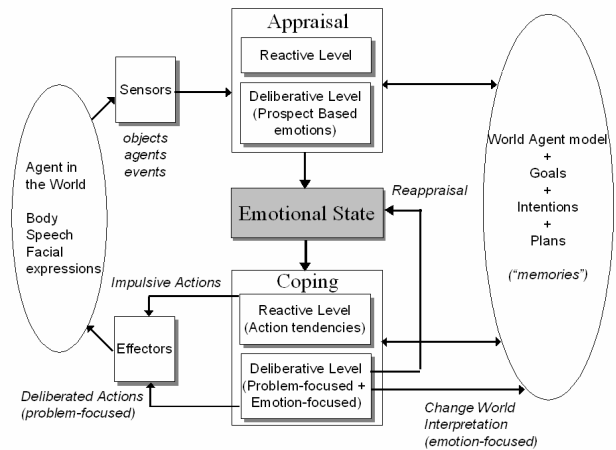


Figure 2: The FearNot! Agent architecture

In this architecture, each agent or character in the world perceives the environment, through a set of sensors (allowing the perception of events, objects, etc. in the world) and acts on the environment through its effectors, allowing different actions to be performed (for example, a bully may hit the victim and the victim may cry). Upon receiving a percept (for example, be the presence of another agent or an object, or even an action from another agent) the agent appraises its significance and triggers the appropriate emotions. Additionally, if a goal has become active, it will add a new intention to achieve the active goal.

The appraisal process feeds the resulting emotional state into an action-selection mechanism at two different levels: that of action-tendencies and that of coping behavior. For example, if the victim character starts to cry when bullied, it is not because s/he has a goal that involves crying – this is an innate reaction to a particular distressed emotional state and the inability to fight back. On the other hand, other actions, such as begging the bully to stop, do result from the internal goals of the agent and are planned.

This second layer defines two kinds of coping: problem-focused coping, involving planning and acting to achieve goals; and emotion-focused coping in which the character's interpretation of the environment is altered. For example, an agent that feels distressed by being unable to achieve a given goal, may lower the goal's importance as a way of reducing its distress. In this way, emotions will not only influence the agents' reactive behavior, but also guide the planning process, since emotional focused coping changes the agent's interpretation of its plans. The continuous partially ordered planner used in FearNot! selects the intention associated with the currently most intense emotion from the intention structure.

By assessing and reacting on each other's action and reactions, the agents in FearNot! truly interpret their role in the same way an actor would interpret a character. Each agent is defined according to its role in the drama and its personality (i.e. emotional triggering thresholds) and is attributed a set of actions, goals and emotional reactions. These are developed and written in regard to the agent's personality and role.

## 5 Conclusion

In this paper, we have highlighted the necessity to investigate the mechanisms needed for the generation of emotions for a spectator or user. We believe that this topic is highly relevant to the research on interactive storytelling and interactive dramas. Whereas it is certain that progresses are being made in this particular field on the form of the interactive drama and on mechanisms adapted to user interventions, there are still many questions and issues unsolved with regard to the content of the drama. Moreover, the means to reach the user emotionally have not yet been studied and should help in determining techniques and mechanisms in order to reach the user emotionally. We are hoping to conduct some test based on the VICTEC agent framework to illustrate this point in a near future.

## Acknowledgements

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