

# Analysing the Performance of Interactive Narrative

Andrew Hutchison

Curtin University

E-mail: a.hutchison@curtin.edu.au

## ABSTRACT

This paper presents the comparative study of three quite different interactive experiences, utilising a narratological/performative approach. The author is motivated to the development of a coherent, systematic and comparative approach to the analysis of complex interactive experiences, regardless of their apparent 'genre', as a result of being involved in the production of the Juvenate project. The advantages of such an approach to the analysis of interactive experiences that are not necessarily imbued with any obvious or significant 'story' aspect will be explored. Bal's call for narratology to be positioned in a multi-disciplinary approach provides a framework for a concept in which a designed work 'implicates' the reader to 'enact' a 'performance' [1].

## KEYWORDS

interactive, aesthetic, narrative, art, experience, narratology, performance, Juvenate, Myst, EverQuest, Osmose, Ephemere.

## INTRODUCTION

The author is one in a team who have developed and published an interactive narrative experiment, titled 'Juvenate', with a principal funding grant from the Australian Film Commission, Australia's leading screen culture funding body. The team were Michelle Glaser, Marie-Louise Xavier, and Andrew Hutchison. Formally completed in Feb of 2001, it has received significant exposure in fourteen international exhibitions, received critical acclaim in trade journal [2], [3] and received one national and two international awards [4]. While this is obviously very satisfying for the designers, and it clearly demonstrates that something about the project is appealing, it is not clear exactly *what* is appealing.

The project's main objective was to create a narrative experience that was 'open' in the sense described by Umberto Eco ([5] p.21.). In Eco's view, the 'open work' is one in which the author has deliberately planned to create the need for the reader to make interpretations of their own.

Juvenate's theme is of memory, illness, and rejuvenation. An intentionally evocative and unusual audio visual style is employed, challenging the user to investigate and inquire. Imagery is constructed from photos of real objects, but the perspective is affected. Heavily textured with supersaturated colours and enhanced sounds, and a non linear structure, it seeks to convey a dreamlike feel that the terminally ill can often experience. Dialogue and text have been largely avoided, to enable the work to cross language boundaries, as well as to require the user to make cognitive connections themselves. An alternative interaction mode is used, moving away from the 'point and click' behaviour ingrained in most

computer user's expectations. Instead, feedback is provided using a deliberately indefinite 'incrementing proximity' technique. It delivers on CD-ROM, for Macintosh and Windows computers. Researchers who wish to obtain a copy can do so at no cost at the website <http://multimedia.design.curtin.edu.au/juvenate/>

where there is also design documentation, screen shots, production history and working examples.

In the paper design phase, the team thought that they were creating a narrative experience roughly equivalent to reading a short story. However, as the project neared completion, it became apparent that the number of permutations of navigation and interaction possibilities, novel interaction mode, and non verbal/non textual reading, had created an experience of high cognitive demand. In use, automatic tracking software, in an exhibition context, logged several users spending up to 36 minutes in the experience, but many others abandoned it in less than a minute. Anecdotal evidence and direct observations suggest this huge variation is probably because the interactive experience did not behave as many users expected it to, being neither 'game' or 'story' like.

Juvenate turned out to have a much greater complexity and cognitive stress for the average user than the design team anticipated/intended. This realisation reminds us that all such works are made by real people who, in negotiating the problems of their own experience, motivation, skills, financial and technological limitations, may make design choices without real awareness or control of the effect. The overall project experience asks the question of how and what narrative aspects contribute to the reader's experience, when the reader has some explicit interactive contribution to make. This in turn raises the question of interface. Interaction requires some kind of interface. Douglas specifically raises the possibility of how a work that distracts it's readers with problems to solve, or rich images and sounds, may compromise the experience, highlighting the problem of how to create an interface that doesn't get in the way of the experience [6]. We also need a way to consider that perhaps the interface *is* the prime experience in some works.

## AN APPROACH

The Juvenate experience signals the need for more detailed analysis of the practical workings of specific, designed interactive media experiences, particularly of those works that have narrative elements. 'Juvenate' is an example of a work which is not a hypertext, nor a game, and certainly not a narrative by the standards of conventional literature. To analyse interactive experiences only by such classification runs the risk that new forms will be unstudied. It seems very unwise to exclude experiments, deviations and new developments from consideration. My own production experience demonstrates to me that designers of new media often intended a specific narrative experience, or utilise narrative aspects (character, actions, settings, sequence). Of course, the presence of narrative elements does not necessarily mean a specific storyline with beginning, middle and end is there. Even if it is, it may not be the main pleasure the author intends, or that the reader takes from the experience. However, it is acknowledged that many games have explicit aspects of narrative [7]. A

long running point of debate in the area of interactive media design and analysis is that of the apparent conflict between narrative on one hand, and interactivity on the other ([8] p.11.). The approach I am suggesting is not intended to fuel, further or resolve that particular debate. The presence of narrative elements makes narratology an obvious method of analysis of works containing narrative elements, provided we can divest ourselves of any expectation of identifying works as either narrative or not, or placing them on a sliding scale of 'narrativeness', or simply de-construct an experience and categorising the components. To dismiss narrative approaches of analysing a work because a clear plot line is absent, or because the particular example is in that loose category called 'games', is to miss the opportunity to explore and compare.

Let me make it clear that I am not suggesting this approach as a replacement for existing analysis specific to 'interactive art', 'hypertext' literature, or 'game'. Rather it is proposed as a supplement/compliment to them. I seek an analysis that allows these differing types to be considered together, for the benefits that can arise by their comparison. The point is to generate questions about how interactive experiences work utilising narrative elements, questions which can be answered by articulation to other theories.

#### A MODEL

I have chosen the narratological model of Mike Bal, for several reasons. Most importantly, though, Bal has a concept of narrative in which a designed work 'implicates' the reader to 'enact' a 'performance' [1]. This resonates strongly with the participatory/performative theme of many media theorists, from McLuhan [9] to Laurel [10], Aarseth [11] and Ryan [12]. Bal's approaches, with some modifications, can work fruitfully with these existing interactive media theories.

A narratological approach has benefits in coherence, and for the detail it can resolve. Its structuralist origins are apparent in the use of the difference between, and causal relationships of, aspects and functions such as events, characters and time, to generate meaning. Its value lies in its ability to make clear how meaning is created, rather than what meaning is created [13], and the more fruitful contemporary applications are in conjunction with other theoretical approaches [14, 15], particularly in the context of reader-response theory.

Moreover, reception-oriented theories of language and narrative have persuasively argued that it is the reader who 'makes' the meaning. The point is not that meaning can be pinpointed in any simple way. But it is only once we know how a text is structured that the reader's share - and responsibility - can be clearly assessed ([15] p.11.).

Bal provides a detailed process for narratological analysis, with three aspects that make it particularly appropriate for this study.

First, Bal describes narratology as a method that informs other, further theoretical processes, rather than as a process producing an end result of its own, and presents a convincing, practical demonstration of this in action. Bal's approach is inherently designed to be iterative and

interdisciplinary, and has been quite recently updated (1997).

Secondly, it shows the value of applying narratological analysis to constructed artefacts that do not appear to have any explicit narrative aspects. Useful perspectives on their functioning will still have been gained even if upon analysis they are found not to incorporate any 'traditional' narrative aspects. The outcome of narratological analysis is not limited to deciding which 'category' or 'genre' of narrative an artefact belongs to.

Thirdly, it can be applied to any constructed artefact, such as buildings and visual art, not just to traditional oral, literary or cinematic narrative works. This is obviously a huge advantage when considering non-literary, non-linear and non-time based works such as digitally mediated interactive experiences.

The full detail, sophistication and depth of Bal's model cannot be done justice in this paper, described as it is in a 250 page book [15], and the model I have presented here is necessarily a fast sketch. Bal's model separates a narrative work into three distinct (theoretical) levels for analysis. These levels are **Fabula**, **Story** and **Text**. **The Fabula** is a system of elements and the interaction that occurs between them. At this level, they do not yet have specific details or characteristics. The elements of the Fabula are Events, Actors, Time, and Location. Six processes convert the Fabula into the next level, **Story**.

**Events** are arranged into a sequence which can differ from the chronological sequence.

**Actors** are provided with distinct traits and transformed into characters.

**Time** in the story is allocated to the various elements of the fabula, and develops frequency and rhythm.

The **Location** where events occur are given distinct characteristics and become specific places.

**Other relationships** may be developed between elements of the fabula, not previously existing eg. symbolic, allusive, traditional, etc.

**Focalization**, in which everything that can be seen by the reader must be presented from some particular point of view.

Narration develops this Story into a **Text**, the actual manifestation of the specific sign system that the user/reader actually experiences. This Text might be an art work, building, or book. The same Story could be encoded by narration into two different Texts eg: a book and a movie. By identifying this level in this way, Bal's model removes the presumption so often found in narratology, and other narrative studies, that the specific sign system will be either written text or cinematic. Bal's full model description includes detailed breakdowns of possible components in each level, functional relations of components and procedures for analysis of the interaction between the components.

#### THE MODIFICATION OF THE MODEL

In applying this model to interactive experiences like

electronic art, hypertext literature and games, the most obvious modification that needs to be made is that of accounting for ‘interactivity’.

### Three Kinds of Interaction

Ryan describes three levels in a virtualised text, in which many potentials exist, only some of which will be realised through interaction with a user [18].

The text as written or “engineered” by the author.

The text as presented, displayed, to the reader.

The text as constructed (mentally) by the reader.

This allows a practical definition of how a particular interactive work with such potentials might demand or allow the reader to engage in three different ways.

First way – Altering the way aspects of the text actually are (eg: character, settings, quality or style of visual rendering), before or during the ‘reading’.

Second way – Responding to the options presented by the experience.

Third way --The cognitive mental processes that occur in the user’s mind to make what they have perceived meaningful to them.

Clearly, not all interactive experiences involve the first type of interaction. It seems likely that most would require the second. It is difficult to conceive of a work that would function without the third, or else, of course, it would not have meaning.

The combination of these three ways of interacting is what I am calling the ‘performance’ of the text by the reader, and this returns us to Bal’s notion of a work ‘implicating’ a reader to ‘enact’ a ‘performance’ [1]. The detail of the first, second and third ways of interacting allow us to do detailed analysis, while keeping in mind that the reader is having a total, undivided experience, their enactment of a performance. Hypertext theory has come under some criticism for too literally applying Barthe’s notion of the “death of the author” ([17] p. 237.). Other new media theorists characterise the relationship between author and reader as less a contest, and more a collaboration. Ryan reflects this in terminology such as ‘engineered’ [18] (p.46.) to describe the author’s contribution, and ‘appreciator’ (p.19.) and ‘interactor’ (p.17.) for the reader. This shift in terminology positions the author’s facilitation of the reader’s enactment, through the design of the work. For the sake of consistency alone, this paper will maintain Bal’s use of the terms author and reader, except where the specific nature of a particular work would make it confusing.

### ASSESSING CONTRIBUTIONS – THE LITERAL APPLICATION OF BAL’S FABULA, STORY AND TEXT

The processes that turn a Fabula into a Story and then into a specific Text are, in the case of a book or a film, most obviously the responsibility of the author of the work. A writer chooses a particular word, a film director frames a particular shot, and an editor cuts a scene. Bal is careful to point out that in the creation of a book or movie, ‘neither authors nor readers proceed in this manner’, with regard to dividing the work into these

three levels ([19] p.6.). However, in application to explicitly interactive works, control over aspects of the three levels can be literally attributed to either the author or the reader, by one of the three kinds of interaction. While authorial control must still exist over some aspects at some level in interactive experiences, it is also possible that the reader will decide how some things will be in each layer.

### the Significance of Absence.

It is also possible that no decision is made by anyone, that some aspects and processes of some of the three levels are ‘blank’, not attributable to either the author or the reader. This possibility may tell us that such an aspect is simply not important in the context of that particular work, or it may be that it is resolved or rendered not in the text, but in the reader’s imagination in the third kind of interaction, it’s absence being both deliberate on the part of the author, and critically important to the workings of the interactive experience. A large number of such aspects might reveal an ‘open work’ in Eco’s terms.

### the Significance of Non-significance.

Most works will have a huge number of potential interactions between elements and aspects, and even more if we consider the reader’s interaction with them. Bal’s model provides a process for determining which of these are deemed ‘significant’, those that have the capacity to cause change. However, there is a significance in non-significant aspects or relationships, because they are still there, being read by the reader. There could, for example, be a lot of navigational choices, none of which actually change the way an experience finally resolves. It is significant that this is the case, since it may reveal that the choices are engaging the reader for some other purpose. So the significance of non-significance is that it raises specific questions about specific works.

### the Interface in the Text

If a novel is reprinted, has a different cover illustration, is set in a different typeface, with different grade of paper, it becomes a different Text. The cover illustration will imbue a different impression. The typeface is the actual manifestation of the complex sign system the reader’s eye sees. The corner of the page is certainly the physical, tactile control by which the reader makes progress, and the different grade of paper will feel and sound different during the page turn. This leads to the realisation that hardware and software, the computer keyboard, mouse, screen and Graphical User Interface of the operating system, or the virtual reality helmet, or the game console, must be part of the Text of their respective experiences. Maintaining the hardware and software interface in the Text level affords detailed examination of the impact and significance of the interface/media choices, and avoids them disappearing from our attention due to their familiarity.

### the Fourth level - Experience

The ultimate fulfilment of the efforts of both the author and the reader of any text is the third kind of interaction noted above, the reader’s cognitive and emotional reaction, their making meaning. This is the personal and intangible outcome of a reader’s encounter with any text, be it verbal, textual, cinematic, virtual or tangible, explicitly interactive or not. Bal’s model allows the text

to be any designed artefact at all, including visual art and architecture. A very similar notion has been posited by, among others, Nathan Shredroff [20]. He describes Experience Design as an approach to the creation of specific experiences in any medium (virtual, real world), focussing on the human response, rather than the production of a medium specific artefact. Formalising the third kind of interaction as the fourth level of Experience reminds us that it is common to all human encounters with all kinds of texts.

The process of analysis is of allocating author or reader contributions for each element or aspect in each of the three levels, Fabula, Story, and Text. In the case of the reader, it is also a question of whether the contribution is of the first kind or the second kind of interaction, and whether it is significant or not in terms of causing change. This can be summarised in a tabulated form for comparison.

### ANALYSIS OF THREE WORKS

The specific examples are chosen because they are notable in some way, due to popularity of use and/or critical analysis/commentary, and all contain some narrative element, dealing with a combination of time, space, or character. It is of note that two of these three are in the category 'games', and the third an 'art work'. This is a natural reflection of the very great number of games, and the frequency with which they are experienced. This narratological/performative model is intended as a process of analysis, not a process of classification.

Myst (1993), CD-ROM adventure game, Cyan productions [21].

Osmose (1995) and Ephemere (1998), VR art works, Char Davies [22, 23].

EverQuest (1999 and current), on-line multi user role

particular outcome. My own interest is in how the actual hardware and software interface of these works relates to 'immersion', with reference to the notions of immersion presented by Ryan [12].

### Myst

Released in 1993, Myst is a self described 'surreal adventure that will become your world' [21]. Developed in anticipation of the widespread emergence of CD-ROM drives on personal computers, it was released at the perfect time to become a gaming and computer marketing sensation in those few multimedia years before the internet phenomenon arrived [26]. Three dimensionally modelled and rendered still images form navigable walkthroughs, with very small video clips invisibly inserted so that birds hover in the breeze, butterflies fly across the path, windmills turn in the distance. Environmental soundscapes change as the player moves around, and movie style incidental music signals important discoveries. Fusions of architectural styles and technology dot unpopulated island locations, surrounded by empty seas. A series of puzzles must be solved in order to travel to other worlds to recover missing pages, which are added to magic books to unravel which of three trapped characters, a father and his two sons, is the villain. It was described as both "immersive" and "interface less"[26]. Compared to the other works analysed, Myst has a high level of both author contribution, and the second kind of interactive, non-significant contribution from the reader.

An aspect of the detailed analysis of the actors/functions that is available in Bal's model is the causal relationships between actors/characters and events, with categories such as 'helper' and 'opponent', 'power' and 'receiver' and 'hero' Applying this analysis to Myst's characters revealed two things about its narrative aspects. Firstly, it is not the player's character who is the hero of Myst,

Determined by author	A
Determined by reader - First kind of interaction	R1
Determined by reader - Second kind of interaction	R2
Not Determined	ND
Significant (in relation to other elements)	S
Not Significant (in relation to other elements)	NS

Figure 1: Key for author/reader contributions

playing environment, Verant Interactive [24].

The summaries show that Myst has a low level of reader input. Of the two kinds of interaction available to be attributed, only the second kind appears (making choices from options presented), and they are non significant i.e. they do not bring about change. Also of note, only one aspect of all three levels of Fabula, Story and Text is not determined by the author. Osmose and Ephemere, by comparison, show a majority of aspects in all levels to be undetermined by either the author or the reader, and only one, insignificant, contribution by the reader. EverQuest has a much more even spread of author, reader and undetermined aspects. Of note here is that most of the reader's contributions are of the significant kind, and of the first kind of interaction, that actually changes the way the text occurs or appears. Having applied this model, it is important to realise that these observations should not be regarded as value judgements, or as results in themselves. They are merely leads for further investigations, to be followed towards a

rather, it is undoubtedly Atrus, the magician/inventor/father. The 'hero' is the character who is most central to the story, in terms of information provided, relationships with other characters and events. An enormous amount of information about the worlds and specific plot come to us through Atrus's voice and writings. He is the architect of the magical devices, and friend and protector of the peoples of the other worlds. When the player finally releases Atrus from his prison, he goes and punishes his sons, while the player waits in the prison, and so never witnesses the final act of the story. Atrus is the hero, and the overall story is seen through his eyes, not the player's. The player can have no effect on what characters say or do. Absolutely nothing can change the necessary order of significant events to get to the point where the playing character chooses to release the father, or the brothers, or to entrap themselves. Secondly, an unseen character or agent has written and hidden an unsigned and unaddressed note, with a critical clue to the progress of the experience. Presumably, the same agent also distributed the other

key pages of the magic books into the other worlds. The question is, who? Not the father, and not the brothers. The obvious answer is that the 'power' that has done this is in fact the 'author function', the designers of the game themselves. Obviously, the reason the pages are so distributed is to ensure the player visits all of the worlds. What is interesting is why the designers have not simply contrived the story to explain this, maintaining more integrity in the plot. Is it simply an oversight on the part of the designers?

The other common criticism of the game is that it is too hard [27]. The original game packaging included an actual, real, sealed envelope with hints, and a blank book for taking notes, giving an indication of the kind of study that would be required to successfully find the missing white page to release Atrus. The player's 'embedded fabula' is four cycles of solving puzzles in

underdetermined that it merges easily with the player's own identity in the Experience level.

### EverQuest

Everquest is a 'massively multiplayer online role playing game', claiming to have sold around half a million copies, enabling players to log onto a server where literally thousands of other players can co-exist and interact using avatars that are rendered in real time three dimensions [24]. It was launched in 1999.

A striking feature of EverQuest is its interface. While Myst presents no computer like interface to the player during the game, so much so that it is a serious interruption to find the menu bar for the very rare times it is needed, EverQuest has so many options for interaction that it has a conventional Graphical User Interface, complete with drop down menus and text

Myst	Events/ sequence	Actors/ Characters	Time		Location/ Place/Space
			Rhythm	Frequency	
Fabula	A	A	ND		A
Story	R2 (NS)	A	R2 (NS)	R2 (NS)	A
Text	R2 (NS)	A	R2 (NS)	R2 (NS)	R2 (NS)
Experience					

  

EverQuest	Events/ sequence	Actors/ Characters	Time		Location/ Place/Space
			Rhythm	Frequency	
Fabula	A	A	A		A
Story	R2 (NS)	R1 (S)	ND	ND	A
Text	R2(S)	R1 (S)	R1(S)	R1(S)	A
Experience					

  

Osmose/ Ephemere	Events/ sequence	Actors/ Characters	Time		Location/ Place/Space
			Rhythm	Frequency	
Fabula	ND	ND	ND		A
Story	ND	ND	ND	ND	A
Text	A	ND	A	ND	R2(NS)

Figure 2: Author/reader contribution summaries

order to travel to a world in order to find pages, to solve another puzzle to return. Each cycle produces two pages that deliver more testimony. However, all of the puzzles and information could have been designed to be hidden/provided on the main island of Myst, where the game starts, and the three characters are imprisoned. Why does the player have to solve puzzles to get there and back? Why are there other worlds at all? An answer to this question is that solving each puzzle requires closely examining the world it is in, in fine detail, producing a kind of forced immersion. Aspects of the narration suggest that Myst is primarily about places, for example, the use of incidental music to highlight the discovery of secret rooms. Similarly, the attention the designers have given to the tactile nature of the objects and devices and the environmental soundscapes is impressive.

Carefully modelled and rendered, Myst is realised (narrated) in extreme detail, producing a rich audio-visual-tactile experience. This strong author contribution can be found at every level. 'Evil sons betray good father' in the Fabula, to specific characters with names and personality in the Story, to the video taped actors in the Text. A distinct exception to this is the player's character, who remains in the fabula level of rendering, so much so that the other characters refer to the player character only as 'my friend'. Avoiding making the player enter a name, or choose an avatar, or see an author allocated avatar, helps maintain the effect of the lack of an interface. The player character is so

entry chat box, crowding around, and literally over, the first person view of the world. This is such a problem that critical information appears in a Heads Up Display, semi transparent over the game view, so that it can be seen at the same time. The visual coincidence of the control interface with the game play is mirrored in the logic of the organisation of the menu options themselves. Controls for the technical performance of the computer the player is using are right next to the controls for the items the player's character has collected in the game. A merging of the real and game world has occurred. Messages from the system administrator about maintaining current e-mail addresses are given in the vernacular of the game world, and are addressed to 'The residents of Norrath!'. Experienced players often give advice to new players about how the interface works, dropping out of character to do this, but using the same text box that characters use. The interface itself is so complex that most of a one hundred page manual is provided to explain it.

The author/reader contribution summary shows a high level of significant interaction of the first kind for EverQuest. This explains the complexity of the interface. While Myst left the player character undefined, EverQuest requires the player take their character from 'actor' function in the Fabula level to character in the Story with a unique combination of skills, characteristics and name, and then to determine the physical appearance in the Text. This level of control

also applies to the game play itself, with the player in control of a huge number of interactions with characters, objects, and locations. Each player can interact with Non Playing Characters, generated by the author, or with other Playing Characters, (reader created characters). Non Playing Characters are extremely limited in their interaction, providing 'quests' (mini-fabula embedded inside the greater Fabula of the background worlds), exchanging objects, and engaging in fights. However, the opportunities that open up when interacting with Playing Characters is what really defines EverQuest. The causal cycle of events that can be generated by relating to other Playing Characters is unlimited other than by the combined imagination of one or more human beings in (close to) real time. Players can band together in parties, join guilds, get rich, and go to war.

Eight of the one hundred pages of the instruction manual are devoted to a short story about how the EverQuest world and peoples came about, serving to invoke a genre, utilising character, story and settings familiar from fairy tales, and epics such as Lord of the Rings [28]. While the thin, genre driven world provides a point of reference and a set of guidelines for operating, it does not prohibit the will of the player to experiment with events, objects and relations with characters. Characters and locations are not over defined, leaving much room for the player to interact with the author presented characters, or to develop relationships with other real players. These become stories that only the player can know, realised in the Experience level.

Another outstanding feature is the audio-visual rendering. It is, once again, very different than Myst, utilising real time, low polygon, low resolution graphics with highly repetitive textures and sounds. Even the avatars are so similar that the default settings for the work have character's names hovering over their avatar's head in bold text, so that they can be identified. Once again, the interface appears inside the game world, or at least, they conflate. However, rather than limiting the capacity to engage in meaningful interaction, this seems to enable it. Players can utilise author provided animations for their avatars to express emotions, or give directions. However, when these fail, or are simply not sophisticated enough, players simply type to one another in the message box. It is a strong reminder of the literally text based nature of the early on-line Role Playing Games that are EverQuest's parents, and the even earlier, verbally rendered, face to face Role Playing Games. They were unlimited by visual rendering, and EverQuest seems similarly unburdened by the need to have a uniform aesthetic, or 'invisible' interface. Does this mean that Ever quest is less immersive than Myst?

### **Osmost/Ephemere**

These two different, but closely related works are Virtual Reality art works. They are of note because they have a very unusual interface, using expensive, rare and customised arrangements of hardware and software, and deal directly with the notion of immersion. My own opportunity was at the Biennale of Electronic Art in Perth in August in 2002 [29]. The 'reader' or 'immersant' [22] wears a special waistcoat, and puts on a large helmet. The waistcoat contains sensors that measure your chest diameter, and thus whether you are breathing in or out, as well as the height and position of your body relative to a sensor pad you stand on. The

helmet contains a stereo vision display and surround sound speakers. An attendant helps you put all this on, as well as explaining the basics of moving around. You are also, at least in the beginning, aware that you will literally be performing, since the location is contrived to show your silhouette on a glass screen dividing you from a room where people are watching what you will see on a conventional screen, as well as watching you 'do it'. Space limitations in this paper do not allow the inclusion of images, but excellent pictures are available at: <http://www.immersence.com>

Inside the experience, you move up and down by breathing in and out, and move in a particular direction by leaning that way. You float in space, and familiar objects are few and far between. There are grids, clouds, streams of red dots, ghostly trees, infinite walls of text, and layers with indefinite boundaries between zones. An abstract soundscape of non specific, organic sounds helps produce a calming but slightly eerie mood. The position of the view screens inside the helmet means that your field of vision is totally filled by the virtual environment. This, combined with the lack of a cursor, or joystick, or any other pointing device, has the effect that in order to look around, you have to literally turn your head and body, just like in real life. This is surprisingly different than watching a static screen with the world sliding past. When you look down at where your hand and legs should be, they aren't there. After what seems like a very short time, but in fact was fifteen minutes, you feel yourself being drawn gently away, up, against your will to move, and then it's over, and the attendant is helping you out of your equipment.

My personal experience, discussions with others, and published reports indicate that many people find Osmost/Ephemere very compelling, though very hard to describe. It is this very absence of obvious, describable features that interests me. Each of the works certainly has narrative aspects, locations, objects, the experience the user has occurs in a structured time, and the world is seen from a point of view, implying that there is a character. Applying the author/reader contribution summary reveals many aspects that are undetermined, with little contribution at all from the reader. Davies has stated that the intention was to produce indeterminate spaces to induce a contemplative reaction from the reader [23]. Since most of what we have in these experiences is about space with no usual reference to visual perspective, it is not surprising that people's responses are highly individual, as each person reaches deeper into their own memory and subconscious to make connections, which can only occur in the Experience level. It's the very opposite of EverQuest, where the weight of the cliches seems to provide a common reference for what to do.

Davies's intention was to create a work that produced an immersion in space, with an alternative interface. The interface has the immediate effect of stopping the user moving around. Most 'immersants' have had a total experience only fifteen minutes long in an exhibition setting. Even if you were already aware of the basic movement techniques, there isn't really time to get used to the interface. Some people do not even move around, and in fact, one of the designed aspects of the later Ephemere was to introduce a time component, so that even if the reader is static, they still witness a dynamic

environment [25]. A variety of other issues also have negative cognitive impact. The helmet is heavy, and it does not fit every person's head equally well. Outside light leaks distractingly into the helmet sometimes, and the resolution of the in-head display screens is very low compared to the large screen image probably seen beforehand, and the difference takes some getting used to. It is interesting to consider when (and if) these small technical problems are resolved, and the interface becomes cheaper and more available, how *Osmose* and *Ephemere* will be appreciated by more proficient immersants with more time. While *Myst* uses highly determined and specific characters, locations and plot at all levels of the Fabula, Story and Text, and *Osmose/Ephemere* do not, these very different works are both very carefully rendered in unique audio visual styles, and both have strived to reduce the intrusiveness of the conventional computer interface. Both of these works have been described as highly immersive [26, 30].

### SUMMARY

In her exploration of immersion, interactivity and narrative, Ryan makes a broad definition of an immersive text.

For a text to be immersive, then, it must create a space to which the reader, spectator, or user can relate, and it must populate this space with individuated objects. It must, in other words, construct the settings for a potential narrative action, even though it may lack the temporal extension to develop this action into a plot ([12] p.94.).

All of the three analysed works fulfil this qualification to some degree. Ryan also makes some observations which have clear relevance to a comparison of *Myst*, *EverQuest* and *Osmose/Ephemere*. The first is that aesthetic pleasure is not the same as immersion. Just because something is appreciated as beautiful, or beautifully crafted, does not mean it will bring about immersion ([12] p.14.). So although both *Myst* and *Osmose/Ephemere* are clearly produced to a very high level of unique audio-visual treatment, this does

creates a continuity of interface experience arguably greater than that of *Myst* or *Osmose/Ephemere*, since it is never interrupted. It utilises already well known conventions of computer interaction, and can also be custom altered to each reader's specific needs. Certainly, the authors of *EverQuest* feel it is so immersive that one of many options presented to the new user is an alarm clock function. Ryan points out that readers are more likely to become immersed when the material they are reading is familiar to them ([12] p.95.), and in this regard, *EverQuest's* use of a pre-existing genre of narrative elements is much more likely to immerse, particularly if the reader is already used to the interface

*Myst's* strong narrative elements function to justify the amazingly detailed worlds the reader encounters, and to require the reader to 'immerse' in them. However, these strong narrative elements and high production values may also have raised expectations of a spectacular ending, either in terms of plot or visuals, leading to the 'lack of a good ending' for many players [27]. At the conclusion, Atrus invites the player to 'continue to explore', but these worlds are without any further potential, since they contain nothing that is not connected with the puzzles that have already been solved. Fully finished in the Text level, *Myst's* principal activity for the reader in the Experience level is the solving of the puzzles. *Osmose/Ephemere* do not offer any such obvious narrative combination or task fulfilment, instead providing just enough of a space and recognisable objects to invoke the process of interpretation in the Experience level, which will have to be informed by each person's previous life knowledge. *EverQuest* requires the reader to do much in the Experience level, to make sense of the under determined narrative combinations and low resolution audio-visuals. In the context of Ryan's definition, it seems likely that the descriptions of 'immersive' for *Myst* and *Osmose/Ephemere* are due to their audio visual finish and absence of obvious interface, rather than their superior immersion capability, relative to *EverQuest*.

### ANALYSING JUVENATE

Juvenate	Events/ sequence	Actors/ Characters	Time		Location/ Place/Space
			Rhythm	Frequency/	
Fabula	ND	A	ND		A
Story	ND	ND	ND	ND	ND
Text	R2(NS)	A	R2(NS)	R2(NS)	A
Experience					

Figure 3: Author/reader contribution summary for *Juvenate*

not put them ahead of the low res, repetitive, clunky *EverQuest*. *Myst* succeeds in minimising the existing interaction interface to the absolute, with almost no windows, textboxes, menus or buttons appearing on screen. *Osmose/Ephemere* have gone even further in the same direction, literally getting rid of the conventional hardware and interaction mode, but replacing it with one which is, at the current time, rare, expensive, and therefore limited. Both these works reduce the reader's visible presence in the world to the minimum achievable in their respective formats. *EverQuest*, by contrast, presents a world that is literally cluttered with its interface, allows the reader to have several different characters, and alter their visual appearance during game play. However, the constancy with which the interface mechanism and the game world have been combined,

Returning to the *Juvenate* project, applying the same analysis shows that it bears many similarities to *Osmose/Ephemere* and *Myst*. Like *Myst*, all of its interactive contributions are non-significant, but like *Osmose/Ephemere*, it has a lot of undetermined aspects. It has a highly unique and finished audio-visual style, often noted by its appreciators, and it also strives to reduce the visible interface to a minimum. *Juvenate* works on ordinary computers, but replaced the standard clicking arrow/hand cursor with a simple black dot and indeterminate proximity feedback and navigation. As with *Osmose/Ephemere*, this had the effect of rendering some readers immobile, and this is perhaps an inevitable price to pay for using the interface to signaling to the user that readership patterns other than normal are expected from them. The other characteristic

use by both Juvenate and Osmose/Ephemere is the deliberate ‘defamiliarisation’ of the images to invoke a contemplative response, though this is far stronger in Osmose/Ephemere. What is unique in Juvenate among these other examples is its use of specific narrative elements with likely, but undetermined relationships i.e. locations and characters. As with Myst, this possibly accounts for some reader’s frustrations as they do not receive the expected ending. The question that then arises is that of whether or not Juvenate could still have achieved its objectives without the novel interface mode, or have used less specific narrative elements, and still have evoked contemplation in the specific theme. In the case of the interface changes, probably yes. In the case of the characters, probably no, and I’ll keep that in mind on my next design project. Given that this paper started with Juvenate as an attempt to create an open work, it seems appropriate to reconsider Eco’s definitions, and see how all of the analysed works sit within them. Eco actually suggests three types of ‘open works’.

We have, therefore, seen that (1) “open” works, insofar as they are *in movement*, are characterised by the invitation to *make the work* together with the author, and that (2) on a wider level (as a *subgenus* in the *species* “work in movement”) there exists works which, though organically complete, are “open” to a continuous generation of internal revelations which the addressee must uncover and select in his act of perceiving the totality of incoming stimuli. (3) *Every* work of art, even though it is produced by following an explicit or implicit poetics of necessity, is effectively open to a virtually unlimited range of possible readings, each of which causes the work to acquire new vitality in terms of one particular taste, or perspective, or personal *performance* ([5] p.21. Italics are Eco’s.)

In light of the analysis, I feel that EverQuest is an example of the first, a work in movement, that Osmose/Ephemere and Juvenate are of the second type, ‘continuous generation of internal revelation’ and that Myst is the third type, ‘produced by following an explicit or implicit poetics of necessity’.

## CONCLUSION

There are three aspects of the model still not resolved. The first concerns the limit of the text. Is the artwork on the packaging of a game, or the artist’s statement on the wall of the gallery at the installation part of the text? If a friend tells you how the interface works, is that part of the text? Secondly, it appears that there may be a redundancy in the author/reader contributions, with regard to the two kinds of interactions, and their significance. The first kind (R1) is that which actually changes the way the text is, and is presumably, therefore, always significant (S). The second kind (R2) involves choosing from options and does not change the text, and is therefore probably not significant (NS). I have not yet encountered any R1 (NS) or any R2 (S), but this does depend upon what is considered to significant, and this is likely to vary from work to work, and from analysis to analysis. I have not excluded it from the model, since I think it’s good to keep options open. Thirdly, it is very clear that some works have quite distinctive variations inside the work. For example, many games have a non-interactive introductory sequence, or significant ‘video’ sections inside the game play. It may be that these should be analysed separately, to avoid their nature being

overwhelmed by the characteristics of their context.

The application of Mieke Bal’s narratological model of analysis, with suitable modifications, has provided me with insights into the relationship between ‘author’ and ‘reader’ in the performance of interactive experiences. A systematic and coherent approach makes comparisons between unlike types fruitful, generating questions which need to be answered by the application of other theories and approaches. My particular interest is in how the relationship between performance, narrative aspects and specific media functions affect the first and second kinds of interaction. The model can be applied to other outcomes, and should be developed each time it is applied to a new interactive experience, to accommodate the special features found therein. This in turn might cast new light on previously analysed works. An aspect which this paper has not had space to consider is the historical dimension. Designers working at a particular time are faced with limitations, not just of technology, but of the current ‘literacy’ of the general readership. Analysis of this kind of case study will need to be aware of the historical dynamic affecting readership of different media/interface technologies and techniques, as illustrated by Manovich.

Today the language of cultural interfaces is in its early stages, as was the language of cinema a hundred years ago. We do not know what the final result will be, or even if it will ever completely stabilize ([31] p.93.).

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