

What's the Story? A Proposed Approach for the Evaluation of Experimental Interactive Narrative.

Charlie Hargood
Creative Technology
Bournemouth University
chargood@bournemouth.ac.uk

Ben Artis
Creative Technology
Bournemouth University
i7673319@bournemouth.ac.uk

Corey Stevens
Creative Technology
Bournemouth University
i7673602@bournemouth.ac.uk

ABSTRACT

Evaluation of experimental digital narrative often focuses on the overall user experience. While this is important, we recognise the need for more granular forms of evaluation to measure the efficacy of individual digital narrative delivery techniques. These continue to grow in variety as authors explore different approaches to telling stories using interactive media. In this paper we propose a multi-layered evaluation methodology based on the principle of deconstructing an interactive narratives internal fabula and story. This is followed by three separate stages of interview for collecting evidence of the efficacy of different techniques used within story payloads to deliver content. This proposed methodology shows early promise, and potentially provides a means to identify the individual efficacy of techniques within a wider digital narrative.

CCS CONCEPTS

• **Human-centered computing** → **Hypertext / hypermedia**;

KEYWORDS

Digital Narrative, Evaluation, Game Narrative

ACM Reference format:

Charlie Hargood, Ben Artis, and Corey Stevens. 2017. What's the Story? A Proposed Approach for the Evaluation of Experimental Interactive Narrative.. In *Proceedings of Narrative and Hypertext Workshop @ ACM Hypertext 2017, Prague, Czech Republic, July 2017 (NARRATIVE AND HYPERTEXT'17)*, 5 pages.
DOI: 10.475/123_4

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

NARRATIVE AND HYPERTEXT'17, Prague, Czech Republic

© 2017 Copyright held by the owner/author(s). 123-4567-24-567/08/06...\$xx.xx
DOI: 10.475/123_4

1 INTRODUCTION

Digital narrative is, by its nature, experimental. How authors tell stories through technology has been changing rapidly following continued exploration of the possibilities and the poetics of a range of digital mediums. Interactive fiction, hypertext narrative, RPGs, and computer games have all experimented with different delivery mechanisms for stories that play with both the interactive nature of digital narrative as well as its dynamic qualities to create nonlinear narratives. These delivery techniques include hypertextual patterns of narrative structure [3], hypertextual presentation paradigms such as spatial hypertext [4], and game narrative delivery techniques such as environmental storytelling [10] and mechanics as metaphor [12]. For the purpose of this work we might define narrative 'delivery techniques' as a story structure, medium, or other delivery format design decision within the narrative made for the presentation of a part of the story, whether a section of plot content or something more subtextual such as a theme.

While there has been a range of work exploring these different possibilities there is somewhat less work in the area of bespoke evaluation methodologies for the narrative efficacy of these different techniques. Existing evaluations of these approaches normally follow the path of traditional user experience studies - often seeking to deconstruct the usage of a system and its impact on the user [8]. However while these tell us much the ability of the system as a whole to deliver on 'immersion' and 'flow' [8] they tell us little about how much of the narrative was successfully delivered and understood by the audience or the efficacy of individual techniques within the technology.

In this paper we propose a multi-layered approach to the evaluation of the efficacy of digital narrative delivery techniques to deliver story. We present two games we have created as a group, and how we have deconstructed their narrative design in order to form an evaluation methodology that goes beyond user experience and seeks to explore the efficacy of individual techniques to deliver story elements.

2 BACKGROUND

This work draws on both techniques for digital narrative delivery (in surveying the different forms that might be evaluated) and interactive entertainment evaluation (existing methodologies that might be applied).

Hypertext Narrative

Hypertext fiction such as Joyce's 'afternoon, a story' and Moulthrop's 'Victory garden', has explored a range of narrative delivery methods, often through different hypertext structures such as the calligraphic patterns originally explored by Bernstein [3]. This form of structural storytelling may be used to deliver its own poetic effect whether it be the emphasis or change of context from rereading given to us by a cycle or the feeling of disorientation from a tangle. Similarly, sculptural and location-aware hypertext presents its own patterns [9] where an author may choose to deliver narrative through simultaneously available parallel threads or an array of concurrent nodes. The variety of hypertext forms and structures extends further still, and includes the juxtaposed montages of spatial hypertext [4]. These design choices are important to the poetic value of the story and they may radically change how a story is interpreted. They are vehicles for delivery of narrative content to the reader which are themselves part of the message. Where one structure might be effective for a given story and might be less effective or distort the delivery in ways both desirable and undesirable.

Game Narrative

While some modern game narratives leverage the techniques common to more traditional mediums, such as film or text, there are experiments in new delivery mechanisms to deliver narrative in less traditional ways that leverage the interactive nature of the form. The idea of 'Mechanics as Metaphor' [12] builds upon the more theory of 'the medium is the message' [15] from more traditional media and is used to describe games who use their mechanics (the actions and interactions the player makes) as a means for conveying narrative itself. This may be rules of the game that reflect aspects of the characters, changes to the dynamics to communicate affect or emphasis in a scene, or metaphorical interactions within gameplay. This is strongly connected to the idea of 'Diegetic' choice within games [14] where choices made within the narrative of the game are made within the game's own mechanics and dynamics, rather than abstracting the agency of the game away from the game play itself (so called 'Extra Diegetic' choice).

Other game narrative designers prefer to avoid more traditional grand narratives and instead use different narrative delivery techniques that focus on the game world delivering

its story through a sequence of micro narratives embedded into the world itself [5]. This includes the idea of environmental storytelling - that the story is not only delivered through the core plot surrounding its protagonist but also through the world and environment. In his work on environmental storytelling Jenkins [10] explores four different techniques through which it has been delivered: evocative spaces (such as richly defined level environments that contribute thematically and depict the world), enacted stories (micro narratives encountered as part of the idea of story as journey [1]), embedded stories (fragments of narrative delivered through discoverable game artifacts), and emerging narratives (actions and events in front of the player that lead them to infer their own narratives).

Interactive Entertainment Evaluation

Existing game evaluation, as with most application evaluation, is user experienced focussed. In her summary Denisova et al. [8] explore a range of game evaluation methodologies exploring the player experience including the IEQ [11], GEQ [6], and PENS [16] methods. These approaches use questionnaires to explore Flow, Presence, Control, and a range of other variables connected to the UX of game play. While this is undoubtedly valuable it only provides limited insight into the narrative impact of a technique used. These approaches might tell us something about the players general enjoyment or the suitability of the modes of interaction but not whether a particular technique communicates the story we want it to.

3 DEVELOPMENT CONTEXT

A pair of narrative centric games under recent development (which employ some of the delivery techniques discussed) as part of an exploration into the efficacy of these techniques was the primary motivator for this work. To give context we offer the following descriptions of these games Paramnesia and Blitz (as shown in figure 1's screenshots).

Paramnesia

The premise of Paramnesia is to use subconscious psychological techniques to control player actions as well as convey a strong narrative; using these subconscious techniques the theory is to better convey narrative and object points to players, resulting in a closer cohesion of scripted narrative and the player's interpretation of story. These subliminal techniques are similar in premise to conventional forms of environmental storytelling in that the narrative emerges through the delivery of small sections often through the space the player explores - though they are more heavily couched in related psychological theory. Paramnesia is a first person atmospheric game set in an apartment block and



Figure 1: Paramnesia (top) and Blitz (bottom)

subway. The player is convinced to find, set and detonate a bomb in an empty subway, under the intention of it ending a communist uprising currently taking place in America. After the detonation of the bomb, it becomes apparent that the player was manipulated to perform this terrorist attack under false pretenses. There were 4 psychological techniques employed within the level: Conditioning, Compliance, Mere Exposure and Suggestion.

Conditioning [7] allows control over player direction, continuation of player motivation and player satisfaction. For example, the use of red light was common throughout the level which was paired with the idea of communism, this therefore meant a red light could be used to trigger the idea of communism for the player allowing to keep the motivation for their actions going. Compliance [17] allows the designer to control the player's reaction to requests. This was used for control over the player's direction as well as the player's interpretation of the narrative. For example, the voice (which is used to convey some objective and narrative) is created as an authoritative figure to create compliance from the player towards the instructions given. Mere Exposure [18] allows for numbers, patterns and objects to be in the mind of the player, purely because it has been shown to them multiple times. For example, the code for the security door is never explicitly told to the players, however, the player sees the 4 digit code up to 10 times on the way down to the subway in graffiti, posters, price tags etc. This results in the numbers being in the player's mind without them specifically being

told the numbers. Suggestion [13] allows control over the player's intentions through merely introducing the idea in a specific way. For example, throughout the game 'the voice' uses the phrase 'We'd greatly appreciate it if you could...'. This is purposely used, and can be broken down to: 'We'd' - Which suggests more than one person is watching and added pressure, 'greatly appreciate it' - a nicety, which creates a bond between communicator and receiver quickly, 'if you could' - which creates pressure just to accept while the receiver is still thinking about the two previous steps. This culminates in a stronger bond and higher levels of compliance between 'the voice' and the player.

Blitz

Blitz is a first person interactive story set in 1940s London. You play as a young boy who has been abandoned by his parents and has woken up in a version of his childhood house that has been separated from society. Exploring the house, the player discovers what happened to their parents. Blitz makes use of both Environmental Storytelling, and the notion of 'Mechanics as Metaphor'. Environmental storytelling being the technique that is more heavily used.

Throughout the first area there are clues and hints to the location, time and events that relate to the house you are in. Graffiti on the walls as well as a range of propaganda posters reveal somewhat happened to the father and gives an idea of the date that the game is set. There are other subtler hints, such as the photographs on the wall; in one of the images, a young boy is wearing glasses, and in the next area, there are a pair of glasses on a crate, that indicate you are the boy in that photograph. The use of 'Mechanics as Metaphor' is somewhat lighter. Player movement speed is slowed, and the camera height of the player lowered and increased in FOV so that the player felt surrounded by everything within vision to highlight the overwhelming notion of events beyond the protagonist.

4 PROPOSED EVALUATION METHODOLOGY

In order to explore the efficacy of the techniques within the games, we required a methodology that was granular enough to focus in on the impact of the delivery of individual pieces of story. We require a method that can consider the coherency of delivery (did the technique successfully deliver content in a way the audience understands), and to what degree was its efficacy different to other techniques.

Multi-Layered Deconstruction

To begin to understand the answer to these questions we need to first identify what techniques are used where and to deliver what. This process is effectively identifying what Narratologists such as Bal [2] would call the 'Fabula'. Here

the 'Fabula' describes the collection of elements that comprise the story's content: its characters, events, places, and facts. We can then connect these fabula elements to their delivery in 'story payloads' that are presented to the player through particular techniques in a given scene. Each story payload recognises the combination of 1 to n fabula elements and 1 to n delivery techniques as depicted in figure 2.

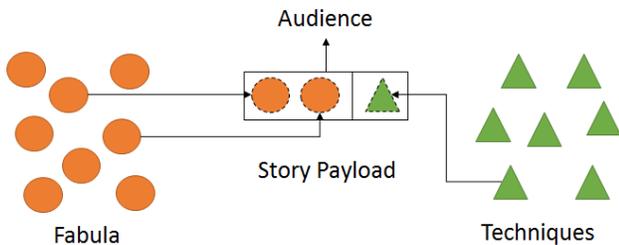


Figure 2: Each story payload is made up of 1-n fabula elements and 1-n delivery techniques

As an example the code to the security door in Paramnesia is a fabula element, it is delivered to the player in ten different payloads through out the game. These payloads all make use of the delivery technique of 'Mere Exposure' as part of environmental storytelling. It is sometimes packaged into a payload with other fabula elements, for example the posters also communicate the anti-communist themes of the piece. Consequently we now have a mapping from 'fabula' elements, to delivery payloads as part of the story which uses a technique. This example is depicted in figure 3.

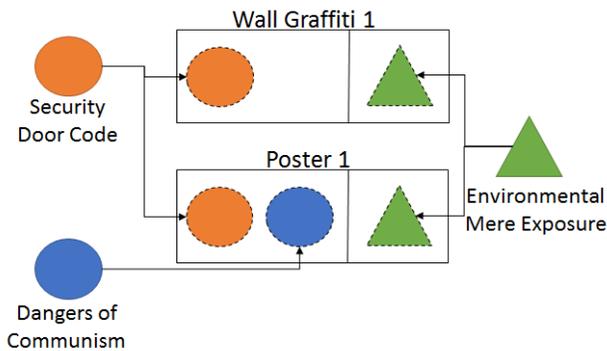


Figure 3: Example of two story payloads within Paramnesia

Multi-Layered Interview Methodology. Having identified exactly what is delivered and how within our narratives, we can now propose a methodology for detecting the efficacy of these techniques. The premise here is to interview users with questions connected to each story payload to detect

if the payload successfully delivered its content and how this was received by the user. This way we can evaluate the techniques based on how successful they were at content delivery in the context of the payloads in which they were used. It is not, however, suitable to simply ask a player 'did you notice element <x>?' as the question itself informs the player before they give their answer. As such we propose a three layer evaluation methodology for subsequent player interviews:

- (1) *User-driven discussion* - The user is encouraged to lead the discussion by discussing the story and its setting general terms without guidance to particular parts. This collects evidence for all story payloads without the player being lead to the significance of particular story elements through questioning. The player may mention particular elements and consequently demonstrate some effect for the payloads connected to those elements.
- (2) *Interviewer-driven discussion - Fabula* - The interviewer now delivers pre-constructed questions for each fabula element to explore whether this content was successfully delivered to the player and how it was interpreted. This stage may lead the player to elements but not their delivery techniques, and ensures what content was or wasn't received by the player.
- (3) *Interviewer-driven discussion - Story* - The interviewer now delivers pre-constructed questions for each story payload. This is the final layer of questioning and directs the players attention to specific parts of the story delivery. This may heavily lead the answer, but won't affect previous sections and captures specific efficacy of each delivery technique.

For each stage of this method the interviewer does not need to ask specific questions that have already been covered by evidence in a previous stage. For example, if evidence is gathered to support the player understood a given fabula element in stage 1, then the question for that element does not need to be asked in stage 2. As the interview progresses the evidence for player engagement becomes weaker due to their being potentially lead by the lines of inquiry, but it also becomes more targeted. In analysis, a researcher might conclude that a technique that was noted as effective for delivering part of the story unprompted in stage 1 has stronger evidence than one that has been discussed in stage 3 after prompting. As a methodology we would also propose that alongside the suggested interview approach an observational study is conducted where by the researcher studies the player playing the game noting interaction with and comment on different story payloads. This will then provide a three layered data set for analysis from the interview along

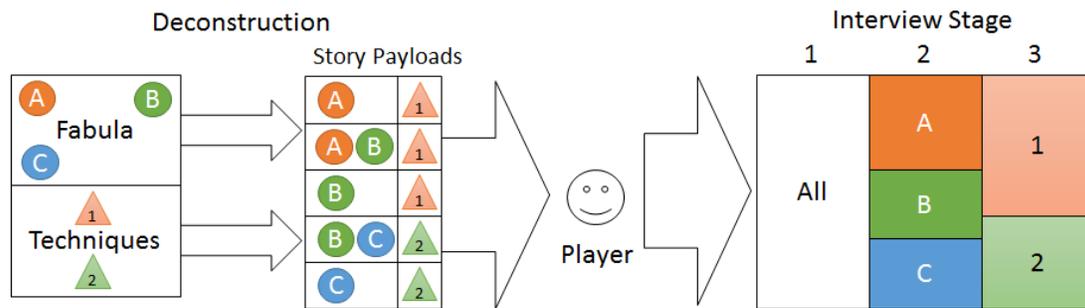


Figure 4: After deconstruction, three stages of interview capture evidence from the player on the efficacy of payloads. Starting with general discussion that will not lead the player (stage 1) and then progressing to fabula specific (stage 2) and story specific (stage 3) questions.

with context from the observational study. This method is described diagrammatically in figure 4.

5 CONCLUSIONS AND FUTURE WORK

In this paper we have presented a multi-layered methodology for the evaluation of interactive digital storytelling technique efficacy. We have given context for our work in the form of the games *Paramnesia* and *Blitz*, and detailed a multi-layered approach to deconstruction of an interactive narrative and then an evaluation methodology that this deconstruction enables. This methodology potentially enables game and interactive fiction analysis to go beyond criticism and user experience and explore the efficacy of different techniques which are increasingly varied in this fundamentally experimental medium.

While this position paper provides a proposition for the technique, future work needs to validate its efficacy as a form of evaluation. Initial studies on the two games detailed are underway and initial researcher feedback suggests that this methodology is effective. One researcher stated 'the multi-layered approach allows me to get a more in-depth understanding of what technique was more influential, what design implementation communicated the technique etc'. However the subtle nature of some of these techniques continues to make them particularly challenging to evaluate.

REFERENCES

- [1] Ernest Adams. 2014. *Fundamentals of Game Design* (3rd ed.). New Riders Publishing, Thousand Oaks, CA, USA.
- [2] Mieke Bal. 2009. *Narratology: Introduction to the theory of narrative*. University of Toronto Press.
- [3] Mark Bernstein. 1998. Patterns of Hypertext. In *Proceedings of the Ninth ACM Conference on Hypertext and Hypermedia*. ACM, New York, NY, USA, 21–29.
- [4] Mark Bernstein. 2011. Can we talk about spatial hypertext. In *Proceedings of the 22nd ACM conference on Hypertext and hypermedia*. ACM, 103–112.
- [5] Jim Bizzocchi. 2007. Games and narrative: An analytical framework. *Loading-The Journal of the Canadian Games Studies Association* 1, 1 (2007), 5–10.
- [6] Jeanne H Brockmyer, Christine M Fox, Kathleen A Curtiss, Evan McBroome, Kimberly M Burkhart, and Jacquelyn N Pidruzny. 2009. The development of the Game Engagement Questionnaire: A measure of engagement in video game-playing. *Journal of Experimental Social Psychology* 45, 4 (2009), 624–634.
- [7] Dennis Coon and John O Mitterer. 2012. *Introduction to psychology: Gateways to mind and behavior with concept maps and reviews*. Cengage Learning.
- [8] Alena Denisova, A Imran Nordin, and Paul Cairns. 2016. The Convergence of Player Experience Questionnaires. In *Proceedings of the 2016 Annual Symposium on Computer-Human Interaction in Play*. ACM, 33–37.
- [9] Charlie Hargood, Verity Hunt, Mark Weal, and David E. Millard. 2016. Patterns of Sculptural Hypertext in Location Based Narratives. In *Proceedings of the 27th ACM Conference on Hypertext and Social Media*. ACM, New York, NY, USA.
- [10] Henry Jenkins. 2004. Game design as narrative. *Computer* 44 (2004), 53.
- [11] Charlene Jennett, Anna L Cox, Paul Cairns, Samira Dhoparee, Andrew Epps, Tim Tijs, and Alison Walton. 2008. Measuring and defining the experience of immersion in games. *International journal of human-computer studies* 66, 9 (2008), 641–661.
- [12] Matthew Wilhelm Kapell. 2015. *The Play Versus Story Divide in Game Studies: Critical Essays*. McFarland.
- [13] Irving Kirsch and Wayne Braffman. 2001. Imaginative suggestibility and hypnotizability. *Current directions in psychological science* 10, 2 (2001), 57–61.
- [14] Stacey Mason. 2013. *On Games and Links: Extending the Vocabulary of Agency and Immersion in Interactive Narratives*. Springer.
- [15] Marshall McLuhan. 1994. *Understanding media: The extensions of man*. MIT press.
- [16] Richard M Ryan, C Scott Rigby, and Andrew Przybylski. 2006. The motivational pull of video games: A self-determination theory approach. *Motivation and emotion* 30, 4 (2006), 344–360.
- [17] Chun Siong Soon, Marcel Brass, Hans-Jochen Heinze, and John-Dylan Haynes. 2008. Unconscious determinants of free decisions in the human brain. *Nature neuroscience* 11, 5 (2008), 543–545.
- [18] Robert B Zajonc. 2001. Mere exposure: A gateway to the subliminal. *Current directions in psychological science* 10, 6 (2001), 224–228.