Response as Input: The Role of Reader Response, HCI and HRI in the Modeling of a Cross Media Narrative.

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Abstract

Espen J. Aarseth put forward that hypertext is indeed new, despite claims that non-linear storytelling has been in existence throughout time. Aarseth knighted it 'ergodic literature' because the hypertext user has to act out thoughts through action, whereas the reader merely thinks their paths. This changes the writing-reading process and therefore how we study it. Sven Birkerts has been an active campaigner against interactive fiction because, he says, it lacks the essential experiences of reading print — depth and duration. What if a narrative was written to work over both media: print text and hypertext? Can arguments for and against each media remain? There are many implications: How does one write an unending plot within a fixed media? How is plot and character information controlled, delivered and interpreted? If there is no ending but the reader persists, is catharsis more important than understanding? These are questions I am investigating during the creation of a novel that is read in tandem with a chatbot on a website. In this paper I will be analysing theories of reader-reception along with human-computer interaction, and human-robot interaction, in the process of developing a model for a cross media narrative.

Introduction

Human-computer interaction, or HCI, is a field of research dedicated to understanding how people use computers, how computers can be designed to ensure their full use and to furnish progress. This period of media formation and explication is akin to Johann Gutenberg's printing press in the 1400s. The format for how a book is presented — the categorisation of stories into chapters, chapter headings, pages with margins, font size, and so on — developed over time. Then readers had to learn how to handle a printed book: where to buy one, how to store them, and for some, how to read. Since then the design of books has remained fairly consistent, only the content has varied.

There isn't the equivalent of HCI in the literary field for the product design has matured to an understood and reliable standard. However, within literary criticism the analysis of how readers respond to texts has attempted to unpack, and inadvertently influence at times, how people read. The distinction between HCI and Reader Response is functional: HCI analyses the effectiveness of current content on the user, and then influences the design of future content; Reader Response analyses the effect content has on the reader and the reader's affect on content, but does not influence the design of future content. Or does it?

The title of this paper is *Response as Input: The Role of Reader Response, HCI and HRI in the Modeling of a Cross Media Narrative*. I am guided by two assumptions in this paper, one: that theory has a role in the creation of content, and two: that new media narrative can and should be informed by traditional literary research and media-oriented testing.[1] The explication of these assumptions will be through answering two questions: What role does criticism and testing have in content creation? And, does a cross media creation alter, circumvent, repudiate or validate these areas of inquiry?

By cross media I refer specifically to my Masters project which involves the writing of a novel that is to be read in conjunction with a chatbot on a website. The chatbot, a computer generated agent capable of holding a conversation, is programmed to converse as a character in the novel.[See screen shot] As part of my research to develop of model of narrative over these media, I am reviewing literature from literary criticism, human-computer interaction and human-robot interaction. My format today will be to discuss a theory from each field, in light of my questions.

Print Literature

Literary Criticism – Reader Response

Although Reader Response or Reader Reception could be dated as commencing academically with Walker Gibson's essay[2] on the 'mock-reader' in 1950, it emerged as a multi-faceted field of inquiry around the 1960's with the post-modern/post-structualist movement. The theories pivoted around the following assumptions: that a delineation can be drawn between author, text and reader and that power can be attributed uniquely to each. Lengthy debate has resulted since then, arguing which of the three elements has the most influence over meaning in the text, initially championing the reader and then oscillating between the three. Today I have prepared for you some examples of how I have applied these theories on the 'reader' and 'how meaning is enacted' to the creation of my content. These are framed around one paper per theorist, and do not address all the complex aspects of each thesis.

Jacques Derrida's concept, in *Of Grammatology*, that '[t]here is nothing outside of the text' was developed around the theme of the supplementary in Jean-Jacques Rousseau's texts.[3] Derrida claims that '*[w]herever we are*: in a text where we already believe ourselves to be.'[4] This gives the reader an assuredness, Derrida claims, with which to read the text and remain within it. Otherwise, the reader deals with the difficulty and frustration of needing knowledge of all the related materials, fields, biographical information and in fact reason for the existence of the text in order to understand it. The reader is always unsure if they know all conceptual paths have been exhausted, or if in fact the path they are following is justifiable.

To apply this concept the creation of my cross media narrative I would use it as a system in literary comprehension. The use of a supplementary media in the narrative that is highly interactive highlights the problems Derrida has seemingly addressed: *There is something outside of the text*. Does cross-media narrative thwart the assuredness of the

isolated reader? If the reader is manipulated or encouraged to participate in additional media in order to experience the fiction, will they suffer from reader impotence as exacerbated by choice of narrative path? And if they do choose to participate in a conversation with the chatbot character, they would be acutely aware of the untrodden unknown as exemplified by the subjectivity of a user-driven dialogue.

Therefore, to address these issues I would need to work to create a satisfactory balance between the need to read beyond the print text and emulating satisfactory boundaries around the two medias. In a print text the reader can feel assured on the size on the page, where a chapter ends, when a sentence begins, where the final full-stop is. Do these signifiers of limit have a relationship to the reader's sense of isolation with the text? This question I can only attempt to test once I have produced a false limited textuality. In other words, I will need to create the illusion of a unified presence across the two media along with causes to promote self-referential behaviour. I posit this could be achieved by directing user action specifically between the medias, and writing an embodied, be it mutated, fictional world.

Michel Foucault, in 'What is an Author?', focused his concerns on theories of the author.[5] Conscious of literary criticism at the time considering study of the author as being superfluous, he began by discussing the nature of an author's work. Like Derrida, Foucault outlines problems encountered if certain notice isn't given to the theory: He asks how a work is composed if it is not considered as being by an author? If one is not considered an author, what are their writings? And if an author is acknowledged as being so, how is their work defined? For instance, is a 'draft' an author's work, or even a 'laundry bill'?[6] Foucault believes that in neglecting study of the author the critic has 'failed to appreciate the equally problematic nature of the word "work" and the unity it designates.'[7]

Just as the previous claim is a criticism of reader-oriented theory, Foucault continues with another, specifically on Derrida's concept of *écriture*. The French term is a 'double reference to the act of writing and to the primordial (and metaphysical) nature of writing as an entity in itself'.[8] For Foucault, this term exemplifies an attempt to 'transpose[d] the empirical characteristics of an author to a transcendental anonymity.'[9] This act is then viewed as a 'theological affirmation of its sacred origin.'[10] Due to the void left by this rejection of the author the need is then created, ironically, for an investigation into the missing element — the author.

Among other points, Foucault comments on the usage of the authors name and how it accompanies only certain texts. He lists contracts and posters as having an underwriter or writer respectively, but not an author. Therefore, 'the function of the author is to characterize the existence, circulation, and operation of certain discourses within a society.' It is here that I leap on the problem of the author in a computer program. The chatbot in my narrative could be interpreted as existing in many or contradictory levels: chatbot as life-like character, chatbot as scripted character by author, chatbot as computer program. How the reader perceives the chatbot as any or one of these possible

interpretations affects their interaction with the character, affects their interpretation of the text, their judgment on the function of the chatbot in the narrative and the a judgment on the believability of the character or acceptance of good character writing. As an example, if the reader perceives the chatbot as a computer program meant to simulate a human conversation above that of a character in the novel they can interact with, their conversation with the chatbot will be interrogatory, unfriendly and go beyond the narrative. This will affect then, their experience of the plot and indeed their absorption in the narrative. It is important therefore, to ensure a relationship is made between the reader and the author. The function of the author needs to be explicit — the writer must be an author, not a programmer.

Wolfgang Iser, in his essay 'Interaction between Text and Reader'[11], proposes that a literary work exists between two poles: the artistic, which is the author's text, and the aesthetic, which is the realisation of this text by the reader. Because the work exists as a virtual entity it is necessary to address the author's role along with the reader's. To do otherwise would assume that there is a transmitter and receiver, Iser believes that 'the message is transmitted in two ways, in that the reader "receives" it by composing it.'[12]

Building on psychoanalytic research, Iser discusses the impossibility of pure perception in human interactions — one can never know how another perceives them and so can only act on what they estimate is the other's perception. Iser situates reading as a different form of interaction to that of social, face-to-face interaction between humans. The reason for this is because a 'text cannot adapt itself to each reader it comes into contact with'.[13] In human interaction partners can check understanding, whereas a reader can never confirm correct interpretation.

Interaction with a chatbot that is representative of a character — as an embodiment of information of the character's history and perspectives — allows the reader to check their interpretation of the print text and question the actions of the character if the reader does not concur with the author's staging. The reader can ask and accuse according to their needs or desires.

Iser highlights the need for the author to control the reader's activity. This control is exercised by the text but is not always in it. Isers example is that of gaps in the text. Where certain pieces of information are not provided either by ellipses or exclusion of details or thoughts, or even meaning, the reader is required to deliver them. Iser explains the dynamic by stating that:

> 'Communication in literature, then, is a process set in motion and regulated, not by a given code, but by a mutually restrictive and magnifying interaction between the explicit and the implicit, between revelation and concealment.'[14]

This point has particular relevance to the choreography of a reader navigating across two medias, and indeed, through two forms of narrative performance. The control of revelation and concealment describes the vital ingredient of cross media navigation and interaction with the text: gaps need to be present to facilitate the impetus to bridge them.

Applications of this principle to my project are: the withholding of information on a character, no first-person insights into character thoughts, or no insights into the characters decision-making process, characters do things which seem out of character, action is described as continuing beyond the location of the reader in a scene. These techniques demand or inspire the reader to action, and the action will be controlled in that the bridging of these gaps will be through use of the other media, the chatbot rather than on the readers meaning creation devices. And the process will need to be inverted, where the reader will need to be inspired to return to the print text, move from being a user to a reader. This means the print text will have to supply information that answers questions the interaction with the chatbot has instigated. In this, Isers description of the interaction between a reader and text as necessary for the creation of the work, is applied in the model of cross media navigation.

Roland Barthes in his essay on 'The Death of the Author'[15] describes a reading activity that has a relationship with the text only, like Derrida's notion of nothing being outside of the text, and Foucault's where the meaning is no-longer ascribed to the God-like author, the text is not to be 'deciphered' it is to be 'disentangled'.[16] For Barthes, in writing there is no person who speaks, its source is not the author or the writing, but the reading. A 'text's unity lies not in its origin but its destination.'[17] Once the author is dead, as the practice of the symbol — language — enacts, the reader is empowered with an open text that is theirs to inscribe at will.

This virtual murder, or enlightening of the reading experience, is enacted by critics and authors like Mallarmé and Proust. Barthes is therefore making an observation and framing a critical approach to analysis. Here, of all the theorists I have superficially covered today, is an abstraction that is closely aligned with content creation. How then will this theory fare when applied to the modeling of narrative?

If a reader enters a text, armed with their own words and meanings, unaware, disinterested or unable to access the author's intended meaning what happens when they enter a text that talks back? Is the author suddenly undeniably present? If the user presumes the character is a figment of the author's imagination, how then do they reconcile the existence of a seemingly improvised and interactive conversation? Will the interactor presume the chatbot is in fact a human they are conversing with through the Internet, or the actual character? Do scripted responses weaken the interactors power over meaning or elevate it?

Although I cannot answer these questions with proof, I can make assumptions about the interactors response to the chatbot. I believe they will oscillate between perceiving the chatbot as a character, as a real person, as a computer program and as the author. This oscillation will be governed by many factors, of which suspension of disbelief is critical. Whether the presence of the author is exemplified by the interaction and whether this affects an otherwise liberated reader is to be discovered. In the end, the emergence of theories and systems for testing this outcome will establish relevance of the theory in contemporary literary culture.

Stanley Fish's essay 'What is Stylistics and why are they saying such terrible things about it?' grew out of his assertion that stylisticians, by assuming meaning was guided by form, were 'cutting the data off from the source of their value' — the reader.[18] Fish is critical of the field trying to scientifically base criticism and outlines the effects of such an approach. He claims it does not illuminate the text, merely breaks it up and then reconstitutes it in its original form; and considers the belief that the text can give insight into the author's mind suspect.

Fish's criticism of the purported identification of meaning through computational analysis of texts is interesting when juxtaposed with programs that generate plot and conversation.[19] Computer programmers research heavily Natural Language Processing, a field that leans on the computational analysis of conversational language. Fish scoffed at Louis Milic's analysis of Jonathan Swift, however Milic's results would greatly assist a programmer wanting to emulate or clone Swift's style by systemic generation rather than subjective interpretation.[20] I am not speaking of the interpretations Milic offers, but of the inventory of grammatical systems peculiar to the writer. In this, stylistics can give insight into the author's mind, or at least, allow a stylistic blood sample. It is here, when meaning is removed, that the relationship between reader-reception and content creation is laid bare.

Fish states that ignoring the reader's experience of the text is fatal. The reader's experience will be a crucial element in the use of the chatbot in my project. If the reader does not participate in the illusion, as cued by the text, they will not use the chatbot, will not use it as intended or worse still, will in consequence decline to engage in the print text. As an alternative, Fish called for "affective" stylistics. This system explains the process I will be undertaking in programming the chatbot. He intended to use the formal systems identified to specify what a reader is doing rather than translating them into defining meaning. By doing Fish meant:

> 'what assumptions he is making, what conclusions he is reaching, what expectations he is forming, what attitudes he is entertaining, what acts he is being moved to perform.'[21]

Throughout the print text I will need to anticipate when the reader would want to speak to the chatbot, what they would want to talk about, how the conversation would lead, and what information I could or could not reveal in the interest of sustaining plot. In order to control the inexhaustible paths the reader could take, I will need to not only anticipate but to manipulate their response. Along with the programming of the chatbot, I will need to script responses for the reader. This admission flies in the face of Fish's assertion at the end of his essay: 'meaning is human.'

Print Literature

Literary Criticism – Reader Response

Although Reader Response or Reader Reception could be dated as commencing academically with Walker Gibson's essay[22] on the 'mock-reader' in 1950, it emerged as a multi-faceted field of inquiry around the 1960's with the post-modern/post-structualist movement. The theories pivot around the following assumptions: that a delineation can be drawn between author, text and reader and that power can be attributed uniquely to each. Lengthy debate has resulted since then, arguing which of the three elements has the

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Empirical Literary Studies

Let us continue now by analysing empirical literary criticism. Today I will focus on the research of **David S. Miall** and his paper co-written with **Don Kuiken**: 'A Feeling for Fiction: Becoming What We Behold.'[26] In this essay they investigate the feelings aroused in a reading of a literary text, specifically, the '*self-modifying feelings* that restructure the reader's understanding of the textual narrative and, simultaneously, the reader's sense of self'. In their testing, Miall and Kuiken provided segments of a short story to readers and recorded their verbal responses to each sentence in one group and impressions written in the margins of the text sample in another.

Miall and Kuiken highlight two modes of feeling in a literary response: 'remembered emotions and fresh emotions'. The first entails recognition in the circumstances narrated, and so, once a similarity is present, the reader re-experiences the feeling had in real life. This re-instatement stays with the reader whilst they read, adding an extra dimension to

subsequent scenes; it also instigates anticipation of events; and finally, it implicates the reader and causes them to compare the actions of the subject they are identifying with and thus reflect on themselves. The process transforms the text and the reader.

The cathartic process, as defined by Miall and Kuiken, refers to the transition at the end of a story — a 'transformation of existing feelings.' They speculated that the literary reader brings feelings about themselves to the narrative for confrontation and release. Their testing was undertaken with a short story, a narrative that had an ending. In the model of narrative I am proposing, the print text ends but the chatbot element is unending, perpetually accessible and the interactions relative. Obviously, it is important that the print text reaches a satisfactory ending, but the chatbot does not withdraw its narrative — there are many more conversations, yet inexperienced, to be had. Therefore, in light of Miall and Kuiken's findings on the feelings a literary text inspires, would the chatbot be a sufficient literary media to trigger this response, or is a literary response purely print-oriented? In addition, would the undeniable knowledge of the chatbot, even if not visited past the last page of the print text, corrupt the story ending so the reader feels no closure or transformation? Is it possible that catharsis is not a critical factor in engagement, or is not triggered by a scripted ending? Once again, these are questions I cannot answer at this stage, and so, Miall and Kuiken's research provide warnings of potential obstacles to absorption rather than procedures to circumvent them.

Digital Literature

Hypertext Criticism

I will move now to the various fields dealing with digital literature, and begin with the field of hypertext criticism. Many hypertext theorists have studied the relationship between hypertext and structuralist and poststructuralist criticism.[27] One of these hypertext theorists, George P. Landow, supposes that hypertext 'provides a rich means of testing' literary criticism.[28] Espen Aarseth argues that 'ergodic literature', being hypertext that requires physical action rather than conceptual action, 'incarnates these models in a way liner text narratives do not'.[29] Research into cybertext, Aarseth claims, is centered on the medium of the interaction, the physicalisation of interaction between author and reader; and therefore is more user-centered than reader-response theorists. Today I will look at a hypertext critic, of which there are not many, who is concerned with the difference between the hypertext reader and the print reader.

Jane Yellowlees Douglas in her paper, 'Maps, Gaps, and Perceptions: What Hypertext Readers (Don't) Do', considers narratives that are causally linked and says linearity may not need to be a precondition of comprehension.[30] She cites studies that prove humans do not perceive sequences in films or phonemes in writing individually, but we actually reorganise these into 'overall patterns'.[31] Douglas explains how the hypertext structure enables choice, and how this contrasts with the print text which, by its linear and fixed nature, makes them 'changeless' and 'closed'.[32]

Douglas found, when observing her students using a hypertext fiction, they sought meaning in the links rather than garnering meaning from what the links take them to; and it was only when all paths had been exhausted that they felt they had completed their reading. She describes how the "openness" of narrative choice weighs heavily on the reader, demanding action and inducing fear of losing the intended plot, of missing out, of never exploring all paths. At the same time, the students began the text with a 'pre-conception of the probable end of [the] narrative'. The links the students chose therefore, were to actuate the path to an ending — 'an activity endemic to the act of reading', regardless of media. Obviously, the reader uses what strategies they have already developed and applies them to any media, until they establish new ones. Douglas says that, interactive narratives, or any new environment, 'seem to demand that we evolve into "inner-directed" readers' as defined by David Riesman.[33] Inner-directed readers are adaptive, they 'redefine their roles as readers by either discovering a new way of navigating through narrative space or by revising the concept of closure'. To Douglas, this approach facilitates the establishment of our own reading, as opposed to realising the author's. The interaction, therefore, is between the author's and the reader's constructions.

If this empowered state is triggered by the hypertext experience, what happens when the reader moves between a print text and an interactive one? Is there a distinct shift from reader to user, will it be seamless and within their control or will the state bleed from one media to the next? These are important questions, for in my cross media narrative if the user participating in the interactive environment, awash with independence and tasks, finds the move to a print text clunky and frustrating, they will reject the print text, the interactive text or all. What this tells us is that the job of reading can potentially thwart engagement.

Obviously, an inner-directed reader would adapt. But shifting between reading modes, if this is what a cross media narrative initiates, may be too much of a task and not an enjoyable experience. The reading modes may be in conflict when the reason for reading or using is considered — does a person picking up a book have different expectations about their role to a person turning a computer on? It is possible, though, that the reader and user modes could transform into a hybrid mode. This could be a unique state where the reader is satisfied by the immersion of an isolated reading and excited by the consequences of their actions simultaneously. However, these conjectures are a rudimentary and highly subjective thesis of what may occur. Once again, it should be noted that the identification of different reading activities reveals more about how these processes are categorised than neurological insights.

Human-computer interaction (HCI)

Another area of research amenable to digital literature is that of computer science's human-computer interaction. At a recent public lecture[34] lead by new media practitioners, the impact of consumers on interactive design was discussed. According to the speakers at this event, interactive design in the entertainment industry is consumer-driven. By

'consumer-driven' they meant market driven, that is: gathering information from sales, not user testing. It appears the HCI is under, or not, utilised by content creators.

Donald H. Norman outlines, in his book *The Invisible Computer*, a slightly different approach with great ramifications: human-centered interaction.[35] New technology is adopted by users for several reasons, one being functions. Companies conduct market research to find out what customers want and then implement them to beat the competition. What results are products that are 'technology-driven [and] feature-laden' with campaigns that extol these as desirable. For Norman this is an interface disaster, a chronic syndrome inhibiting alternate, uncomplicated design. This obsession, however, is typical of a technology in adolescence. It is only when the product reaches adulthood that it will be mature, stable and reliable — what Norman describes as an industry shift from Technology-Centered Youth to a Consumer-Centered Maturity.

We are well aware that computers and indeed digital entertainment is still in its youth. Norman suggests that we need to consider the stage of the consumer as well as the technology. He cites a classification of people who are targets of innovation: 'innovators, early adopters, early majority, late majority, and laggards.' The innovators and early adopters use the technology while it is still in formation and therefore help drive its development. The other categories wait until the product or technology is settled, meaning easy to use and reliable, and they comprise the majority of the market. Each category of consumer needs to be treated differently. For Norman, these late adopters require a human-centered approach.

In my cross-media project we have a print technology and a digital one. On the one hand we have highly experienced consumers of the reliable and easy to use print and on the other we have interested, and experimental computer users. At this stage it could be said that there are more people conversant with the activity of using a book than a computer. Sven Birkerts, a literary critic and loud opponent to new media narrative, argues that users of technology are losing their ability to read.[36] Therefore there is a spectrum of reader and user requirements to be considered in the narrative design: it must meet the demands of users who will fall into the category of the 'late majority' and 'skeptics'; it may need to address the interests and readability of, predominately, computer-game users; and it will need to provide satisfactory narrative elements to entice the print reader and sustain their involvement.

Human-robot interaction

Another field, not utilised by the literary field but one that does pull on theories of many disciplines is human-robot interaction. Human-robot interaction, or HRI, is an interdisciplinary field investigating 'interaction between human beings and highly intelligent machines'.[37] Today I will focus on a study evaluating the social dynamics of interactions between humans and chatbots. The paper, 'The Unfriendly User' investigates how users respond to systems designed to trigger anthropomorphic attribution. In other words how humans react to chatbots that are engineered to be perceived and treated as a

human. Contrary to many studies, the authors of this paper claim that social agents, chatbots, do not need to be designed to trigger this attribution. Instead, the authors call for a new 'cyber-social model' of communication that addresses the unique behaviour of humans around social agents.

I have mentioned earlier in this paper that the user in my cross media narrative will oscillate between perceiving the chatbot as a character, as a computer program and as the author. What HRI tells us is that this response has only cursory academic attention. Therefore, there may in fact be a benefit in pursuing a special human-robot relationship, but this again, may be hampered or enhanced by the immersion in a fictional world. What will be interesting is how the human converses with the chatbot when the user may in fact be taking on the role as co-character in the narrative or an investigatory pseudo-narrator. When scripting the conversation I will need to keep in mind not only how the chatbot will be perceived, but also what role the user will assume and what expectations they will have.

Conclusion

What I have hopefully displayed with this paper is how the use of criticism, empirical investigation and media-oriented testing can inform the writing process; and also how cross media narrative, because of its immature and volatile nature needs to apply these results and theories to ensure comprehension and immersion. To conclude, I encourage further research in these areas to benefit not only unique narratives but also the traditional literary field by providing validation or inspiration.

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