

**Once Upon a Design – Storytelling and Interactive  
Fiction in the Design Process**

by

Tara Ogaick

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## **Abstract**

This thesis proposes that non-linear narratives (hypertexts) open up new realms of exploration for designers and non-designers, or introduce dynamic narratives that offer multiple solutions, scenarios, and personas within one design context. The researcher builds on current uses of narratives in design, interactive fiction, and psychoanalysis in order to challenge the purpose for scenarios and personas within the design process as more than presentation tools and methods for the completion of a product. Instead, the researcher is interested in exploring whether multilinear narratives may be used at multiple stages, and for different people, within the design process.

In order to assess the potential for hypertext to be used in the design process, the researcher used the open-software, Twine, to construct an interactive scenario sample for designers to explore. The results of this work demonstrate that hypertext preserves the functions of scenarios and personas to introduce a subject, explore a scenario, and address a particular design problem, while successfully implementing interactive elements and a non-sequential story structure to understand the context of the story based on the goals and ideas of the reader.

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# 1 Chapter: Introduction

The first attempt of this research was an investigation into narrative and how stories and storytelling has been used in the design research process. However, in the course of conducting research, the purpose of analyzing narrative evolved beyond the strict evaluation of narrative in its conventional form, and extended into three categories: 1) digital and interactive storytelling, 2) hypertext and its mutations, and 3) storytelling in design research for co-design. In order to understand narrative and its potential to transform both in form and in purpose, I focused on personas and scenarios, which are two research processes that overtly use formal elements of narrative, textual and inter-textual, in order to purvey a story about a scenario and its main character to drive a designed object or service.

In order to understand the use and application of narrative in the design process, it was necessary to first map the existing role of narrative in design. The design research process incorporates different methodologies, some of which are appropriated from other disciplines such as anthropology, sociology, engineering, film, and science (Blevis and Stolterman, 2008; Danko et al, 2006; Denizen and Lincoln, 2003; Evenson, 2006; Hanington and Bella, 2012; Laurel, 2003; Poggenpohl, 2009; Suri et al, 2006). It is not always written stories, but adaptations, manipulations, and visualizations of narrative structures that are incorporated into the design process.

Personas and scenarios are two processes in particular that overtly manipulate narrative in order to serve the design process (Bella and Hanington, 2012). Narrative, a property of some design methodologies including mood boards, user scenarios, case studies, diaries personas, storyboards, and directed storytelling (to name a few), serve to humanize aspects of the design process, enhance ethnographic elements, and share information across disciplines (Danko et al, 2006; Hanington and Bella, 2012). In other words, narrative provides an avenue for a holistic evaluation of a product or service.

According to the article, “Humanizing Design through Narrative Inquiry,” however, Sheila Danko et al (2006) argue the primary means of using narrative methods have not changed from their initial, static and textual formats. The authors directly address the potential of expanding narrative methodologies to include storytelling at different stages of the design process. Their methodology consists of using reading stories, writing stories, and sharing stories as part of the design process. Rather than relegate storytelling as a methodology towards the completion of a designed product or service, Danko et al (2006) suggest that narrative be used as integral to the development of the product or service at all stages of the design process – the front, middle, and back end.

## **1.1 Narrative**

Narrative, and indeed much of academic research and its artistic representations, has remained relatively the same: a linear, constrained document. A narrative is an account of a series of events or data that is arranged with the aim of establishing a connection

between these events (OED, 2012). The construction or form of narrative, however, is more malleable (Sternberg, 2003). Therefore, the constrained linear text is not the only means of assessing narrative validity. Variations in literature studies include graphic novels and video games amongst other, more complex and varied disciplines (Ip, 2011; Simons, 2008). Interestingly, as literary criticism developed and structuralism and post-structuralism became the dominant discourses within literary theory during the 70's, the aforementioned definition of narrative was criticized. According to critics like Sternberg (2003), changing formal elements of presentation and representation of narrative form does not change the meaning or interpretations of the text (OED, 2012).

Literature and its representations and mutations, theorists argued, functioned “in accordance with a particular ideology” (OED, 2012; Sternberg, 2003, p. 520). Therefore, texts are often argued to be a reflection/projection of the socio-cultural state from which they emerged. According to Sabine Gross, narrative and storytelling are “essentially human” (2008) and thus a means of effective and enjoyable collaboration. As Cokal (2005) writes, “We don’t *need* to read stories; we read them because we want to—first of all, we want to see what other people, even fictional characters, desire, and how they go about fulfilling those desires” (p. 79).

Thus, the creation and dissemination of stories and their formal composition have been the subject of debate in literary criticism. Formal deviations in typically linear texts such as hypertext, or, non-linear narrative, often posited the same problems as texts distributed and constructed outside of those boundaries (Bush, 1945; Nelson, 1974; Conklin, 1987;

Kendrick, 2001; Ryan, 2009). In the literature review below, hypertext and the digital mutations of traditional narrative form are further examined. Hypertext and interactive fiction are viewed as further formal developments to narrative and are representative of a shift towards a fantasy for co-exploration (Ryan, 2009). This fantasy entails the subject of authorship as being displaced in the digital text through hyperlinks and reader-input to shift the context of the narrative from the writer's position of power to one where the reader is a co-creator (Ryan, 2009; Kendrick, 2001). The integral aspect of the shift from analogue to digital storytelling is the incorporation of choice into narrative structure (ibid). Furthermore, interactive elements of stories pushed digital narratives towards a visual identity that accompanied the once-static text (Figure 1; ibid).



Figure 1 Geoff Ryman's interactive novel, 253

It is necessary at this point to note, as Sternberg did in his evaluation of literary theory and literary form, that technologies that foster the creative potential of and deviations of form are similarly fueled by projections of current ideologies. In 1945, at the end of the Second World War, Vannevar Bush (1996) wrote:

This has not been a scientist's war; it has been a war in which all have had a part. The scientists, burying their old professional competition in the demand of a common cause, have shared greatly and learned much. It has been exhilarating to work in effective partnership. (p. 37)

This partnership, and the scientific work done subsequent to the war, was influenced by political and militaristic contexts. Bush's call for faster systems of communication to accommodate the large amount of knowledge produced is documentation of the beginnings of digital forms of technology, but it is important to note that it is grounded in a specific time (ibid). This is followed by Jeff Conklin's (1987) survey of hypertext at the end of the Cold War. Similarly, new technologies in the current generation are influenced by (or perhaps even driven by) social, economic, and militaristic properties.

"Humanizing Design Through Narrative Inquiry" proposes that narrative benefits designers in establishing larger contexts for a holistic vision of the product or service and motivates the connections between the people inside of the design sphere and others (Denizen et al, 2006). Although it is not consciously noted by the authors, their study about narrative simultaneously calls into question the authorship of design processes and the representation of whether the users that are imagined are the authors of their own stories, or if it is the designers who are the real authors. The representation of the self and

of others is therefore an unexpected inclusion of the work of Denizen et al (2006). If this paper is able to prove how hypertext or non-linear narratives can alter the field of design, it will also advance Denizen and Lincoln's (2003) claim that the blurring of genres and disciplines creates innovation, and in many ways, a crisis of representation (p.3).

## **1.2 Statement of the Problem**

The delivery and format of narratives and storytelling has changed. Pages no longer have to be fixed, static, physical artifacts. Digital technologies have redefined the parameters for what constitutes narrative (Ryan, 2009). Design researchers adapt narrative structures that emerged from ethnographic research methodologies and incorporate similar adaptations to design research methodologies associated with human-centered design and understanding users (Blevis and Stolterman, 2008; Danko et al, 2006; Denizen and Lincoln, 2003; Evenson, 2006; Hanington and Bella, 2012; Laurel, 2003; Poggenpohl, 2009; Suri et al, 2006). However, design researchers have not yet examined how hypertext narratives influence the design processes. Moreover, current practices involving narrative can be hindered by the problems discovered by formal narrative constructions – time, effort, skill at writing, to name a few (Danko et al, 2006).

As previously mentioned, the two design processes that most overtly use narrative are personas and scenarios (Bella and Hanington, 2012). The format of the persona is most often described as follows:

Personas are typically presented in page-length or shorter descriptions, providing a name for the person, a photograph (use stock photography to avoid connection

to a real identity) or sketch, and a narrative story describing in detail key aspects of his or her life situation, goals, and behaviors relevant to the design inquiry. Supplementary images may be used to add a compelling impression of the personal lifestyle, including typical spaces, objects, and activities. They are also used to check scenarios of use, highlighting positive experiences and potential breakpoints. (Bella and Hanington, p. 132, 2012)

Images are used to break up the otherwise plain text and to provide a small amount of visualization in order to create a connection between actual lived person and proposed demographic. The process depicted here demonstrates the use of a persona to achieve a particular goal; for example, purchase a product– it is used to accomplish a particular goal, rather than intentionally for exploration and development outside of the design requirements.

Scenarios often function as accompaniments to personas (Bella and Hanington, p. 152, 2012). The format of scenarios is more flexible than the persona, which allows for greater breadth of the context that the product or service is located in. The only requirement of a scenario is that it should be “written like a story with a few visuals” (ibid). According to Bella and Hanington’s *Universal Methods of Design* (2012),

Each persona should get at least one scenario that explores the baseline, status-quo situation for that persona, but writing realistic scenarios about high-stress conditions that are less than optimal is also recommended. Once framed by a specific persona’s point of view, scenarios can be written to follow a traditional story arc. The action begins with a trigger event, which sets the scene and

preconditions, and ends with the resolution of a task by using an intervening technology that assists (and hopefully delights) the persona. (p. 152)

Scenarios and personas thus complement one another. Where a persona is more the construction of a character (hopefully one that is based on real data or input from real users), the scenario is the challenging storyline that prompts the persona to react to, and ultimately, to find satisfaction within the narrative with the technology or service. Together, these processes establish a narrative that raises questions and concerns about a particular technology or service and enable design researchers to more effectively respond to the challenges presented.

The creation of personas and their accompanying scenarios may be interpreted as similar to playable stories where the reader is introduced to a character and then sees (or reads) how that persona accomplishes the task. Some video games or computer games similarly invite users into imaginative spaces to play through a scenario (Ryan, 2009). There are, however, issues with these playable stories and with narratives as a whole.

### **1.3 Issues with Narratives**

Problems associated with narrative and narrative tools are two-fold. The first set of problems, listed here, address the work of design researchers already investigating the use of and creation of narrative tools for designers. The second set of problems addresses issues present in current tools and methods used for narrative inquiry into design research. In “Humanizing Design through Narrative Inquiry,” the authors discuss the

results of their exploratory study on the integration of narrative (storytelling) into three different phases of the design process by employing read narratives, written narratives, and shared narratives (ibid). The participants then had the opportunity to respond to the use and narrative in the three processes. Overall, the authors conclude that there are positive outcomes of the inclusion of narrative into the design process (which will be further discussed in the literature review below) (ibid). However, they also identify several problems which are enumerated as follows:

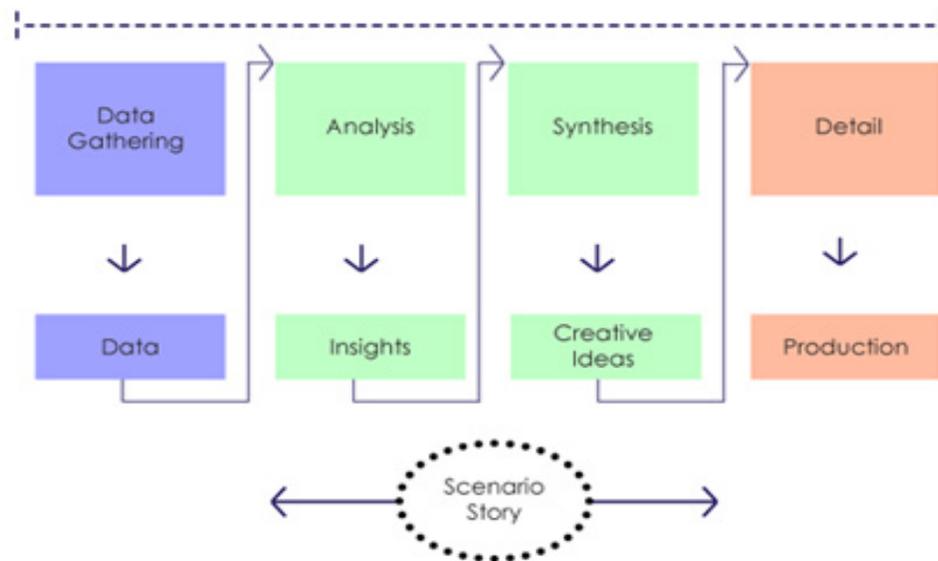
- the time-consuming nature of creating and writing stories;
- difficulty in writing versus visualization; and
- the ability to over-indulge and remain fixed in the narrative phase (ibid, p. 26).

These are three core issues, which are relevant to the upcoming discussion on hypertext, and pose an interesting point of further inquiry for future scholars contending with similar problems with using narrative.

#### **1.4 Purpose of Study**

The scope of this thesis combines three different areas of study: design research, literary theory and narratology, and game studies. This thesis builds on the findings of Sheila Danko, Jason Meneely, and Margaret Portillo (2006) and their work in narrative in design, “Humanizing Design through Narrative Inquiry.” This text demonstrates the ability for storytelling to contextualize and humanize design. It also presents problems of using strictly “traditional” narrative models that are related to language, time-constraints, and a lack of diversity in storytelling techniques (Danko et al, 2006, p. 25). In an effort to

build on the positive results of narrative in the design process, this thesis uses a digital storytelling tool, Twine, as an open-source means of creating a hypermedia (nonlinear sequence of text or elements), collaborative storytelling tool for the design process. Because design already incorporates methodologies that involve narrative, the tool proposed in this thesis does not challenge current design methodologies, but rather proposes that digital and hypertext narrative may open up the ability to communicate with multiple parties, use narrative at multiple phases of the design process, and use dynamic properties of hypermedia for narrative development. For example, personas and user scenarios often utilize narrative as a presentation tool to tell a story about a certain user or user group as well as how the product and service might be applied (Figure 2 The Design Process as defined by WonJoon Chung and ).



**Figure 2 The Design Process as defined by WonJoon Chung**

Rather than leave these methodologies unchallenged, the research and experimentation in this thesis examines who these processes are for, and how they might be used differently.

Danko et al's (2006) article demonstrates the effectiveness of using narrative at different stages of the design process. For this reason, personas and scenarios may also benefit from being used at different stages in much the same way that the narratives that Danko et al (2006) prove an effective inclusion into the design process. Interactive narrative software opens up the possibility for personas and user scenarios to be built in real time, while still preserving user choices and a sequence of storyline events for the understanding and evaluation of particular user's choices and scenarios.

Furthermore, it is the goal of this research to open discussions about how to develop interactive, dynamic elements of storytelling into the design process for both designers and non-designers. In order to investigate this concept fully, this thesis includes a comprehensive literature review. The literature review is comprised of themes in the fields of literature, design, and game studies. In conjunction with an overview and synthesis of research in these fields, a prototype was created in order to test the validity and potential for interactive narrative in the design process.

The prototype that I created for this thesis, *Persconario*, is an interactive hypertext story which presents the user with both a narrative (consisting of a persona and scenario) and a basic overview of key concepts of the design methodology. It was created using the open-source software, Twine. The ability to create stories, games, or simulations in Twine is only restricted by the researcher's knowledge of CSS (cascading style sheets). The possibilities for interaction and user input is limitless. However, for the purpose of and evaluation of the possibility for nonlinear storytelling in design, *Persconario* is limited to

being able to choose which part of the story section to follow, the changing specific words within the story's context to fit the player/reader's reactions to and feelings in certain parts of the scenario, and submitting qualitative questions in a survey to advance future work in this area and ensure that multilinear narratives do not impede the original purpose of static personas and scenarios (see sections below for further information on the properties specific to personas and scenarios, see p. 30).

## **1.5 Research Questions**

The main research question addressed in the study is:

How have design processes that integrate narrative evolved as narrative form has evolved?

This question led to the following subquestions:

- a. How can multilinear narratives be incorporated into design?
- b. How can interactive narrative change narrative design processes into interactive, dynamic tools?
- c. How may narrative enhance a co-design process?

The answers to these questions may improve the dynamic quality of narrative design processes and enable non-designers to come into the design process at various stages. The results may also present opportunities for traditional modes of storytelling to adapt to new scenarios.

## 1.6 Significance to the Field

Design is a field that openly borrows and adapts from a number of different disciplines. Some of these disciplines relate directly to the literal creation of products – engineering, physics, and mathematics, to name a few. However, the field of design also adapts parts of psychology, anthropology, human-computer interaction, and business. Interestingly, a number of the processes that have been borrowed from other disciplines involve narrative elements, both consciously and unconsciously. Communication is often under scrutiny, and designers offer a unique means of communication, both in their final product, and in the tools and processes they use. David Darby's (2001) article, "Form and Context: An Essay in the History of Narratology" writes that "narratology, which frames the text within a symmetry of real, implied, and fictional intelligences, has always had the potential to pose questions about how narrative functions in relation to a surrounding world of ideas" (p. 829). In other words, narratology in its contemporary context is concerned with the way that narrative is perceived in relation to and in conjunction with the world. Narratology is therefore already in dialogue with design via methods such as personas and scenarios.

Personas and user scenarios are two examples of processes that locate a product or a service in real-time with the explicit goal of understanding a real person (Bella and Hanington, 2009; Danko et al, 2006). It is through this understanding, through a holistic lens, that one is able to reconcile the constraints of a product or service within a larger

context. The imagination required to build a world is based on what one knows through research and also through everyday observations. The possibility for imagining a world with multiple minds that can both play actively or participate passively could challenge what is known and establish new rules for the contexts in which products and services are designed.

Tools and processes may be challenged in order to understand what their current functions are and how they may be improved. This study will therefore begin by establishing a survey of literature surrounding design processes, the functions of these processes, and their relation to narrative. It will then challenge the standard literature regarding these processes by introducing interactive narrative and literary theorists into dialogue with game studies and design. Lastly, in order to determine the possibility for interactive narrative and game studies to be incorporated in design research, an early investigation of an interactive narrative tool for designers was developed and tested. Both through the synthesis of the literature review and the results of the case study, findings and recommendations will be made for future work in design tools related to narrative, and their potential for co-design.

## **1.7 Scope of Thesis**

The importance of narrative within design processes has been well-established. Researchers have focused on the insights gained from and espoused by storytelling and explored the possibility of narrative in even the most traditional and constrained form to

broaden the scope of information attained by these processes (Rosson and Carroll, 2002; Bizzochi and Woodbury, 2003; Dillon and Howe, 2003; McDonagh-Philip and Lebbon, 2000; Danko et al, 2006; Suri and Howard, 2006; Gross, 2008; Ryan, 2009; Ip, 2011). Products have multiple requirements and “these include aspirations, cultural, social and emotional needs... It is important that the designer empathise with specific user groups in order for their designs to create this emotional relationship” (McDonagh-Philip and Lebbon, 2000, p. 31). Storytelling and scenarios help create an understanding of sociocultural motivations and complexities behind the choices that people make, and perhaps most importantly, create empathy. The stories, scenarios, personas, etc. that have often been employed in the design process are typically fixed, static documents.

The scope of this thesis is to expand the use of personas and scenarios so that they may be used at multiple stages of the design process, incorporate multiple scenario paths without increasing time spent, allow multiple voices within one story, and experiment with different writing styles to address issues of time and individual strengths. Hypertext is one possible tool that can satisfy these demands.

## 2 Chapter: Literature Review

*The plausibility of the readability in objects before they are functioning; the clue-giving seductiveness of an object invested with the nous and wit of designers seeking to communicate value or function prior to purchase; the narrative possibilities of artworks and concepts; all these ideas are expressed in the construction of objects as metafictional texts or as prototypical art objects...*

Michael Horsham, *re: viewing design writing*, p. 398

Research on narrative in design spans narratives associated with design processes as well as macroscopic views of design as overarching narratives in which users and designers are characters in a larger schema. However, the evolution or the potential of narrative in design has not been fully investigated, other than as natural to design processes. The goal of this literature review is to put narrative and design in dialogue with one-another, while forwarding a discussion on the potential that deviations and mutations in narrative may have for designers and design processes.

### 2.1 The stories we tell

In Freudian and Lacanian psychoanalysis, narration, storytelling, and analysis are fundamental aspects of a person's psychological development and establishment in the symbolic order (Cokal, 2005; Freud, 1899; Good, 1998; Ronen et. al., 2006). The symbolic order, briefly, is what one might constitute as society and includes its placement of restrictions and guidelines for ethical behaviour. Narrative is therefore a means of establishing oneself in a larger context, and determines the relationships between people and the world around them. Narration within a process, like the act of speaking within analysis, is complicated by the role of the speaker and the role of the analyst, who

sometimes interprets, codes, and reassembles the narrative. The position of analyst is necessarily scrutinized for their role in the production of narration. Cokal (2005) writes that:

The psychoanalyst helps the patient to re-author or re-create a self; he is a narrator and, ultimately, a fiction writer, imposing a largely imaginary structure of understanding and explanation upon the chaos of desire and trauma, explaining an unpleasant present with a plausible past and thereby unifying a subject, creating a “whole” and healthy person. (p. 78)

The data, the observations, the unstructured account of the subject, are reorganized by the listener, the analyst. The analyst then imposes an imagined structure to unify this data. Perhaps one may examine the design researcher as replacing the psychoanalyst in this model. The design researcher collects data and observations, and then constructs representations of their ethnographic findings through user scenarios and personas and thereby impose an “imaginary structure of understanding and explanation” to create a unified subject that serves the goals of the design research (ibid). Even more interesting, design researchers who encourage product users to document their own lives or their experiences in the design context may be empowering these particular users to become their own narrativists.

## **2.2 Narration as it pertains to psychoanalysis and design processes**

Narrative is abstracted in design methods to explore scenarios and understand users. In Tom Flanagan’s (2008) article, “Scripting a Collaborative Narrative: An Approach for

Spanning Boundaries,” he notes that there is a shared experience involving both imaginative thinking and a formal framework and that “the challenge in critical and creative design is to engage both of these modes of thinking concurrently with a design process” (p. 80). For Flanagan (2008), the design process is an overarching narrative that must be shared (p. 81). In Patrick Dillon and Tony Howe’s (2003) “Design as Narrative: Objects, Stories and Negotiated Meaning,” the authors place the emphasis on narrative as an interpretive field that recognizes conflict and negotiates meaning through a combination of linguistic processes (sign and signifier). They write that, “As Borgman observes, things [objects] do not just present themselves minimally and furtively, they are alive with eloquence, with signs” (Dillon and Howe, 2003, p. 290).

Indeed, as design moves towards more digital explorations (both in human interaction and in the design virtual worlds or products that communicate with one-another digitally), what seems to be the contention that design is a linear process similar to traditional narrative structures will likely evolve alongside non-linear narrative explorations (Bizzocchi and Woodbury, 2003; Suri and Howard, 2006). Psychoanalysis and psychology agree that memory and human experience is a linear construct. However, this is changing in the face of emerging innovations in interaction. Now, users can choose when to click, can change course, have access to information at their fingertips. This, undoubtedly, has changed the ways that users and subjects interact and construct the narratives and the world around them.

In specific, personas, according to *Universal Methods of Design*, are described as being relevant to human-centered design and include the understanding of a human subject. The text further states that "...attempting to design for everyone results in unfocused or incoherent solutions, so some level of consolidation is needed... Crafted from information collected from real users through sound field research, personas provide an ideal solution by capturing common behaviors in meaningful and relatable profiles" (Martin and Hanington, 2012, p. 132). Ideally, therefore, personas are constructed on patterns and representations gathered by design researchers. Likewise, in the psychoanalytic process, patterns and behaviours are recognized and mapped by the analyst (Starks, 2002; Cokal, 2005; Freud, 1899; Good, 1998; Ronen et. al., 2006). In an article by Lisa Starks (2002), the author constitutes the psychoanalytic process as follows:

Trapped in its own fixed sense of time, however, the model did not allow for the return of the repressed, which entails a dynamic rather than static relationship between the past and the present. In order to represent it, Freud shifted from the archaeological model to one of memory-as-writing and linked them in the metaphor of the "mystic writing pad"—memory as a trace of the past that remains on the unconscious mind within the moment of the present. As with the mystic writing pad, Freud conceived of the unconscious/conscious mind as multilayered, each layer constituting a different relationship to time and memory within subjective experience. (p. 182)

The author is describing how memory is partly a constructed and written process; one that is shared by the analyst (an external author), and by the subject who produces data

and observations. Moreover, the author refers to the dynamic rather than static aspect of writing and memory. Similarly, it may be possible to expand the static aspects of writing for design processes related to narrative to invite dynamic alterations to the stories being authored.

The recognition of the role of author in design processes as well as in psychoanalytic processes is one that complicates the imagined structure of the subject or the user in the design processes as the primary author. This does not mean that shared authorship within this parallel is negative. Instead, this recognition may expand the role of the author in design processes like personas and scenarios to simultaneously include the designer or design researcher as author, as well as to invite the user to contribute to the narrative in different ways.

### **2.3 Design and desire**

One of the important elements in storytelling related to psychoanalysis is desire. Cokal (2005) writes, “We don’t *need* to read stories; we read them because we want to—first of all, we want to see what other people, even fictional characters, desire, and how they go about fulfilling those desires” (p. 79). This explains, to a certain extent, part of the fascination and necessity for the design process that incorporates user profiles and user scenarios; these become maps for readers interested in desire. Desires related to what users want in their products and services are explored through narratives in design processes. And, because narratives are not read because of necessity, readers of personas

and scenarios may investigate the desires of their users as well as their own simply by reading and reacting to the scenarios and personas. Indeed, any narrative used in design research or the design process will thus implicitly incorporate desire.

In his book, *In the Bubble: Designing in a Complex World*, Thackara (2006) writes “Things may seem out of control—but they are not out of our hands. Many of the troubling situations in our world are the result of design decisions” (p. 1). He goes on to say that his book reassess design to be more wary of desire (the desire for technology; unnecessary products; etc) and states that the book “describes an approach to innovation in which people are designed back into situations” (Thackara, 2006, p. 4). The emphasis that Thackara places on his vision of design correlates with narration in its reflection of humanity; the control that one is able to negotiate through channels of storytelling, and the desire that underlies narrative and design.

## **2.4 Research methodologies**

Design theory and methodology are concerned with how one designs, rather than what is designed (Tomiyaama et al, 2009, p. 544). Design theory and methodologies can either be concrete or abstract (ibid). Tomiyaama et al (2009) classify the variations for concrete theories and methodologies as groups of records belonging to a certain product class and then extracting commonalities between them (p. 544). The authors give the example of design for a jet engine falling into the concrete category. There is little room for abstraction because there is little room for abstraction within the design process of a jet

engine. The other classifications in this paper appear relegated to numeric, quantitative, and modeling methods. This limitation demonstrates the divide between methodologies that may be considered reflective of literal connections to data and design.

However, the considerations that Tomiyama et al (2009) present in their article on design methodologies and theories contains important insights for a more inclusive view. The authors note that “Design methodology begins with a design process model that can be used to develop product specifications. In all cases it is apparent that the development process is commonly regarded as a logical sequence of phases in which tasks are completed” (Tomiyama et al, 2009, p. 545). Therefore, even outside the scope of the article’s concerns with more literal methodologies (mathematical, quantitative, and so on), one is able to determine that regardless of the design theory or methodology in question, it is imperative that a logical sequence of events is tested and analyzed.

In contrast to what one may classify as a more stoic examination of design research and methodologies, Nigel Cross’s (1999) article, “Design Research: A Disciplined Conversation” introduces perspectives on design research outside of the empirical studies and more quantitative models presented by Tomiyama et al (2009). Cross’s paper was written a decade before Tomiyama et al’s article, and yet its considerations for design research are approached from a distinctly different perspective. Cross (1999) writes: “Design knowledge resides firstly in *people*: in designers especially, but also in everyone to some extent” (p. 5). The author then reminds the reader that there is a necessity and inclusion for both “empirical studies on design behaviour” and “theoretical deliberation

and reflection on the nature of design ability” (Cross, 1999, p. 6). Methodologies and theories related to design research are made up of both necessity (requirements, physical limitations, etc) and philosophy (who, what, where, why, when, and how). Much like Tomiyama et al’s (2009) acknowledgment of modeling as the key component for accessing knowledge about how to design, Cross (1999) similarly explains the importance and work of modeling – to extend a kind of “virtual reality” as he phrases it (p. 6). The adaptation, assimilation, and creation of design theories and methodologies is, for Cross (1999), a reflection of the individual culture of design (p. 7).

## **2.5 Between abstraction and the literal: narratives for design**

Denizen and Lincoln introduce the impact of anthropological practices and the inclusion of narration in their introduction to their text, *Strategies of Qualitative Inquiry* (2003). They contend that the paradigm of narration is problematic because of its propensity to enforce control – what they assess as being a metaphor for colonial power, knowledge, and truth (Denizen and Lincoln, 2003, p. 1). The authors’ work further binds together the aspects of narration discussed thus far, authorship, desire, abstraction, and exploration of a sequence of events, by identifying connections between anthropology and qualitative research methodologies in combination with larger ideological concepts such as post-structuralism and ethics (ibid, p. 2). The authors also expand the number of anthropological and qualitative research methodologies related to this paper’s field of inquiry: namely, they assert the inclusion of case studies, participatory inquiry, participant observation, visual methods, and interpretive analysis (ibid, p. 2).

As a particular subset of interest to this paper, Denizen and Lincoln propose that contemporary studies are a kind of *bricolage*. This, the authors explain, is a “learning how to borrow from many different disciplines” (Denizen and Lincoln, 2003, p.3). Even more importantly, “there are many kinds of *bricoleurs* – interpretive, narrative, theoretical, political, methodological” (ibid, p. 4). If this thesis is able to prove how hypertext or non-linear narratives can alter the field of design, it will also advance Denizen and Lincoln’s (2003) claim that the blurring of genres and disciplines creates innovation, and in many ways, a “crisis of representation” (p. 3). This “crisis of representation” may be understood as the complication of who is being represented, who is representing, and what will be represented within the context of design processes.

The process of turning the world into a series of representations, an amalgamation and mash-up of visual representations, textual narrations, verbal statements, observations, and recordings, transmogrify the subject and perhaps even parts of design research. In the same way that the piecing together of elements described in the introduction to this paper produce different meanings, the interdisciplinary process that could be derived from such explorations are what is more at stake.

Furthermore, Nathan Crilly’s (2011) “The Design Stance in User-System Interaction” introduces user awareness into the design process by recognizing a person’s interpretation of a designed system upon using it. The necessity for a holistic design field

requires a more complicated review of the subjects that interact with designed objects and services (Crilly, 2011). He writes,

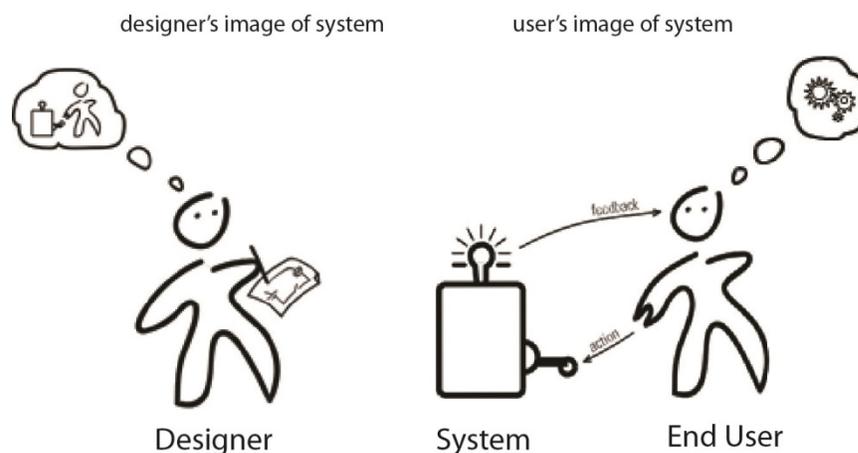
Consequently, attention is now focused on how interactions are situated in contexts of use, how users are constructed during interaction, and how interaction can itself be aesthetic. These broader concerns reflect a more humane approach to users, respecting them as active, aware, and intelligent people rather than just viewing them as being less predictable than the designed systems with which they interact (Crilly, 2011, p. 16)

The proposition of user awareness is lacking in other discussions on narrative in design. Martin and Hanington's (2012) descriptions of personas and scenarios lacks any degree of autonomous behavior (p. 132, p. 152). The description by Crilly (2011), however, only introduces the same pattern that has been demonstrated by other design researchers – understanding human interactions and motivations is crucial to better design and a more complete process.

Crilly's (2011) article further enumerates the connections to narrative and the design process in his section on the user's image of the designer. Crilly (2011) stipulates that studies related to how humans interact with products engage with a model for how the product works, and how the user interacts with it (p. 17). Crilly's (2011) model reflects three points: "(1) The designer has an image of how a system will work and how the user will interact with it, (2) the system presents the user with certain opportunities for actions and offers feedback in response to those actions, and (3) the user forms an image of how the system works based on their interactions with it" (ibid). This model tells a story

graphically and attempts to capture the crux of the moment specific to the designer at hand, rather than the overarching context (Figure 3; Crilly’s Model). The model expands to complicate the designer and subject, making room for more complex patterns of behaviour (Crilly, p. 22, 2011).

A means of connecting design and narrative is through metaphor (Danko et. al., 2006, p. 10). In “Humanizing Design through Narrative Inquiry,” Danko et al. (2006) explains that metaphor in this case represents designs that tell a story (p. 10). The evolution of this metaphorical status of the designed product brought “greater focus on the dynamic processes of user experience and a greater concern for how design responds to the cultural, social, and personal needs of users” (ibid, p. 10). The metaphor, therefore, is expanding its position within designed object to project deeper aspects of the symbolic order. With this deeper metaphorical investment comes a deeper necessity for human-centered design or a humanizing aspect that defines design.



**Figure 3 Crilly’s Model**

Furthermore, the paper evaluates the similarities between storytelling and design. The authors write, “Stories also embody a temporal, iterative process in much the same manner as design” (ibid, p. 11). The authors use a long quotation from Temple and Gillet (1989) to expand on this connection by metaphor. There is give-and-take between storyteller and listener, between characters and the roles that they play, and the outcomes of the storyline. Only as part of this process do people take on characters.

Moreover, narrative, like design, is socially entwined, focusing on potential points of tension related to various human activities while attempting to deepen our understanding of human nature. Storytelling, like designing, is a creative process of selecting and organizing chaotic events that enables us to discern how diverse elements come together to form meaningful experiences. Both play a central role in communication with others (Danko et. al., 2006, p. 12).

This chaotic structure embodies the strategies of narrative: a collective linear map to create points of intersection. However, this model is based on a particularly traditional mode of linear narrative, one that is interested in the traditional value for the coming together to form meaningful experiences in its conclusion.

## **2.6 Writing the visual model: narrative in design**

In the paper, “Humanizing Design through Narrative Inquiry,” the authors first expand on narrative inquiry and its place in design before evaluating the use of narrative in a case study they present (Danko et al., 2006). Narrative inquiry, according to the authors

“refers to the interactions and insights that occur when we read, write, listen to, and tell stories” (Figure 4 Ways for Stories to be Used, *ibid*, p. 11). Interestingly, the authors of this paper caution that user scenarios should not be credited as narrative in design (*ibid*, p. 12). For the authors, the distinction lies in the objectivity of the user scenarios. The case study begins with narrative inquiry as a teaching tool in professional practices for design and then the use of narrative (storytelling) as a design tool in a studio setting involving students (*ibid*, p. 10).



**Figure 4** Ways for Stories to be Used

According to the article “Beneficial appropriation and corporate exploitation: Exploring the use of ethnographic methods in art, craft and design,” ethnographic practices have been further implemented into research for design (van Koten, 2009, p. 1). These ethnographic methodologies are part of the use of narrative in design. Van Koten (2009) identifies how

Groundbreaking work has been done by design consultancies like IDEO (2001), and by trend-predictors such as The Future Laboratory. Large corporations (BMW, Philips and Mark & Spencer) employ ethnographic methods to gather data on the use of their products, their retail outlets, and their customer’s relationship with their brand identity. Video diaries, ethnographic fieldwork, and codesign tool kits

(Sanders, 2002) are rapidly becoming the new means for product and service development. (p. 1)

The strength of the inclusion of ethnographic methods into design research and practice provide a number of benefits such as holistic solutions to design problems. What is at stake, the author argues, are whether or not these methods are, like variations in technique to the linear narrative model, merely a means to solidify ideologies and push product completion forward or a means to innovate and renegotiate boundaries and ideas (ibid, p. 2-3). One of the biggest claims that emerge from this is that there is the potential for co-creation from these versions of narrative. For von Koten (2009), it is problematic that ethnographic methods are replicated but not duplicated because an important desire to remain user-centred is lost in this process (p. 29-30).

Mood boards are a particularly interesting method to analyze here. Mood boards visually represent data without contextualizing this information with text or other linear constraints. However, the goal is to maintain meaning (much like interface exploration, described below). Tracy Cassidy (2011) defines mood boards as

“tools used by designers to bring together apparently incongruent visual data to promote inspirations to develop suitable end products ... Mood boards provide a “space” to arrange the collected visuals in a meaningful manner to the designer that enables the flow of thoughts, inspirations, and creativity for design outcomes—products.” (p. 227; p. 230)

Like von Koten (2009), Cassidy’s (2011) analysis of mood boards as method of discovery and innovation in design is predicated on deeper analysis. The creation of narrative in this practice is metaphorical and invites creativity (both on the part of the

creator and the viewer). One cannot be passive but create linkages between objects or visuals to construct meaning.

Authors Jodi Forlizzi and Cherie Lebbon (2002) further negotiate the place and function of narrative in design as being one that creates empathy. In their article, the authors state that “while product designers traditionally have made greater use of data about the people who their products are designed for, communication designers more often have relied on inference and personal insight when designing communicative artifacts” (Forlizzi and Lebbon, 2002, p.3). Here lies a potential area of development for narrative practices in design. If, as the authors state, product designers use narrative methodologies to use data about people who will use their projects and communication designers rely on inference and personal experience, then there appears to be a discrepancy between the methodologies used to communicate narratives. Accordingly, Forlizzi and Lebbon (2002) stipulate that user-centered methods integral to bridging the gap between designer and viewer.

Moreover, in Forlizzi and Lebbon’s (2002) article, the authors stress that innovation in communicative practices should take place at an interactive level. This would favour co-creation and the active construction of meaning by multiple participants (the designers and the viewers) (Forlizzi and Lebbon, 2002, p.4). Hypertext and non-linear narrative as part of the Web 2.0 phenomenon and peer-to-peer sharing and networking favours this type of interactivity and invites the possibility for innovation (McStay, 2010, p. ). Forlizzi and Lebbon (2002) state:

Designers can no longer only be concerned about the interaction of word and image; they also must be concerned about the interaction between the audience, the content of the communication, and the outcomes of the design. In order to create dialogues that effectively persuade the viewer to adopt a new belief or change behavior, the communication designer can no longer rely solely on intuition. (p. 5)

In effect, the type of innovative communication methodologies that Forlizzi and Lebbon (2002) call for are connected to hypertext and the potential for interactivity and the ability to move between spaces and modes of communication more easily.

## **2.7 A new branch of narrative: hypertext**

Linear narratives in design are predominantly encoded in research processes such as ethnographic research, mood boards, scenarios, personas, and use cycles. Hypertext and non-linear narrative are concerned with being able to move (to interact, to click) between different objects or ideas (typically in digital format) so that a text has no clear structure or single reading or meaning. Its most common areas of implementation are at the digital level through user interfaces and Internet browsers. But, this concept has been expanded beyond its primary functions in different art forms, including that of storytelling and game design. Hypertext as fiction was a popular mode of exploration in the 90's (Pope, 2010, p. 75-76). In game design, alternative endings and multiple storylines has been a long-standing means of narrative (Figure 5 Porpentine's *Ultra Business Tycoon*).

Interactive fiction (or narratives that use hypertext) are predominantly invested in disrupting traditional narratives and establishing a new means of interaction between text and reader (Pope, 2010, p. 76). In this established framework, the reader is not constrained by traditional paper, footnotes, the need to define certain terminology or remember certain events, and readers can jump between different parts of the text to form alternate narratives (Figure 6: *King of Bees* by Brendan Hennessey).

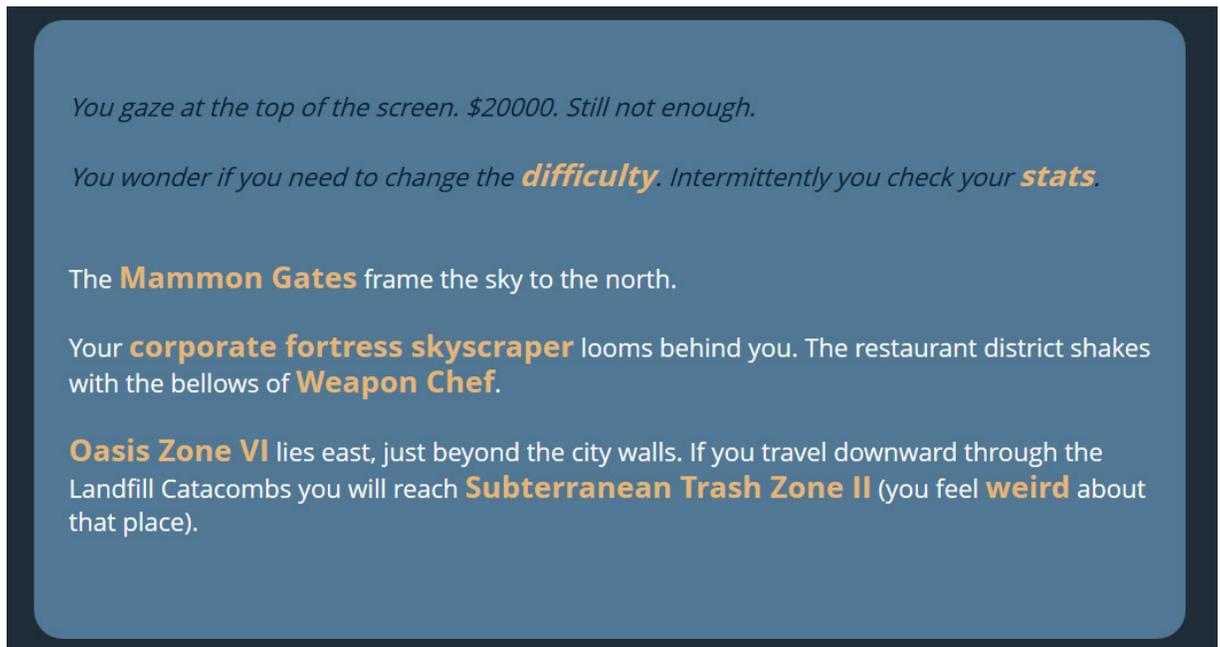


Figure 5 Porpentine's *Ultra Business Tycoon*

On the other hand, reading becomes a less passive exercise and instead becomes an active one. The notion of passive information intake is disrupted; readers are considered co-creators of the text (ibid). George Landow (1989) is a professor of literature and art as well as one of the most credited hypertext theorists. In one of his seminal texts on the subject of interactive fiction he explains the role of reader and author in this newly active means of reading. He writes:

The ease with which readers traverse such a system has additional consequences, for as they move through this web or network of texts, they continually shift the center – and hence focus or organizing principle – of their investigation and experience. In other words, hypertext provides an infinitely re-centerable system whose provisional point of focus depends upon the now interactive reader.

(Landow, 1989, p. 175)

In the model presented by Landow (1989), the repositioning of the focus of the text helps constitute it as being meaningful in different ways to different people. There are different meanings and scenarios that become accessible through repositioning of the text's focus through the reader's interaction. It is through this model of co-creation that hypertext may have a positive influence on co-design. However, before the possibility for co-design through hypertext is investigated, it is necessary to have an understanding of hypertext both in practice and in research.

Marie-Laure Ryan's (2009) article, "From Playable Narrative Games to Playable Stories, Towards a Poetics of Interactive Narrative," addresses the primary concern associated with hypertext – how to preserve the meaning(fullness) of a story once it has been coded to break narrative arcs (p. 43). In its fictionalized state, hypertext was imagined to be an open world; a kind of Holodeck or virtual reality simulator that allowed people to free-associate and more accurately mirror their thinking process when interacting with information; where possibilities are limitless (Bush, 1945; Conklin, 1987; Murray, 1997; Kendrick, 2001; Ryan, 2009) (Figure 7: *Façade* by Andrew Stern and Michael Mateas).

Authors and creators of hypertext (systems and texts) believed that the systems and narratives would mitigate control and offer explorations with less manipulation (ibid; Nelson, 1974).<sup>1</sup>

Linear constructions of narrative offer readers the knowledge that they are entering a space that is beyond their control. There is surrender to the medium (whether it is unconscious or conscious is not the topic of this paper, but would be fascinating to study in the future) that is not possible in hypertext constructions. As Ryan (2009) points out, the other end of the spectrum (hypertext) offers choice, within limitations (p. 44). She writes:

What hypertext gains in actual feasibility over the Holodeck, thanks to the simplicity of its algorithm, it loses in ability to create narrative meaning and immersion in a fictional world: narrative is a linear, causal sequence of events whose significance depends on their position on a temporal axis, while hypertext is a network of textual fragments that can be read in many different orders. Unless the user's choices are severely restricted, it is highly unlikely that they will produce a sequence that respects narrative logic. (Ryan, 2009, p. 44)

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<sup>1</sup> And yet, despite the allure of utopic designs, it is necessary to draw attention to the years that hypertext was first conceptualized and then built – World War II and the Cold War. It is imperative to remind ourselves that the research and production of these systems was located in a political and militaristic context, and that the context of the current generations of technology and media are likewise influenced by the same utilitarian drives.

"Don't try and speak," he says. "Your mouth is still adjusting to the effects of the royal jelly."

You bring a finger up to your lips. Your face feels numb.

"This world is what bees see," says King of Bees. "The human experience is limited to a few minor senses, filtered through non-compound eyes and antennaless foreheads. We bees are attuned to everything around us. The jelly is giving you a taste of our experience."

- [1 - Look confused](#)
- [2 - Look skeptical](#)
- [3 - Look upset](#)
- [4 - Look unconvinced](#)
- [5 - Look baffled](#)
- [6 - Look suspicious](#)
- [7 - Look scared](#)
- [8 - Look wary](#)
- [9 - Look angry](#)
- [10 - Look cautious](#)
- [11 - Look puzzled](#)
- [12 - Look anxious](#)
- [13 - Look contemplative](#)
- [14 - Look bewildered](#)

**Figure 6** *King of Bees* by Brendan Hennessey

The re-ordering of events and links based on user preference is thus unique to the user. By ordering events based on individual preference, one is able to therefore consider the text as being determined, both in meaning and in reading, by the user rather than the author.

## **2.8 A complicated relationship: hypertext and the subject of writing**

In the introduction to this thesis, I cited Bella and Hanington's (2012) definitions of personas and scenarios. In these two design processes, the subject of writing is illusory. While the subject of these narrative techniques is inherently the characters, the authors who write these personas are the designers themselves. Hypertext further complicates the

function of the author and the reader by prompting nodes and links that are subject to unique interaction. In Michelle Kendrick's (2001) work, "Interactive Technology and the Remediation of the Subject of Writing," the author examines this relationship in terms of hypertext.



Figure 7 *Façade* by Andrew Stern and Michael Mateas

Kendrick (2001) explains the corruption and problematic desire for hypertext to have been removed from ideology (p. 232). In other words, hypertext was first thought of as utopic and as deconstructing the author and giving control to the reader (ibid). Kendrick's (2001) assertion that one is never free of the historical and political context is one that recognizes the contradictions in not only hypertext, but digital media and interactive technologies as a whole. The subject of writing, the author claims, is both intensified and dismissed (Kendrick, 2001, p. 233). She writes that "...this "author" paradox culminates in a compensatory rhetoric that relocates the author's lost "agency" to the reader, who is specifically cast as a *consumer* of texts" (ibid). Interestingly, this paradox is already

present in personas and scenarios in the design process specifically because the agency of the authorial power is displaced by the goals of the processes as presentation tools or as sublimations to the design requirements.

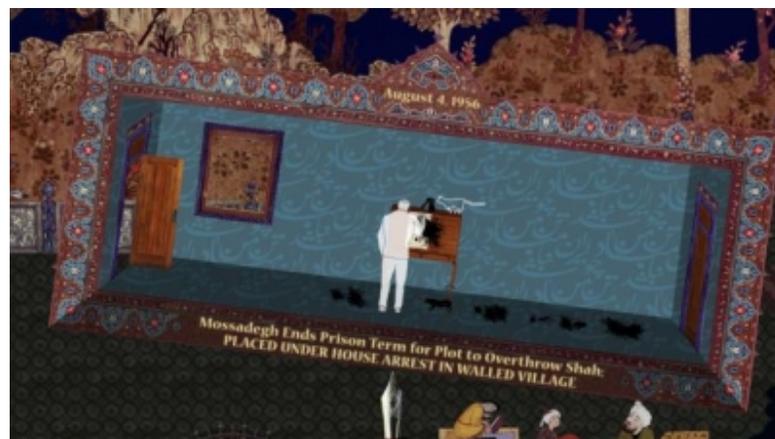
The assertions in Michelle Kendrick's (2001) article should not debilitate the hypertext medium from expanding, but should, in fact, draw attention to the divergences between its potential and its problems. Indeed, hypertext is not "new media" but "re-mediation" (Kendrick, 2001, p. 237). Moreover, "Hypermedia is the deliberate showcasing of technology: hardware is celebrated, stylized, and dramatized" (Kendrick, 2001, p. 239). Kendrick's (2001) phrasing reminds the reader that hypertext is not only political but classist. Hardware and Internet connectivity are taken for granted by hypertext theorists and creators, and this is a discrepancy between its desire to connect with people and the disconnect it fosters depending on economic and global status to even access this medium. Yet, within these assertions is still the acknowledgment that there is connectivity; there is the potential to connect with and disperse information beyond geographical limitations.

To better address the potential and the problematic within this discourse of remediation and hypertext, the researcher will present two particularly interesting demonstrations of how these discrepancies may be acknowledged without being paralyzing. The first example is a docu-game called, "The Cat and the Coup" by Peter Brinson and Kurosh ValaNejad (Figure 8: The Cat and the Coup).

The authors' description of the game is as follows:

The Cat and the Coup is a documentary videogame in which you play the cat of Dr. Mohammed Mossadegh, the first democratically elected Prime Minister of Iran. During the summer of 1953, the CIA engineered a coup to bring about his downfall. As a player, you coax Mossadegh back through significant events of his life by knocking objects off of shelves, scattering his papers, jumping on his lap and scratching him. (Brinson and ValaNejad, The Cat and the Coup)

As the illustration above demonstrates, pieces of text (or lexica) are unlocked by playing the game. These story elements work together to construct the extremely political and historical context within which the story and characters exist, while simultaneously implying and erasing narrative function. Players who come from different economic or political backgrounds (not to mention geographic, etc) are able to access the narrative and form meanings and experiences of it.



**Figure 8** The Cat and the Coup

The second example that illustrates the potential and the problematic aspects of hypertext is one that is more directly related to the tool constructed for use in this thesis. The hypertext I am referring to is nespresso's "Rendition." It is interactive fiction that puts the reader/player in the context of torturing a terror suspect. Language as well as action are subverted in this work, and one theorist claims that the goal is for players to quit rather than to "commit the atrocities the piece demands" (Short, *Rendition, Quit this Thing*, 2008). Implication, imagination, and limited interaction are powerful tools used by the author, nespresso, which, again, demonstrate the complicated relationship of author and reader.

## **2.9 Ergonomic hypertext**

In Kim Gee's (2001) "The Ergonomics of Hypertext Narrative: Usability Testing as a Tool for Evaluation and Redesign," the author investigates usability testing on hypertext narratives and concludes that the navigation of hypertexts can take away from the pleasure of the fiction, and that better navigation is needed for interfaces, and more linear structures would enhance the pleasure on the part of the reader (p. 3). Gee's (2001) primary occupation is to understand the narrativity of hypertext.

Gee (2001) notes that "It is true that readers must work harder to read hypertext narratives than traditional stories; they must navigate the narratives much like documents located on the World Wide Web," but that this may not provide the idealized payoff: interactivity and collaboration in the interactive text (p. 3-4). The author points out, like

other hypertext theorists, that despite the criticisms of hypertext, that “While the reader may or may not enjoy the status of co-author, the unique malleability of storylines in this medium remains unquestionable” (Gee, 2001, p. 4). Malleability and multiple storylines are thus providers of innovation in the context of hypertext.

For Gee (2001), the relationship between text, machine, and subject/user is necessary for the analysis of hypertext (p. 5). All three elements are transgressive and fluid and important to the design of machine, the interface, and the texts available digitally (Gee, 2001, p. 5). As the author notes, “The layout of the text should be attractive and readable; as Karen Shriver (1997) puts it, “many documents fail because they are so ugly that no one will ever read them” (p. xxiii)” (Gee, 2001, p 5). What Gee (2001) highlights at this point is the necessity for good design; a culmination of aesthetically pleasing visuals with content. Moreover, the author implies an important aspect of design – good design lends credibility. In fact, a further implication in this insinuation of good design is that metaphor’s supremacy remains consistent in this digital space: “So while hypertext narrative is allowed to challenge the concepts of linear reading and definite endings, it should not challenge traditional document design values if it is to be accepted by readers” (2001, p. 5). Thus, for Gee (2001), the success of hypertext is reliant upon an ergonomic interface (ibid).

## **2.10 Playfulness**

Playfulness and ergonomic designs often work with one another. The desire to use something and its effectiveness can be improved by introducing a level of play. It is perhaps difficult to imagine interactive fictions as forms of gameplay, especially in lieu of the vast number of video and computer game options. In Ryan's (2009) article, she points out that "interactivity, when put in the service of entertainment, is a type of play" (p. 45). The invocation of interaction opens the discussion within the article for a conversation between ludology and narratology, or, in the difference between stories and context, and simulators or rules and mechanics (ibid).<sup>2</sup> For interactive fiction, like playable stories for Ryan (2009), "...there is no winning or losing: the purpose of the player is not to beat the game, but to observe the evolution of the storyworld" (p. 46). This playable aspect would benefit design processes that involve story simply by encouraging imaginative investigations rather than ones solely derived by ending the scenario (winning the game).

Interactivity in text has been expanded to alternate mediums. Instead of needing a computer, mouse, and keyboard, the development of smart phones, tablets, and locative media (amongst other more practical biomedical products) have enabled hypertext to reach new users and be implemented across different products and through game design (Bizzocchi and Woodbury, 2003, p. 550). It is through this development that one is able to recognize problems with hypertext and design. Bizzocchi and Woodbury (2003) enumerate these problems:

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<sup>2</sup> Marie-Laure Ryan uses the terms *ludus* and *paida* and goes into detail about what constitutes these forms of play on page 46 of her article, "From Playable Narrative Games to Playable Stories, Towards a Poetics of Interactive Narrative" (2009).

This problematic relationship can be seen as a conflict between two design domains: the design of narrative and story and the design of interactive experience. For many storytellers working in the traditional media, the design of narrative seeks a particular kind of outcome—a state of immersive surrender to the work. The reader engages in a suspension of disbelief, ignores the objective reality of the conditions of reception, and surrenders to the world of the story. (p. 551)

Conflict in design domains that prioritize a narrative that invokes an immersive experience versus an interactive experience is a potential problem for the implementation of hypertext. Choice and willingness become the drivers for both the readers and the creators (ibid). Therefore, the non-linear as enjoyment machine or as space for innovation is not purely beneficial.

## **2.11 Towards the meeting of hypermedia and design**

As a part of interaction in interface, hypertext would thus have to face the implementation of and creation alongside hypermedia elements – metaphor. In Ece Merdivan and Nesrin Ozdener’s (2011) “Effects of different metaphor usage on hypertext learning,” the authors advance the role of hypertext and metaphor by positing the limits of hypertext (p. 273). The authors are focused on the specific function that hypertext can offer for students as a learning tool, and are interested in a scientific study to demonstrate how metaphor complicates the hypertext model (ibid). They stipulate that “Because metaphors relate new information to concrete knowledge, they are one of the significant

strategies used to introduce new information to students (Kuhn and Blumenthal 1996, Guss 2003, Senemoglu 2004)” (Merdivan and Ozdener, 2011, p. 273). The use of abstraction can both hinder understanding or develop it, but there is no question that it is a complex relationship that facilitates interpretation over literal understanding.

Katherine Hayles (2004) contends that there is more potential for hypertext than initially argued in Bush’s 1945 text on the subject. In essence, Hayles (2004) is challenging hypertext as a medium which can “mutate” or “transform.” This is a powerful statement, for it correctly implies that the work of the reader and the writer – both for code and for print – have not reached an evolutionary end. In fact, materiality, Hayles (2004) argues, is dynamic; it cannot be situated in one space (whether it can be situated in multiple times is another element for discussion, though one argues that people are fixed in time). There is the potential, therefore, that media operate on the borderlands: “Materiality thus cannot be specified in advance; rather, it occupies a borderland—or better, performs as connective tissue—joining the physical and mental, the artifact and the user” (Hayles, 2004, p. 72). In the in-between space, between product and production, connections for the user and for the artifact are enabled. It was this space that the researcher was concerned with.

Time for narrative and stories seems to have stopped when it comes to the design process. Victor Margolin (1997), amongst others, has written as to the need for designers to negotiate a space beyond narcissism; where user experience can, in fact, have larger consequences for producing a better world and better designs (Thackara, 2006). The

purpose of this exploration of user interface design was for the attempted creation of a space of negotiation between invigorating narrative in the design process through interactive hypertext fiction-style, and a new means of understanding future users of a designed artifact.

## **2.12 Synthesis**

Static, linear stories offer readers insight into a fixed story. These stories allow readers to experience a set storyline, and while interpretations of the text may vary from reader to reader, it is a passive experience that can only be made active outside of the printed text. Interactive fiction, on the other hand, allows for some of the authorship to be shared with the reader. Some interactive fiction is limited to hyperlinks that bring readers to different segments of the story based on their subjective goals and desires within the text, thereby changing the story from a linear, constrained document set by the author, to one that is both set by the author, and able to be disrupted by the reader.

There are more complex interactions also available within interactive fiction that invite the readers to input natural language within the text to change the story's text directly and thereby alter the story to the reader's own goals and desires, or, in even more complex fictions, the author is able to amalgamate the reader's inputs and commands to construct a fixed, linear output at the end of the process. One example of this is the game *Home*, by Benjamin Rivers (Figure 9 *Home*, by Benjamin Rivers). In this game, the lexica (or individual story text) is interacted with throughout the game by the player, who then

makes choices based on their personal preferences, and in the end, the game presents the player with a fixed lexica that amalgamates their story decisions within one, linear document. However, this does not always mean that the lexica makes sense when it is arranged in a fixed document.



Figure 9 *Home* by Benjamin Rivers

Based on the research about interactive fiction as well as games that play with similar elements and possible outcomes of interactive fiction, one may introduce multilinear narratives into the design process by separating the sequential elements of the personas and scenarios into appropriate lexica. Rather than build an extensive game system for the player/reader to use at this point in the thesis, a basic interactive fiction structure will be applied that introduces the persona and scenario information broken into lexica, which are then accessed by the user's interactions with each hyperlink based on their subjective desires. In order to take advantage of more reader choice, some links will also change the wording of the fixed lexica to invite user interaction with the hyperlinked elements, and to allow for more diversity in the level of interaction the readers can have.

Furthermore, some images and other graphic representations should also be placed in the interactive story to compliment the heavy use of text. As noted by Bizzocchi and Woodbury (2003), it is important that playfulness and different levels of interaction be incorporated within the designed digital story space. The inclusion of graphics and images may also address issues that Danko et al (2006) point out in the conclusions of their study, which highlighted that not all designers are adept writers, and often feel more comfortable with visual communication to supplement this. For successful integration into design research and in order to make the design tool being proposed in this thesis be useful to and honour designers and non-designers alike, the hypertext must satisfy the textual and visual necessities of a strong communication method.

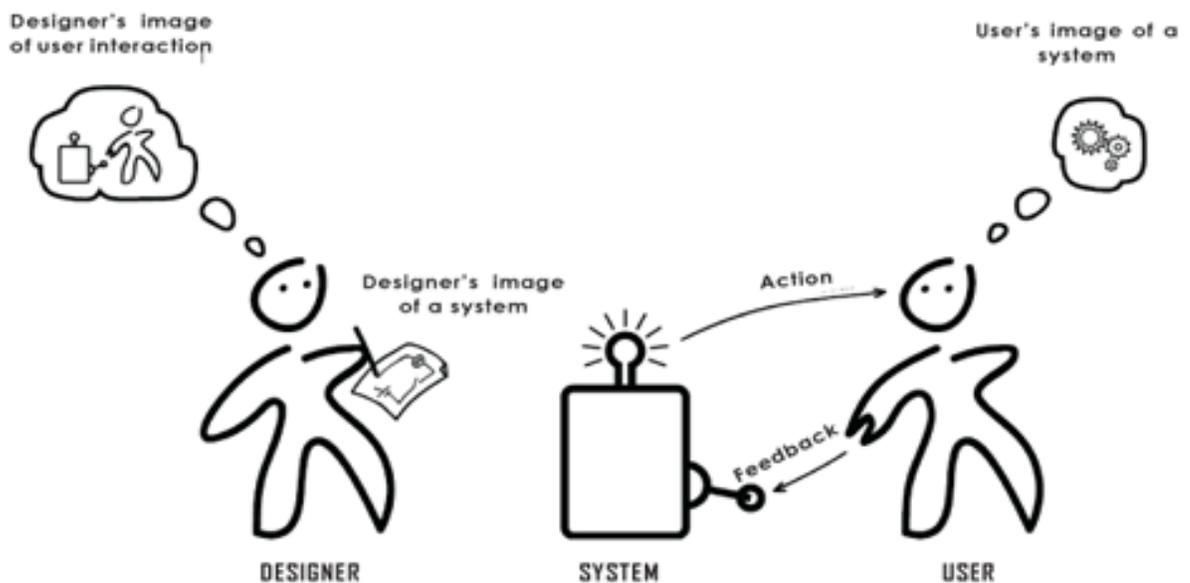
Kendrick's (2001) deconstruction of authorship within interactive narratives is appropriate for inclusion within the design prototype. Although personas and scenarios are ideally based on real people, as discussed in the literature review, this is not always the case. While there may be data that has been collected by designers, this data is then shaped and used for the purposes of the designer/author of the persona or scenario.

Therefore, authorship within the prototype will be tested as well. The observations and data will be collected by the designer, and then explicitly stated as being shaped by the designer for the purpose of the scenario. However, if the prototype is to be used at multiple stages of the design process, it must therefore allow readers to become co-authors if they want. Clicking on links may be regarded as passive co-authorship, and direct input of natural language or the creation of a new character may be regarded as active co-authorship.

A critical component of scenarios is the inclusion of a design problem, either pre-existing or created for the purpose of the scenario, to address the need for a design solution.

Crilly's (2011) model illustrates how designers imagine their products with ideal users in mind. In this model, the user is able to intuit the function of the product or service successfully. This is not always the case. In many cases, there is a discrepancy between what the user is able to accomplish and what the designer hopes will happen with a well-designed product (Figure 10 Crilly's Model Remodeled). Within the context of generative ideas, however, this represents a more static vision of how scenarios are used – as presentation tools that represent the successful integration and use of a product or service. To be used at multiple stages of the design process, however, the proposed tool

should possess the ideal user and use scenario as well as incomplete or problematic story lines. This way, a complete or successful scenario interaction is possible and able to be shared, as is the continued exploration or integration of problems and solutions by the authors. Multilinear narratives and interactive storytelling help generate multiple scenarios within the same system without having to completely rewrite or reimagine the scenario and persona.



**Figure 10 Crilly's Model Remodeled**

Interactive fictions have not yet been used in the design process, but the evidence from the literature review demonstrates that the inclusion of multilinear storylines into the design process may further expand the use of and life of personas and scenarios. The successful components of integrated design processes such as the importance of visual communication and images, the inclusion of strong personas based on real people, data and observations, the ability to see holistically, and a design problem, are necessities for

the successful expansion of narrative tools into a digital interface. Digital narratives are not the only tool to accomplish these goals, but they may prove to be valuable for the expansion of these qualities of design tools like persons and scenarios.

### 3 Chapter: Methodology

The primary objective of this thesis was to determine how narrative in the design process is used and whether or not interactive narrative strategies would benefit the design process for the purpose of co-design. In order to verify this, questions were posed in the Introduction.

- *How have design processes that integrate narrative evolved as narrative form has evolved?*
- *How can multilinear narratives be incorporated into design?*
- *How can interactive narrative change narrative design processes into interactive, dynamic tools?*
- *How may narrative enhance a co-design process?*
- *How may hypertext be used to facilitate co-design processes that use narrative?*

In order to answer these questions, the researcher built an online, interactive hypertext narrative, using the open-source software, Twine, which repurposed elements of the personas and scenarios previously discussed. The interactive text is called *Persconario*.

In conjunction with the interactive narrative prototype designed for scenarios and personas, the researcher also conducted an online survey with players of the game who have a background knowledge of design personas and scenarios of a minimum of two years, and two expert interviews with professional designers who similarly have at least two years working with design personas and scenarios in their practical experience.

The online survey first invited participants to comment on and respond to the Twine game, and then prompted participants to answer a question segment that compared a traditional persona with *Persconario*. Participants of both the survey and the interviews had to have a minimum of two years of experience doing design research, with an emphasis placed on having used and created user scenarios and personas. The researcher of this thesis observed the interviewees as they played through *Persconario*. The interviewees were asked to speak out loud while they interacted with the prototype and explain their choices, behaviours, and reactions. Afterwards, open-ended questions were asked to conduct a semi-formal interview to obtain more in-depth findings about the prototype.

The interview consisted of open-ended questions in order to avoid bias and promote an open discussion of the interviewee's experience and obtain their feedback. A list of questions can be found in the Appendix, along with the transcription of both interviews and signed consent forms (Appendix B). The first interviewee is the owner of Hunt Software, a web development and design company, that focuses on user experience and design in their design processes. The second interviewee is an employee of the design consultancy, Gibson Product Design. All data gathered from participants was collected with permission from the participants and in full compliance with Carleton University Ethics Board guidelines (Project # 13-1064).

Personas and scenarios are based on a specific person or group of people, their choices, behaviours, and desires. Their primary purpose is to convey specifically qualitative

information regarding the design process rather than quantitative facts and information. Accordingly, qualitative methods were used in the thesis. Christopher Ireland (2003) writes that qualitative research is a conflicted method (p. 23). Another author writes, “Qualitative researchers are interested in understanding the meanings people have constructed, that is, how they make sense of their world and the experiences they have in the world” (Merriam, 1998, p. 13). This statement reflects similar goals to *Persconario*, which tries to understand a subject’s personal experience of the world around them. Yet another author notes that

Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data. The written report has a flexible structure. (Creswell, 2009, p. 4)

Qualitative research is varied and flexible and thus the most fitting method to use in order to understand and explore the data gathered from this thesis.

### **3.1 *Persconario*: A Twine game mash-up of personas and scenarios**

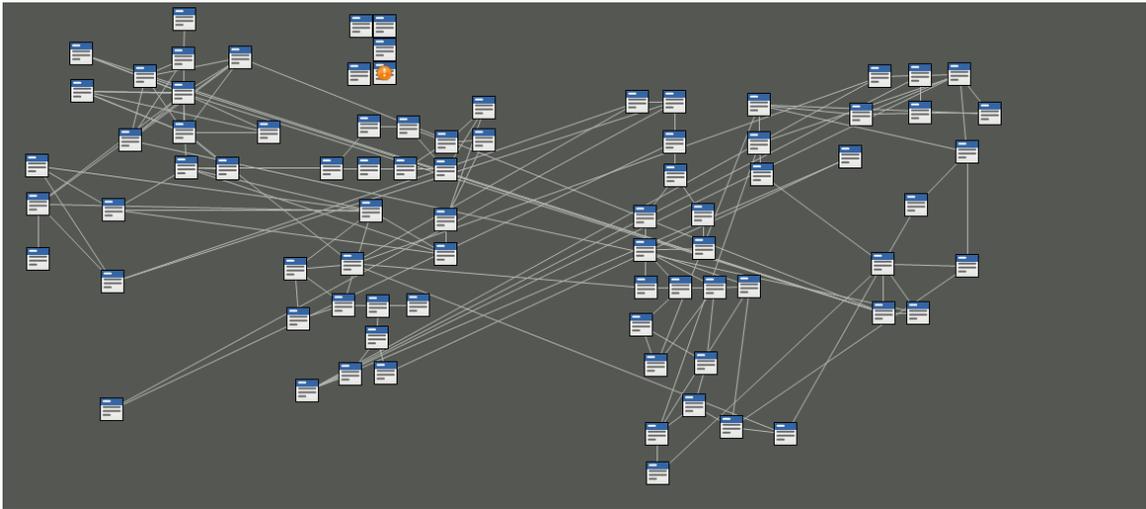
*Persconario* was created using the open-source software, Twine. The primary purpose of this research is to investigate whether or not hypertext or nonlinear narratives may be beneficial to design research. Twine is primarily text-based and requires knowledge of cascading style sheets (CSS). The software has a large community of participants who

freely offer their help as well as links to the source code for their Twine games. In other words, the software is accessible and the knowledge to build and learn the basics of HTML or CSS is available to anyone who has an Internet connection. This is a powerful service for authoring and one that can be adapted to different purposes. Moreover, there is no evidence that Twine has been used for design; this thesis may prove an important first step for introducing new software into design research.

The construction of the Twine game, *Persconario*, features a total of 36,953 characters, 5,106 words, 81 passages (or pages), 142 links (Figure 11, A screenshot of *Persconario* in Twine). Key components addressed in personas and scenarios include a persona, a design problem, a general context, and an end. In order to address concerns of *who designers create personas and scenarios for*, the researcher built only one playable for the character of *Persconario* based on herself. The reason for this is to establish the guidelines for new players to participate as well as to give players the opportunity to experience one author's perspective (Figure 13, Character Screen from *Persconario*).

The data collected for the story was primarily based in the researcher's experience using the self-checkout machine at a grocery store in Ottawa. As the researcher completed each phase of grocery shopping, a brief note was made about the step along with any personal reactions. This was then augmented by observations of other users in the same grocery store. Notes were taken on site. No names or specific characteristics were collected in order to preserve the anonymity of these users. These observations were used primarily as a means of adding new lexica. These would be integrated into the storyline to provide

new links for players of *Persconario* to traverse. Lastly, the researcher created several nodes based on the observations and reactions of anonymous users on an Internet forum who were sharing their experiences with self-checkout machines. From the observations collected and the researcher's own experience, the story was created one node at a time in Twine.



**Figure 11** Screenshot of *Persconario* in Twine

In keeping with the research from the literature review, based on both the information about design processes like personas and scenarios and the interactive narratives, three core story elements were preserved: the character/persona, the context/environment of the product, and a clear design problem (Figure 12 The Three Elements). These key elements were placed at the beginning of the prototype to ensure that their position of importance was kept. However, these elements were both separated as tutorial/introductory elements, and then referred to within the story itself as integrated elements that helped the reader in their journey.

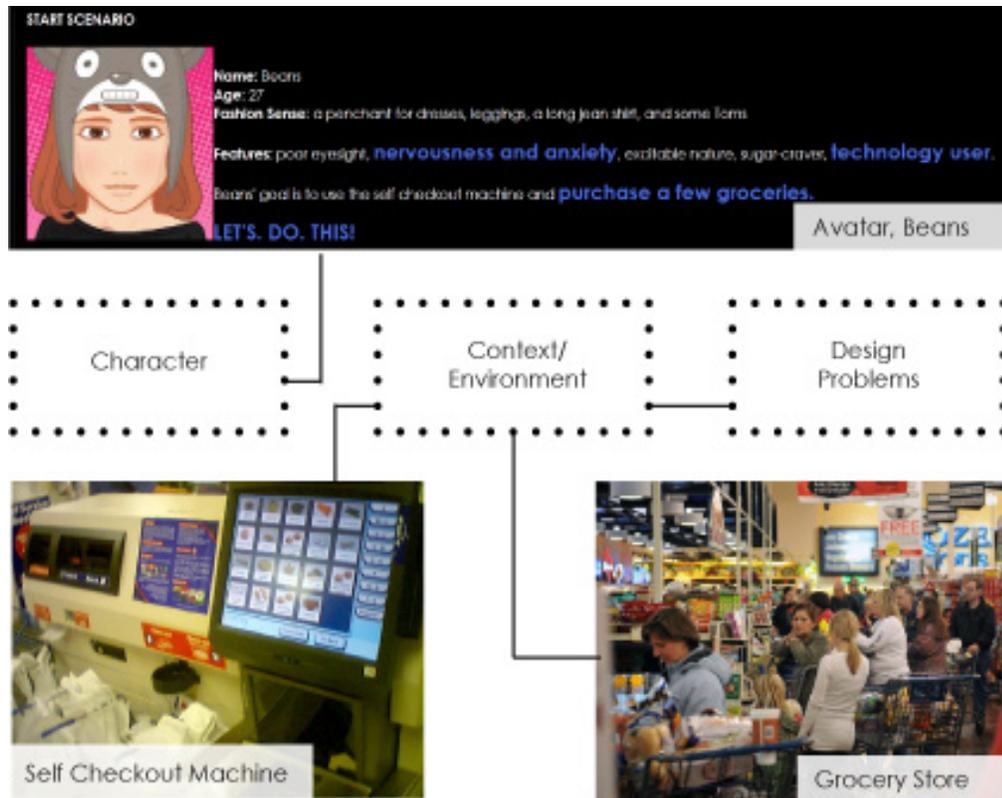


Figure 12 The Three Elements

To augment the difficulty of changing elements of the hypertext experience, *Persconario*, the researcher was also interested in whether or not storytelling would be considered a part of the mechanic involved in further development of the tool. In the Literature Review, Cokal (2005) is quoted as saying “We don’t *need* to read stories; we read them because we want to—first of all, we want to see what other people, even fictional characters, desire, and how they go about fulfilling those desires” (p. 79). Thus, reading versus creation is an important aspect of using narration in the design process. In Danko et al’s (2006) “Humanizing Design through Narrative Inquiry,” students were divided on reading versus writing stories (p. 14). Reading creates certain emotions and understanding, and creating asserts other emotions.



Figure 13 Character Screen from *Persconario*

Previously, for a course in Human Interaction, the researcher created a series of screens for one possible interactive tool for this thesis (Appendix A. Screenshots of First *Persconario* attempt). Given the limitations of the study and the researcher's ability, it was necessary to work within the affordances of Twine to produce a similar style, while still delivering a character page for players (Figure 13 Character Screen from *Persconario*). Links offer choices to players with multiple outcomes and scenarios for the character. These links between passages of the story determine player choice, outcome, and offer insight both about a particular character, and the choices that the player is able to make. In this way, the researcher hoped to make use of the limitations of her knowledge in order to offer choice, however limited, to the player and assert the role of hypertext in comparison to that of the traditional persona or scenario.

There is much work to be done for this prototype, if it is of value to design research. This prototype is not an exemplar, nor does it demonstrate the full number of possibilities that

the software contains. It merely offers one view of hypertext for incorporation into the design research process.

### **3.2 Online Survey**

The researcher modeled the online survey attached to *Persconario* on Danko et al's (2006) "Humanizing Design Through Narrative Inquiry" and on Merdivan and Ozdener's (2010) "Effects of different metaphor usage on hypertext learning" to blend open-ended question techniques of the former, and the more structured responses of the latter. A survey was conducted using participants with at least two years of experience in design research and/or having used personas or scenarios in the design process. The survey was hosted on Survey Gizmo (sureygizmo.com) as it allowed for an infinite number of questions as well as hypermedia elements. Approximately 22 people were contacted via email by the researcher or by the administrator for the School of Industrial Design at Carleton University in the month of August, 2013, and three participants completed the online survey.

Due to the small number of participants in the online survey, the researcher of this thesis would like to consider these initial responses as part of a pilot study. Sale et al (2002) state that "Samples are not meant to represent large populations. Rather, small, purposeful samples of articulate respondents are used because they can provide important information, not because they are representative of a larger group (Reid, 1996)" (Sale et al., 2002, p. 45). To compensate for the small number of responses from the pilot study,

the researcher also conducted two expert interviews that focus on an in-depth exploration and criticism of the *Persconario* experience. In these expert interviews, the initial findings of the pilot study were refined and better questions were written. The researcher is aware that *Persconario* requires further testing in order to ensure that multilinear narratives are indeed a possible tool for designers in the future.

The link to the survey was attached to *Persconario* and sent via email to participants. Based on the literature review as well as the relevant work of Danko et al (2006) and Merdivan and Ozdener (2011) in relation to defining properties of personas and scenarios enumerated by Bella and Hanington (2012), the following topics for questions were chosen:

- *Are links meaningful or meaningless* (Merdivan and Ozdener, 2011): Hypertext is defined by the linking of different nodes of information with the potential goal for choice and reader collaboration. To test this, players were asked to provide personal reflections on the hypertext elements of *Persconario*, evaluate their own feelings about choice, and then compare it with choice in traditional persona and scenario creation.
- *Individual perspectives on the tool* (Danko et al, 2006): Participants were invited to form responses to the tool itself – to hypertext. They were asked about previous experiences with interactive narratives, what they would change, what they found problematic, and how they would evaluate their enjoyment.

- *Comparison between traditional elements of personas and scenarios with hypertext elements of personas and scenarios* (Bella and Hanington, 2012): The comparative part of the survey provided the most detailed and literal evaluation of hypertext for personas and scenarios. Participants were given the opportunity to read over a standard persona and evaluate it based on the criteria for constructing personas effectively by Bella and Hanington (2012). They were asked to think critically about ease of access to information, empathy, character believability, context, and connection through their own perspectives.
- *Readability* (Danko et al, 2006): Readability poses the greatest challenge for writers of interactive fiction. Authors have noted the structure of linear text as being beneficial for the retention and completion of the meaningfulness of story-building. In order to evaluate issues with and improvements to readability, of the traditional persona and the hypertext persona, participants answered questions about retention, completion, and empathy. Moreover, the participants were challenged as per the usability of each of the samples: would they ever read the documents again?

### **3.3 Expert Interviews**

The researcher contacted Hunt Software President, Dave Hunt, via email and designer Mark Boycott of Gibson Product Design via phone and asked if the two designers would

be interested in taking part in a pilot study for the purpose of testing *Persconario*. These communications were followed up with emails with detailed information regarding the thesis and the scope of the project. Both interviews took place at the School of Industrial Design at Carleton University. The interviewee was bought a coffee as a thank you for the participation. The researcher brought their laptop and set it up in advance and made sure the laptop had proper Internet access and the *Persconario* site was open to the start page. The researcher allowed the interviewee to closely read the consent form and sign it, and then provided the interviewee with a copy for them to take home should the interviewee have further questions or concerns.

What is particularly valuable about the differences between these two participants of the interviews is that one is a professional web design and developer, and the second is a professional product designer. The owner of Hunt Software, Dave Hunt, has a background in computer science and information technology. His use of and knowledge of personas and scenarios is therefore different than that of Mark Boycott of Gibson Product Design. These differences are further enumerated below, and represent an interesting contention in the way that personas and scenarios are read.

The first part of the expert interviews was set aside for the researcher to observe and note the experts as they navigated *Persconario*. The interviewees were encouraged to speak out loud as they played. Although the researcher had scheduled time for interviewees to play through the interactive experience twice, this became unnecessary because both

interviewees experienced the “dead end” and “restart” endings of *Persconario*, and therefore played through the scenario twice regardless.

The second part of the expert interview was an in-depth interview around the major themes that would support the research questions. The full set of interview questions can be found in the appendix (Appendix B), although the questions were not strictly followed. In accordance with the guidelines of qualitative research and data gathering, questions should be open-ended enough to allow interviewees to be able to form their own thoughts and naturally converse around a topic.

First, the researcher observed the interviewee as they navigated and spoke aloud through their first and second play through of *Persconario*. The researcher also made notes about interesting reactions or problems that arose in the course of the first playthrough.

Afterwards, the researcher turned on the audio recording device and asked questions.

The researcher created questions based on the elaboration of the problems presented by Ryan (2009) in her exploration of hypertext and digital fiction, and with the defining principles of successful inclusion of narrative in design as presented by Danko et al (2006). These topics fall into the following themes (to see a full list of the interview questions and transcriptions of the interviews, please see Appendix B):

- *What are your initial reactions to and level of enjoyment with Persconario?* Ryan (2009) stipulates the importance of enjoyment, and this is echoed in Danko et al (2006) in their results. For Danko et al (2006), enjoyment of the reading was

represented in the meaningfulness and depth of context, but problematic due to the length of time and difficulty of the writing process. Therefore, the researcher wanted to test for the possibility of enjoyment and whether or not difficulty could be circumvented digitally.

- *How does the digital version of the persona/scenario compare with the traditional persona/scenario?* This was not addressed by Danko et al (2006) in their investigation of narrative in the design process despite the similarities between the narrative constructions, whether traditional or digital. It is important to understand whether or not there are differences between traditional design processes and their digitization.
- *How do visuals relate to a user scenario?* In Danko et al's (2006) study, the authors discovered that there is a discrepancy between the creation of text and the creation of visuals, which is more typical of the design process. The researcher wanted to test whether or not the inclusion of visuals impacted the digital process related to interactive storytelling and what impact different levels of interactive material would have on participant reactions to the story.
- *Honest and authorship.* The researcher discovered that honesty and authorship in personas and scenarios has not yet been investigated. According to the descriptions of the processes in Bella and Hanington's (2012), honesty and authorship are key components of the personas. However, in the process of writing and creating these personas, the author shifts from the subject upon whom the persona is based and onto the goals and the designers. By allowing users to input their own persona, and by creating an avatar based on a real person and their

input to the scenario, the researcher wanted to test whether or not there would be a difference between traditional and digital narratives.

- *How does choice affect storytelling for personas and scenarios?* Although the concept of choice is complicated in the studies of hypertext and interactive fiction according to Ryan (2009), it is often cited as a reason for the creation of interactive texts. The researcher wanted to determine how choice impacted the way a reader felt about a text and whether it allowed them to feel as though they were co-creators of the text because of their impact on the text and its ending.
- *How might a digital persona or scenario be used for co-design?* An observation that one of participants of Danko et al's (2006) study noted that they would use the narrative processes in order to communicate with their clients. Thus, the researcher was concerned with adapting this process to be able to include non-designers in the construction of and dissemination of a scenario.

## **4 Chapter: Results and Discussion**

This chapter begins with a discussion of responses to the hypertext document, *Personario*, as well as the data uncovered by a comparison of static personas and scenarios that are typically used in the design process with the multilineal format introduced by hypertext for personas and scenarios. It is then followed by a synthesis of the data and research accumulated in the Literature Review.

### **4.1 Online Survey**

Of a total of 22 participants, 3 answered the survey completely (15%). Of those 22, 4 other participants completed some of the survey. All participants had a minimum of 2 years of design research knowledge and/or 2 years of experience using and making personas and scenarios. Rather than simply rejecting these few responses, the researcher would like to allow for this small pool to be regarded as important first responses to a research tool that can be developed fully in the future, and therefore representative of a pilot study.

#### **4.1.1 General feedback on the experience of playing *Persconario***

The initial responses of the pilot study's participants to playing *Persconario* demonstrated two common responses. The first response was that it is an unusual experience, but that this is not negative. One participant wrote:

*This was a wonderfully unusual experience for me! As a professional industrial designer, I am in the habit of including persona lifecycle into my design process. Much of what I do as a designer is unsystematic: the process is more like alchemy than a structured and dependable methodology. Having said that, the lifecycle of an imaginary persona is often linear. For example: "Jenna decides to go shopping for groceries. She grabs her wallet and apartment keys and jumps on her bike. On her way to the store she decides to pick up coffee and ends up spending a few minutes at Bridgehead enjoying her brew. She then heads to the store a block away from the coffee shop..." etc. etc. What's different about your persona lifecycle is that it is much more realistic: ties the actions to the psychological background of the character, her mind jumps around (like all our minds so), she makes spontaneous observations, recognizes problems, designs solutions in her head. She encounters awkward situations and deals with far-from-perfect technology and user interfaces. It's anything but linear, draws on the associative skills that we humans are so good at and ultimately becomes a manifestation of a much more alive and dynamic persona than any imaginary character a typical industrial designer comes up with.*

There are two veins of thought in this response. The participant draws out the type of dynamic elements that are less present in static personas, and the reality that there is room for interpretation and analysis within the scenario.

The participant then concludes with the criticism that type of persona/scenario, in which the designer is the character, is fundamentally at fault with what the participant defines as “the biggest sin of a designer.” The participant writes that:

*The one interesting point I would like to make: it is usually the biggest sin of a designer in the process of personal lifecycle methodology to think that we are the primary persona. Defining a primary persona as oneself (at least this was my guess) would prevent one from designing a solution around broad access. But as I also understand that this is a beta version and I look forward to more characters to choose from.*

Fundamentally, however, personas and scenarios are always authored by the designers, and if the data is derived by a third person, then it is often re-articulated and mediated through the designer’s lens for the purpose of the design scenario. This information is exemplified by the insights of the two expert interviews in the pages that follow. It is therefore necessary to make personas and scenarios that contain a few characters where authorship is clear, rather than to remediate the words of others.

Other participants were more concise in their feedback. One participant simply wrote that “It was kind of fun.” Another participant correctly noted the discrepancies in regards to the written content itself. This participant noted the following:

*It was a tad off when some pages would say beans and others would say you. I was also a little confused if it had an ending as part way through the first screen introducing beans came back up.*

In accordance with the research from the Literature Review, and with the comments provided by the participants of the survey regarding their initial findings, the map for the world of the hypertext should remain visible to the reader in order to properly assemble the pieces of the story that they have encountered (Ryan, 2009). This essential element, the visualization of the story as it progresses, would help identify whether or not the reader had navigated through the course of the material, or been stuck on a part of the map for which they would only have to turn around in order to reorient themselves. However, the results for dynamic and realistic scenario building, as demonstrated by two of the participants, is reassuring and demonstrates that there is potential here for this research tool to expand beyond these initial borders.

**Table 1 Comparison of results from participants' first experiences**

<b>Participant 1</b>	<b>Participant 2</b>	<b>Participant 3</b>
Enjoyable	Enjoyable	Enjoyable
Difficult	Dynamic	Dynamic
Dynamic	Interactive	Interactive
Different		Different
Game-like		Other: Digital Goosebumps
Other: reminded me of the original Myst		

#### **4.1.2 Initial Responses to Hypertext Fiction**

The following table illustrates participant responses regarding how they would define their first hypertext fiction experience. All participants found the experience Enjoyable and Dynamic. Two participants found it Interactive, and only one would define the experience as game-like, based on a text-based game, *Myst*. The notion of *difference* is of particular merit as it introduces the notion that remediation may somehow change the fundamental meaning behind static texts (Ryan, 2009). Overall experiences with the hypertext tool illustrate a generally positive attitude towards it, and an awareness of its dynamic and interactive elements.

The nostalgic principles, the reference to *Myst* and *Goosebumps*, also affirm that hypertext is not “new.” *Myst* is a point-and-click adventure game in which a character titled The Stranger navigates an island world without guidance (Myst, 1999-2013, MobyGames, <http://www.mobygames.com/game/myst>). *Goosebumps* are choose-your-own-adventure novels, a metaphor used frequently when describing hypertext fiction (Ryan, 2009).

### **4.1.3 Audience Interaction & Storytelling**

The following table compares participant responses to additional interaction elements in *Persconario* (Table 2):

**Table 2 Comparison of responses to additional interactive possibilities**

	If you had an opportunity to input your own thoughts directly into the text, how would that impact your experience with <i>Persconario</i> ?	If you could create your own persona to play through <i>Persconario</i> , would you create one?	If you could play through multiple personas, would you play them?	How did you feel about your ability to make choices in <i>Persconario</i> ?
<b>Participant 1</b>	Positively	Yes	Yes	Other
<b>Participant 2</b>	Obligatory	Maybe	Maybe	It was interesting
<b>Participant 3</b>	Too Difficult	Yes	Maybe	Some choices I wanted were not available

The results of this data varied from person to person, with the noticeable exception that participants would have created their own persona to play through. Interestingly, this data demonstrates that interaction is largely subjective. It seems that it is more desirable to play as oneself and create one’s own character than to manipulate the data already present, thereby changing the already present character choices.

This is represented in the survey in the following way: two participants felt that reading stories created “understanding,” and one person felt that reading stories creates “empathy.” Writing stories makes two people feel “bored” and that it is “like work,” and only one participant feel “empathy.” We may conclude from this that the process of

reading is less arduous and more effective in creating understanding than the work of writing stories. This is also why small adaptations to text may be preferable than constructing larger narrative models.

#### **4.1.4 Comparative Model of Traditional Persona and Scenario with *Persconario***

This next section introduces a comparison between the traditional persona and scenario with the dynamic hypertext tool. There are two important aspects to note about this section. This comparison is not driven solely by a need to differentiate the hypertext tool, but rather to effectively communicate the essential proponents of a persona and scenario, but do it in a different and dynamic fashion. Therefore, the hypertext tool should not be received as a rejection of prior methods that make use of narrative, but a digital approach to them.

#### **4.1.5 Traditional Personas for Co-design?**

As stated at the beginning of this thesis, one of the goals of this tool is to determine whether or not narratives may be used for co-design. The researcher first wanted to establish if designers with experience would define traditional narrative methods as co-design tools. The researcher presented the participants of the survey with a traditional persona (Appendix C). Two participants felt that traditional personas are *not* co-design tools. One participant did not realize the comparative aspect of the survey and responded regarding the hypertext tool rather than the traditional persona.

#### **4.1.6 Hypertext Persona tool for Co-design?**

One participant remarked, “only if its driven by real people to share with others.” This statement is ambiguous as it implies that there are cases that personas are not necessarily driven by real people, nor are they shared with others. This first question, therefore, determines that traditional methods of narrative in design are not inherently determined to be co-design methods, but that there is the possibility that they could be. Another participant stated that “There have to be real people too...”, implying that the character and avatar appear to invalidate the believability of the persona. The last participant stated that *Persconario* qualified as a hypertext tool for them.

#### **4.1.7 A Comparative Analysis of the Structures of Narratives in both Traditional and Hypertext Models**

The table in the Appendix contains the transcription of the comparison between the traditional model of the persona and that of the hypertext tool. The answers provided by the participants in this comparison demonstrate the largest issues with moving to a hypertext document: 1) readability and 2) similarity. As previously discussed, hypertext faces the problem of disorienting readers and that its remediation does not necessarily change elements of traditional formal narrative functions. All participants demonstrated equal levels of dissatisfaction in reading both the hypertext and the traditional persona. It was more enjoyable to read the hypertext document according to all participants. The

positive responses to reading the hypertext document were that it was “great”, it was “fun” and that “The story was much more ‘alive’ and human.”

All participants found the data was easy to access in both the traditional and hypertext tools. It was easy for participants to locate the reason why the persona was created, and who the persona was. The persona was believable or ambiguous in all cases. Both persona tools were effective at creating participants to reflect on their own experiences with the product in the scenario provided. What is significant about these findings is that it demonstrates that the hypertext tool preserves the functions and purpose for the traditional persona.

The differences between the traditional model and the hypertext model illustrate that the hypertext model works to enhance certain areas of the traditional narrative tool. Two participants out of the three felt that they contributed to the creation of the story. The third participant felt that the path was already there, and thus they were unable to contribute to it. All participants felt they were involved in an interactive experience when using the hypertext. All participants felt that, in stark contrast with the traditional persona tool, that the hypertext tool encourages holistic thinking. Furthermore, all participants stated that they would not read the traditional persona a second time, but that they would re-read the hypertext tool.

Before moving on to the final chapter of this thesis, the researcher would like to call attention to her awareness of the limitations of these results. Overall, the results for the

hypertext tool re-emphasize issues with hypertext fiction, but this should not be a deterrent. Rather, design has the ability to impact and improve upon processes, adapting elements of methodologies and finding new, visual interpretations of previous metaphors. The most beneficial result to come from this pilot study should be that the hypertext tool performs certain functions of traditional personas better, but still preserves the goals of using narrative tools for design: holistic perspectives, sympathy, macroscopic and microscopic views, and an ability for others to reflect (Bella and Hanington, 2012).

## **4.2 Expert Interviews**

This section delivers the feedback and outcome of the expert interviews. Overall, the interviewees were excited about their experience and actively participated in the creation of multiple storylines through minimal interaction.

### **4.2.1 Design Processes that Integrate Narrative and their Evolution**

In order to assess if and how design processes have integrated narrative or digital narratives, the researcher asked both the interviewees about their current use of personas and scenarios in their professional practice. Neither of the interviewees had ever come across interactive fiction, or digital narrative in the design process. Most importantly, it was clear that both companies use personas and scenarios as adaptive processes that are less concerned with the user and an honest scenario and more concerned with goal completion.

Dave Hunt of Hunt Software (hereby referred to in the context of the interview as DH) described the ways that personas and scenarios are used with very clear goals in mind.

The following is an excerpt from the interview on the use of personas and scenarios.

**Q: “Can you describe the way you’ve used [personas and scenarios] in the past?”**

DH: “So, in my experience we work with web users visiting websites, basically, and we need to identify different personas and what type of people are visiting and how to describe the reasons they are visiting the site for and what is their goal when they get to the site and you have to trace how they interact with it or how they would interact with it.”

In other words, prediction is a fundamental ingredient in the creation of personas and scenarios. Integral to this is the imagination of the designers – the authors, essentially, of these predictive narratives. This was followed up with more information about whether or not the users in these scenarios were real or imagined

DH: “Yeah. And there’s also stages of the process where you do testing along the user base, this is the base, are they users or readers or administrators and you come up with scenarios and find out what makes sense to them and you find out where they fall and what seems natural to them.”

**Q: “So you make different personas and in this testing process are they based on real people or do you imagine them?”**

DH: “In the testing process they are based on what will be real people. So whenever we are making a website we are designing for um, a specific audience, or various audiences, some of them have multiple audiences, so it’s about

lumping those audiences into a generic persona. So that we can then decide does this site flow well for this persona, or do they get stuck.”

Interestingly, one of the participants of the pilot study had stated that personas and scenarios are based on real people. This is echoed in *101 Universal Methods of Design* (Bella and Hanington, 2012). However, the interviewee above states explicitly that although the personas are based on real people, the authors are the designers. Even if the original model of the persona is based on real, physical properties and behaviours, is condensed and remodeled into a generic persona.

In the second expert interview, Mark Boycott (hereby referred to as MB in the context of the interview) provided a similar response. Gibson Product Design is a small consultancy with a variety of projects that are centered on specific user groups and a target market. Based on the information provided in this interview, personas and scenarios are not only standardized as they are at the Hunt Software company, but exclusively imagined.

MB: “So I would say that the first, most basic way that we do it is to put ourselves into the situation like if something, and it’s neat because we have some different demographics in the office, so if it’s a product for a person that is retired, then we’ll pick apart \*\*\*\*\*’s life, and then we find out what the whole process is, and then if it’s for a younger crowd, me and \*\*\*\*\* --we have a good perspective on younger crowds – and that’s what we use most, because we can cover most of the age groups within our group, or even one of our kids we ask what they would do, and that’s the first one and the one that we would go to most often. After that it would be um, basically, trying to run through, probably if we couldn’t put one

of ourselves in it – especially if it’s a girl, for example – we’ll build a stereotype almost of what we think that person would be.”

**Q: “Do you just imagine it, or do you have observations?”**

MB: “Yeah definitely observations, but, we would start with basically just... what we can think of from real life, Um, but then the next level is that we have that conversation as a group. So we’ll say who is this going to be for and I find that is when they become really useful because if I think of a product by myself in my head, but if we get a group on board, everyone has to be thinking the same things, so having a character in the middle that they are not really connected to and she has to go to the grocery store or whatever, to get to the same page, and then we probably do some more internet research of anything – what the trends are in the market for someone that age or what the style seems to be, like what materials they would wear, stuff like that.”

It is clear that both interviewees use personas and scenarios based loosely on real people, while simultaneously taking ownership and authorship of their persona. In other words, the authenticity of the persona is a formality of the idealized process proposed by Bella and Hanington (2012).

The second interviewee further explains that the purpose of the persona is twofold. Although its primary purpose is to demonstrate that a product or service has validity for production and dissemination by introducing how real people would use and enjoy this product or service, its secondary purpose is to be a vehicle for multiple perspectives. As

Mark states above, the group can use the persona as a means of triangulating all the differences in the users in order to work through a different perspective.

In order to assess whether or not differences exist in the narratives that are traditionally assigned to personas and scenarios and those multilinear and digital of the prototype presented in this thesis, the researcher asked a follow-up question to both interviewees about whether or not *Persconario* presented anything different in terms of how the persona was used by both interviewees.

#### **4.2.2 Differences Between the Traditional Persona and Scenario and *Persconario***

The first interviewee expressed similarities between the scenario presented in *Persconario*, and their own experiences in the grocery store when they were going to use the self-checkout machine. In their playthrough, the interviewee spoke and behaved from their own perspective rather than from the persona's. After discussing how traditional personas and scenarios are used to establish generic amalgamations of people, the researcher asked if there was any difference in the digital, multilinear variation of these design processes.

**Q: "... How did you feel, or did you feel that it was different in this case?**

**Because the way that this was designed was obviously with a specific persona in mind rather than an amalgamation."**

DH: "It felt...it felt kind of the same, I guess, yeah it's lumping into one persona, but really that's what we're doing anyway. That's what we're doing in our design

process is saying even if you aren't, you are this kind of a user now, this is your persona, this is how you are using the site, this is how you collect data, or find what you need, now find it.”

Based on the above information, there is inescapable bias in the presentation and creation of a persona. The interviewee enumerated on this and stated that the primary purpose of using the persona and scenario in design specific to web and digital development, that the processes are based on ease-of-use. In order to fulfill the design goals, scenarios and personas are reduced to managing effective means of problem solving.

The second interviewee was asked a similar question regarding the difference between the traditional persona and scenario that the interviewee is used to versus the digital version presented in *Persconario*. Unlike the first interviewee's statement that the inescapable bias inherently forces the persona to become generalized, the second interviewee stated that there were noticeable differences.

MB: “Ours is more of a conversational thing where we hit the main issues, but this is more of a detail-oriented; really picking a certain issue all of a sudden because I have a certain condition, but if we just have a conversation we'll be like we can't miss this because this is a key point, and we can't do this because we hate this feature on all the other ones, and we'll get a very broad checklist together but this is something where I'd find myself getting into very specific changes and very specific things I want to do.”

Whereas the traditional persona and scenario are based on similar ease-of-use problem solving and design solutions that were presented in the first interview, the digital

prototype is described as being detail-oriented. The second interviewee then explained that the benefit of the digital exploration was that he realized he was in a system that was not just about an end-goal, but about the entire experience from beginning to end.

### **4.2.3 Just How Much Choice does the Digital Afford?**

Multilinear narratives are represented by user choices within a preset system. As Ryan (2009) and other digital theorists have stipulated, the primary rationale for the investigation into and proliferation of interactive narrative fiction is the multiple story branches that are opened up for users to explore based solely on their choice. In the observational stage that preceded the interviews, both interviewees expressed a degree of nervousness at the beginning of the interaction that disappeared at the end of the first playthrough. This observation was then confirmed by both interviewees in the question phase.

Choice, therefore, is both a subject of anxiety for users potentially. If there are no indicators of the storyline to help guide users through their navigation, they are likely to be cautious in their choices – afraid to lose their place or regret their decisions. These observations were confirmed by both interviewees.

The second interviewee answered as follows:

MB: “Yeah, at first, and at first I didn’t know if I should click on something over here (sidebar), but I didn’t feel like there was a different -- yeah there could be

maybe a few pages where you are doing something but it's more instructional, just warming the user up to using this, because at the end you are like you can click on any of these and there are no wrong answers, and as long as you are mentally following the path that you're on, everything makes sense.”

In other words, the strength of the digital process is that it is an unbreakable prototype (unlike a physical prototype). However, in order to get to that security, the user must be comfortable enough to play with the interactive elements of the narrative. Once the interaction is understood by the user, they are then able to freely use the narrative without fear.

Yet, when asked about how this could be implemented within the software, the second interviewee responded with an unexpected answer.

**Q: “What if they were a different colour so that you knew that certain links or highlighted text would take you to a different page versus the interactive changing one?”**

MB: “It is kind of nice having them unified so that you are thinking about the decisions. Like, I could see things that make you more happy are one colour and they are red or green, but then I would just want to go for the green instead of just going through the experience of the problems. Cause there may be a path that only has 5 clicks and you get to the end. Do you have it figured out what the fastest is?”

The interviewee raises a very good point which that the unification of designed elements within the narrative allows users to bypass any potential bias there might be. Should users

be able to predict the path with the least resistance, they may be unlikely to test the boundaries and full experience of the narrative. The interviewee went on to say that it is important that products be tested “to break” instead of with too much care.

At the end of the first interview, the interviewee remarked that choice would have been altered slightly to accommodate a better illusion of the user’s freedom within the narrative. In the context of the interview, I refer to myself as TO.

DH: “It even ends... I mean the different paths ended at the same place, twice! They still merged at a certain point. But that’s even like in a video game, you still have a choice, but it still ends up in the same place and you still end up following the path more tightly.”

TO: “So if I included more choices it would give the illusion better of having more choices?”

DH: “Yeah.”

**TO: “You want a better illusion!”**

**DH: “I want to be more convinced that I am in control.”**

The first interviewee is correct to have pointed out that there are really only two very separate story endings. Yet, within the interviews and all pre-testing with friends and family, the researcher found that no two users took the same path, despite the supposed “lack of choice.” It is important that the users feel control rather than be given unlimited choices. After all, as other hypertext researchers have already pointed out, choice is always merely an illusion (Conklin, 1987; Kendrick, 2001; Ryan, 2009; Ip, 2011).

#### **4.2.4 Does the Function of the Persona Act as a Conduit or as a Means of Sympathy**

In the observation phase of both interviews, the researcher found that the first interviewee projected himself into the scenario. Rather than adopting the traits or aspects about the avatar presented at the beginning of the narrative, the interviewee answered questions and solved problems based specifically on his own reactions and desires in the moment.

Conversely, the second interviewee explicitly adopted the aspects and traits of the avatar. At one point, he even noted: “Slowly becoming Beans here. We’re just merging our brains into one person!” Therefore, one can conclude that different users will either adopt the persona presented in the playthrough or play as themselves.

#### **4.2.5 Can Digital Narratives such as *Persconario* function as Co-design Tools?**

Based on the conclusions of Danko et al’s (2006) case study on the introduction of traditional narrative story writing, storytelling, and story sharing as design tools, the researcher hypothesized that narrative functions successfully because dialogue and conversation prove to be universal methods of human communication (with obvious differences dependent on language, speech, hearing, etc). As such, the researcher wanted to assess the potential for digital narratives to be used in a similar way. The researcher hypothesized that within this context, digital narratives may prove to be a space outside of condemnation and discrimination, while still honouring individual personalities, needs, and situations. Within the context of the narrative, this was exemplified by the persona

created – Beans. Beans’ persona references her anxiety and its impact on the use of and completion of grocery shopping with the self-checkout in mind.

Both interviewees expressed positively that *Persconario* or a tool like it would be acceptable for co-design. Both interviewees also expressed that co-design is not an essential element of their design processes, and that there is (again) an inevitable bias and need for clients and people who have a stake in the designed product or services to be represented. The first interviewee noted, however, that this bias is not necessarily a positive impact to the design process.

**Q: “Do you end up at all involving clients directly or having non-designers be part of the process?”**

DH: “Um. Definitely non-designers and definitely not clients because designers have their own bias and clients have their own bias, so I’d say clients are probably the worst especially at this kind of testing because they have something in their minds but it’s not necessarily what their focus is supposed to be; and they are the target audience I’ll include them, but they are trying to get people from their audience, so we’ll try to pull people from their audience in and have third parties, not so much anyone involved in the development of the site.

The benefit of having non-designers and non-stake holders involved in a design processes such as *Persconario* is related to the same sense of excitement and exploration that the

interviewees demonstrated in their own playthroughs – the lack of barriers and the ability for consequence-free play allows for more honest and nuanced reactions and scenarios.

**TO: “Do you think that if someone like that or a client or whomever played something like this that it would be beneficial to the design process? If they were able to communicate with you what choices they would make, or the construction of their own avatar?”**

DH: “Yeah for sure, because it’s written out, but it’s still about...how they would navigate to get to the end goal, so, if this was constructed in a similar fashion but catered to something different, I actually think this would be really beneficial.

Because there’s no barriers. Like, in a design, there’s a lot of barriers, design itself is so abstract whereas text is text, you can read, follow easily, so it’d be more about imagining yourself in a situation, through text, and less about just looking at something and visually identifying where to go, and it’s still the same process, too! Because you’re still trying to figure out how many clicks it takes them to get here, or how many different paths they take, or what path they take, which would happen in a text as well; it’s just different. Visual versus informative, I guess.”

Therefore, certain constraints of what has now become expected of traditional personas and scenarios can be bypassed in the prioritization of information over visualization.

Here, the first interviewee is stating that the digital process of Persconario remains similar enough to its traditional counterparts that there is no risk that the vital information discovered by personas and scenarios would be undermined. Rather, the differences in navigation and choice would make the digital meaningful.

These discoveries were shared by the second interviewee as well. When discussing co-design, the interviewee recognized similar biases in client and stake-holders, but that the true benefit of having non-designers interact within the design process is their desire for representation.

MB: “We’ll definitely have people who are non-designers in meetings, definitely clients and people that are in a position of power, get their say in the mix that’s a given for us, as far as I can see. But as far as specifically trying to bring someone in who’s not a designer, not very often, no. What we will do, I’ll bring it to my friends, who aren’t designers, and try to pick their brains about it.”

**Q: “Does that go well?”**

MB: “...I find people are very interested in providing opinions if they feel that their opinions matter and impact something.”

Therefore, for a digital tool like *Persconario* to be an effective co-design tool, non-designers would feel more motivated to participate if they were able to affect the narrative in some way, or else ensure that their opinions and choices are properly represented by the system of the design process.

#### **4.2.6 General Feedback and Natural Differences**

When the researcher asked how the interviewees felt about *Persconario* and whether or not they enjoyed their experience, the interviewees were extremely excited about and very supportive of their experience. There were very genuine and primal reactions to the story that the researcher had not accounted for.

### *Humour*

In the development of *Persconario*, the natural writing process and the experiences catalogued by the building of the first character's scenario involved humour. This was an unintentional side-effect of the researcher's persona. As such, it would be difficult to ensure that this would be represented by any writer who would partake in the construction of their own avatar or story branches. However, one can also assume that other unintentional elements will arise naturally within the writing process based on the writer – whether that be humour or any other type of personality aspect.

The researcher asked if the humour was a deterrent. Both interviewees expressed that the humour alleviated the pressure of the frustration of using the inaccessible and difficult self-checkout machine.

### *Illustrations and other Dynamic Links*

In order to take advantage of the online aspect of Twine, and to improve the interactivity and variety of links within the narrative, the researcher included illustrations, links that led to spaces outside of the narrative (such as Reddit, an Internet forum in which one particular thread addressed actual user responses and reactions to self-checkout machines, and animated gifs to demonstrate reactions to different story elements), and text that would cycle through a variety of different responses the persona or user would have to different story branches.

As previously stated, both interviewees expressed that diversity of links was a positive aspect of the narrative. Once they realized that there were potentially different outcomes for clicking on links, both interviewees stated that they were more explorative. However, to better instruct users, the beginning pages of the narrative should provide more instructive elements to help guide users into recognizing these variations.

The illustration that represented anxiety within the context of the persona in *Persconario* was received with delight both in the observations and in the interview section. Indeed, both interviewees mentioned that they would have liked to have seen more illustrations. Thus, future iterations of *Persconario* should allow users to interact in their own with a variety of media. Should, for example, other authors or designers have a particular style or representative media, they should be allowed to present these in tandem with the narrative text.

### *Time and Money*

One of the expert interviewees said that a particular difficulty involved in design research is that not all design companies can afford to spend time and resources on obtaining primary data and creating personas and scenarios. Instead, they relied on information and imagination they could share within their own work space. The interviewee said that using a tool similar to the one created for this thesis may be an appropriate answer to this difficulty.

### *The Magnifying Glass*

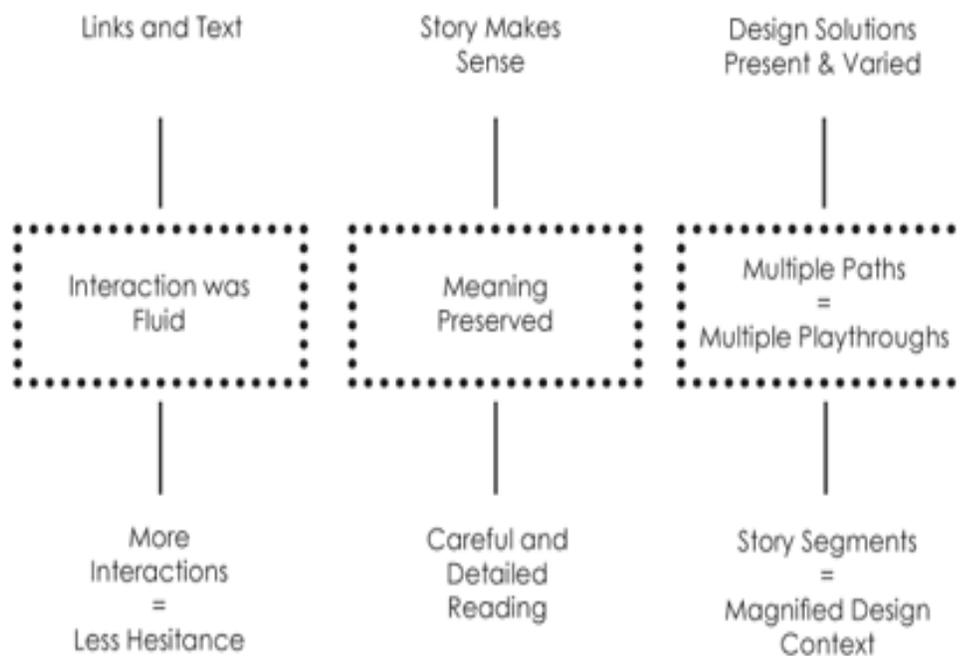
The expert interviewees described each lexicon in the digital scenario as a way of over-exposure. Through this over-exposure, individual elements of the larger, holistic context were made fully visible. It became apparent to the interviewees how each piece of the scenario would fit into the next, or challenge the ease of use of the product being designed.

This was another unexpected discovery within the feedback provided by participants. The magnification of each stage of the design process creates multiple scenarios and possibilities without having to rewrite an entire scenario. In fact, the expert interviewees both stated that they enjoyed trying to break the game and to discover how many paths were available, and which would be most suitable towards them.

### **4.3 Findings**

Overall, participants of both the online survey and the expert interviews expressed enthusiasm for the prototype, *Persconario*. The expert interviewees laughed and reacted to the elements of the story as well as the individual lexica within the design scenario. One of the expert interviewees went so far as to design solutions while encountering different aspects of the scenario outside of the design problem of the self-checkout machine. Other opinions included that the prototype is more alive and dynamic than the traditional personas and scenarios.

The hyperlinked words and story segments were described as being initially intimidating. The expert interviewees described their initial feelings towards the interactive elements as being apprehensive. After a few interactions, however, both interviewees expressed increased desire to “break the game” and see how many alterations to the story were possible. Both interviewees also asked about the road of least resistance – the scenario that projected best ease of use within the scenario.



**Figure 14 Represented Findings**

As per the goals of the thesis, the prototype should have maintained and adhered to the goals of their static counterparts (Figure 14 Represented Findings). All participants reflected that *Persconario* indeed upheld the original goals of personas and scenarios.

The context was viewed holistically, sympathy for the character/persona was maintained, and the design problem was introduced and remained the subject of the scenario. There were other unforeseen outcomes of the prototype, which included the successful use of interactive links and dynamic elements to break the text up and make the story accessible and generative, the author's voice was clearly presented, readers felt encouraged to participate and delighted by their experience, and lastly, and perhaps most importantly, one of the interviewees stated that a tool like *Persconario* could circumvent the time-consuming nature of static scenarios and personas as well as the financial requirements of performing ideal design research.

## **5 Chapter: Conclusions & Suggestions for Future Research**

Narrative takes different forms in design processes (Bella and Hanington, 2012). Some structures use narrative for its traditional storytelling elements. These include personas and scenarios most commonly, and comprise a textual document with a short story or short introduction to a persona as well as a scenario involving the designed object or service (Danko et al, 2006; Bella and Hanington, 2012). Other narrative processes become intertwined with graphic storytelling techniques. Use cycles typically depict a graphic representation of the way a product or service would be used by a persona, for example, but still tell a story though it is done by metaphor (ibid). The creation of the hypertext tool in Twine for the purpose of this thesis as well as the online survey provided some answers to the original research questions.

### **5.1 The Co-evolution of Narrative Form**

The researcher asked the following questions: “How have design processes that integrate narrative evolved as narrative form has evolved?” This question was answered by the online survey results and from the expert interviews. All participants of this thesis explicitly stated that they had never seen or used a tool like this in the context of the design process. Even more interestingly, the expert interviews relate that traditional methods have stayed similar to their first iterations, and have in most cases become more casually used rather than strictly adhered to. The second interviewee notes that this is because of budget and time.

Interactive fiction and multilinear narratives were first introduced into popular culture in the 1990's and faced interesting backlash in their reception. Hypertext fictions were credited with power similar to those fantasized about in early hypertext integration and metaphor introduction into interface design, while simultaneously discredited for their sustainment of the same ideological problems regarding authorship and freedom as traditional texts (Bush, 1945; Conklin, 1987; Kendrick, 2001; Ryan, 2009; Ip, 2011).

The design process does not demonstrate any incorporation of other narrative forms beyond the traditional graphic or textual images originally instated as part of the collaboration between designers and anthropologists and ethnographic researchers (Margolin 1994; Cross, 1999; Dillon and Howe, 2003; Suri and Howard, 2006; von Kotten, 2009; Tomiyama et al, 2009; Evenson, 2010; Bella and Hanington, 2012). Indeed, one may boldly claim that in some cases the use of narrative has not only stagnated, but its traditional context enhanced (Danko et al, 2006). In an apt description of narrative models in design, Danko et al (2006) write:

While the field of design has a long history. of using narrative *metaphorically-or*, creating designs that tell a story-only recently has emphasis been placed on examining the potential of narrative *as a design method*-a tool for exploring ideas and guiding decisions throughout the various stages of the design process. (p. 13)

In Danko et al's (2006) article, which created a basis for understanding narrative as overt design process, the researchers relied on narrative in its traditional form of storytelling. Their research employed writing long-hand stories and reading through stories. Their

students encountered storytelling as an object to be read, an object to be written, and an object to share (Danko et al, 2006).

The model presented in Danko et al's (2006) article demonstrates the validity of direct narrative inquiry on the design process. Yet, despite these positive aspects that include holistic perspectives, sympathy, and designing for diverse behaviours, there is no demonstration that these positive features differ from the processes that manipulate narrative to attain the same goals (Danko et al., 2006, p. 19). These are the same elements that make up the other more abstract narrative design methods like personas and scenarios (Bella and Hanington, 2012). Negative aspects regarding traditional and overt use of narrative for the design process were relegated primarily to time spent, missed opportunities to use artistic skills, and difficulty in writing full stories (Danko et al, 2006, p. 25).

## **5.2 Interactive Narrative = Interactive Design Process?**

The second point of inquiry in this thesis was “How can interactive narrative change narrative design processes into interactive, dynamic tools?” As stipulated above, budget and time are hindrances to the level of and depth of incorporation of research tools dedicated to users and participants in the design process. However, the inclusion of interactive narratives in design for the explicit purpose of creating personas and scenarios and disseminated digitally would be cost-effective and easily sharable.

Both through the open-source software Twine for the construction of the hypertext tool *Persconario*, the online survey, and the expert interviews, it was determined that interactive narrative cannot completely change narrative design processes into interactive, dynamic tools. Marie Laure-Ryan's (2009) invocation of the Star Trek holodeck metaphor illustrates the difficulty of a truly limitless imagination machine. Instead, authors rely on interactive fictions to integrate some choices into the system of text. For the design process, this can mean the difference between spending hours of time constructing a full narrative for the design process (Danko et al, 2006) and a process that recognizes the ability to input individual responses without additional time lost. The participants in the small online survey unequivocally answered that it would be difficult to write a full story, but that reading the text was enjoyable.

Both expert interviewees recognized the challenge of choice and multilinear storylines is that the goals of the traditional process of personas and scenarios must still be honoured. All participants agreed that they would have liked to have been able to create their own characters and participate in the actual construction of the story. One out of three participants would have further contributed to the "build" of the story by adding their own lexia. All participants would have at least played through other characters that had been made available. This is a first step towards imagining a system that can accomplish the possibility for further interactions and participant input, while still maintaining a structured approach to narrative structure. In other words, a basic story will be laid out, and user input will determine the breadth that story is able to tell.

### 5.3 Co-design: a story to tell together

Co-design allows individuals to come together from any faculty or background and work at a particular point in the design process (Sanders and Stappers, 2008). Danko et al's (2006) methods of overt narrative in design offers insights about using their method for client communication in the future (p. 26). Although the author hoped that this would be a fundamental incorporation into the digital design tool presented in this thesis, it was not proved. There is potential for co-design, but this tool has not been assessed in those terms. This limits the co-creative potential from front-end of the design process to a strictly back-end one, and limits the number of players in the design process to designers at the front-end and clients at the back-end.

Both interviewees agreed that *Persconario* would have been a tool for co-design. One of the interviewees explained that narrative is an apt means of accomplishing the gap between the design world and the non-design world. He said:

DH: "it's interesting because it is – it is more accessible in away, um, because you can really describe situations better, or like, timelines almost, you can kind of put context to it, but you can't really in design, you can just go "here you go, this is what it looks like" and then try to know where to go, but not really, there's no context, they just jump in, clicking things, whereas this gives you background information, some uh... some guidance I guess, a bit more guidance. Which is interesting, and it sort of changes the perspective a bit, too."

TO: “Do you feel like you would use this with a client at all, at the end of a design process, would you consider using this as a presentation tool?”

DH: “Yeah for sure, especially for a complex ... one and it would be an interesting tool to see you know how does the average user react when presented with all these options. Where do they go and how do we figure out how they come back to where we want them to go?”

Danko et al’s (2006) work demonstrated the effectiveness of text, and this is echoed in the results of both the online survey and the interviews. Above, the first interviewee explains how explicitly using narrative is beneficial for its accessibility. Moreover, the navigation that the user would take inherently presents findings about the success or potential risks of the product or service being tested.

The research and the participant results from the online survey, however, indicate that there is potential for people to play and input their responses into the hypertext tool, *Persconario*, for the purpose of co-design at either end of the design process. Even more importantly, the text exists in a static format – a completed story – but also presents a means to continually build, refurbish, and edit to create more thorough stories. This can be accomplished in two ways: 1) through the expansion of the text tool, Twine, to incorporate user feedback in real-time or 2) through the indirect process of having multiple pathways and multiple text choices to distinguish reader experiences in the consumption of a text. In this second point, the basic principles of the Twine game would remain largely unchanged. The interactive story elements of early hypertext fiction would suffice for this.

## 5.4 Authorship

Moreover, the participant above states the problematic concept of authorship and honesty of authorship in design processes that are built around the premise of building for an *other*. The participant notes that there should be other characters that should be played through. This is an important observation to make. One, this comment makes the presence of any avatar or character meaningful in the context of the multilinear narrative. Two, this demonstrates a need for the software to evolve into the creation of a second character – it is necessary to have more than one person, regardless of how many branches of the story exist.

Although it had not been an issue when beginning the thesis, the researcher discovered that authorship is complicated and impacts the creation of and the authenticity of personas and scenarios. This is a subject of debate within hypertext as well (Kendrick, 2001). Authorship is a point of contention because authorship and visibility impact the validity of how personas and scenarios are perceived (Bella and Hanington, 2012).

Despite the idealized authorship in design processes like personas and scenarios, authorship in professional design practice is often condensed into general personas or else ignored completely. In the online survey and in the interviews, participants revealed the inherent bias of personas and scenarios, and even recognized the problems therein. It is expected that the personas are built on real people and actual observations, but that this is

only accomplished if there is an appropriate allocation of budget and time in professional practice.

## **5.5 Conclusions and Further Suggestions**

There was something more human and alive in the prototype than in traditional personas and scenarios. The feedback provided by one participant in the online survey details the differences between the traditional persona used for design processes and the one presented in the prototype, *Persconario* (refer back to page 62). Briefly, the participant recognizes the diversion from the linear to the non-linear, it is more realistic, the psychology of the persona is evident, and is dynamic. According to this participant, then, the fundamental bias of traditional personas according to this participant is its strictly linear bias. As the participant states, the purpose of the traditional persona appears to represent the systematic and easiness of being able to complete a task. The number of steps from the beginning of the use of the product to the user's final interaction and completion of the process is imagined to be as succinct as possible. However, this does not truly take into account a genuine example of how the use-cycle may be completed by real users, which is addressed by the multilinear narrative. As the participant states, the multilinear narrative allows for the composition of a more realistic thought process, with jumps and hiccups; with design solutions addressed within the narrative as the process is explored by the multilinear narrative.

A world dedicated to simulation and play is what initially prompted the researcher's interest in narrative. Stories have evolved beyond their traditional textual form. This has not eliminated the problems and prerogatives of these texts; rather, it presents *mediation as an option to address certain issues with narrative that exist within design structures employing narrative methodologies already*. Playable narratives take different shape, from their early hypertext iterations like *253* to games like *Dear Esther*. Before diving straight into a game world, made up of programmers, visual artists, voice-actors, multiple authors, production teams, and of course, financial backing, the researcher wanted to first evaluate the power that multilinear narratives may have.

In all cases, participants had never before encountered hypertext fiction. This is the largest potential threat to the possibility of including this research tool as a method for co-design. Co-design, as defined by Sanders and Stappers (2007), refers the use of “co-design in a broader sense to refer to the creativity of designers and people not trained in design working together in the design development process” (p. 6). Narrative certainly offers the potential to fit into a co-design scheme, as communication and storytelling may be used to generate individual stories in real time through choice and manipulation of variables. However, the abstraction of narrative (i.e. hypertext) presents complications to this method. Hypertext in Internet is common form, but hypertext fiction appears to be much less common. There is, therefore, a quality about hypertext fiction that is still rooted in memory and requires a short tutorial in order to introduce first time players.

Hypertext fiction often comes with the warning label that it may be disorienting (Ryan, 2009). This is an important element for the recognition of multilinear narratives that are less concerned with a linear progression (i.e. a typical storyline containing an introduction, problem, resolution, etc). Future work in this area will need to incorporate a means of way-finding directly into the storytelling model so that it is possible for readers to find their way back.

Interaction in *Persconario* is limited due to the researcher's current abilities in CSS and html. However, with more time and deeper explorations, player interaction in Twine has few limitations. For example, users may input commands using natural language to trigger narrative pieces as opposed to navigating from page to page. Moreover, user input may be recorded so that choices, storylines, and even text choices by the user could be monitored. This data could in turn function as a means of understanding user choices and design problems more effectively than asking participants to complete a survey at the end. Lastly, the researcher would like the future development of user personas to be created alongside the exploration so that at the end of an exploration, a participant would be able to create their own character for the next player to experience. First, however, it was important to understand whether or not this was necessary, and whether or not users of the hypertext tool would want to complicate their experience beyond the interactions currently available in this iteration of *Persconario*.

Hypertext fiction, like the imagination of networks and computer interfaces, remains fixed to a certain idea – a map of nodes, interconnected and bound in metaphor to the

world in which analogue components that share similar characteristics are permanently bound. Future work in this field should allow designers to come in contact with the structures that comprise networks and their mediated systems and advance what has remained a largely unexplored prototype of how these systems interact with one another. As designers adapt and interpret the elements of the interactive documents, they may find newer, more interesting ways to imagine and construct this digital world, without being bound to present archetypes. Likewise, if designers are able to incorporate and encourage narrative dialogue with a variety of users, who, simply by interacting, are brought into the design process and allowed to express their own visions, difficulties, and behaviours, one may advance Victor Margolin's premise of the designed future.

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## Appendix A:

# UserScenario

In this phase, you may begin to **choose** your own unique story. Simply **click** on one of the **links** or **images** below to unlock and follow the path of your choosing. In this iteration, you are beginning your interaction with your imagined user based on your previous selection. If this is incorrect, click **HERE**. Remember, your user is your main character...

	Profile Age: 20-30 Fears Desires Secrets		Profile Age: 30-40 Fears Desires Secrets		Profile Age: 40-50 Fears Desires Secrets
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**Additional Instructions:**

Clicking on the text beside each profile image links to another page for exploration and navigation. All pages contain hyperlinked images and text for your perusal. You are linked both to controlled areas (predetermined by the author), and larger databases for further information (such as online dictionaries or search sites). In all cases, users can go back. Links "beyond" the control of the author are opened in new Windows or tabs to avoid confusing the user.

 HOME    BACK    SAVE

# UserScenario

Expand the boundaries of each of the images below to determine the hierarchy of importance for the elements of your user scenario.

Simply click and hold the left mouse button on the edge of an image to expand or shrink it. If you wish to delete the image, you may do so by clicking on the image with the left mouse button and hitting the Delete key on your keyboard. You may also click and hold the centre of your image to drag and drop it wherever you want on the screen.

What are important metaphors to your user?



HOME



BACK



SAVE



NEXT

Is the data insufficient? Upload your own image via copying and pasting a URL in the text box below or by your own computer.

# UserScenario



Name  
Age: 20-30  
Features  
Desires  
Secrets

Use the form on the right to fill in aspects of the user scenario. These fields should be as succinct as possible. Think of the data as keywords which will then be used to link to a broader story that you will create with others, or by yourself. You may use the Requirements fields to input whatever data you desire -- you may even input sq ft. Insert a URL for additional images.



HOME



BACK



SAVE

## Who

User's First Name and Last Name

## Gender

E.G. Female

## Image

Upload an image of your ideal user from your Computer [OR] Paste URL into above Text Box

## Age

How old is your user?

## What

What product will your user be experiencing?

## Image

Upload an image of a product category from your Computer [OR] Paste URL into above Text Box

## Where

Define the location of the user experience

## How

How will this product likely be used. Write 50 words and separate them by semicolons (;) to set keywords

## Define your Requirements!!!

Define the parameters and requirements of your design in the boxes below.


NEXT



REFRESH

# UserScenario



Profile  
Age: 20-30  
Fears  
Desires  
Secrets

## PROFILE

Beans is a 24 year old **gamer** looking for new experiences. He has had 24 years of **non-stop academic** lifestyle choices including: **KD consumption**; low-income housing; a plethora of **bad roommate** encounters; ill-fitting shirts; and **big dreams**.

There is something about Beans that just screams "nerd."

This is an intellectual man with a lot of **desires** and a string of **fears** worthy of exploration.

He has a **secret** or two up his sleeve. Here's a hint: it has to do with fireworks, pyrotechnics, and anything having to do with **the creation of lights**.



Is this your character?

YES

NO

ADAPT ME



HOME



BACK



SAVE

## Appendix B:

### Interview with David Hunt of Hunt Software

October 17, 2013

Transcription of Interview

Part I: notes on first playthrough

Dave Hunt (referred to DH):

Tara Ogaick (referred to as TO):

DH: “Let’s just jump right in...Beans.” Laughter. More laughter. “Nervousness and anxiety.” Laughter. “Ok. That is a banana walrus!” Laughter. More Laughter. “Ok. Groceries must be purchased. Purchasing groceries. “Healthy. Healthy choices. Oh wait, nevermind. 12 croissants. Not so healthy.” Laughter. “I need coffee – obviously – so I’ll click that.” Laughter. “Are you talking about like, Hartmans, in this? It sounds like this. Crowded. Definitely not clicking on decaff.” Laughter.

TO: “Click on decaff.”

DH: Reads off the different options for user input. Laughter. “Ok so we’re just clicking through. Cool. I’m going to choose the most expensive, glorious one.” Laughter. “More expensive than a haircut, haha, right?!” Laughter. “No, I’m keeping the glorious coffee. It’s going to be uh, biased, to my own preferences. Beans gets to self-checkout. Lots of tension and anxiety. I’m pretty sure that’s why they exist. I don’t want to talk to people; let’s just check out ourselves; I don’t want people to know what I’m buying! So now we are getting in trouble – oh there’s a BOOP noises! Boop is better. Oh I know exactly what machine you’re talking about cause it happened to me.” Laughter. “I love these descriptions you’re using. It’s like, “an illustration appears on the screen like it’s floating through space”!” Laughter. “That’s a good observation; it is just floating through space. Please place the item in the bag – just gonna click on stuff; an attendant comes over...”

Reading text in a low voice from the screen. “Oh wow, this is like déjà vu, this has all happened to me. I just stare at it, and then, hahahaha, cool.”

DH: “Comforting boop sound.” Laughter. “Did I write the code for the almonds? Probably not.” Laughter. “How to use...gonna read how to use...press buttons till stuff happens...Hmm...” Laughter. “What’s next? Glorious coffee! At last the moment has arrived! Whew! Pay with credit card cause I never have cash. Please wait for a person...Understanding seems out of place” Reading through list of choices for reactions to scenario via persona. “I didn’t realize I could just modify this to my own will... I like “silently screams.”

TO: That does happen.

DH: “Hm... That sounds like me. I’ll just smash buttons and panic. Well that’s good!” Laughing at object on screen. “Oh! Ahem. Chang tantrum.” Laughter. “OH WOW WE LOST! I didn’t know this could happen. I guess I shouldn’t just try everything! I like variety so I’m going to try the other option now. The shopping cart area...is crowded. I definitely feel patient. Now a basket... Um... Let’s see what the 12 croissants have to say. I’m going to get coffee again, just because. Definitely going with ‘rainbow flavour’ this time. Self check out. Let’s do it this time without setting off security. Place bananas. Hm. Please place the item in the bag.” Laughter. Low reading. “I can’t do this without attendants help me. Did I write the code for the almonds? This time I remember, I feel, this isn’t the first time this has happened...like a boss! Let’s put the 12 croissants on there now... Encouragingly! Oh no! The machine...”

TO: “That’s a bold move.”

DH: “An encouraging little smile... LOOK SCARED!” Laughter. “This is awkward! Last three items... Please do! Credit card again, because I never have cash, ever. What does this do? Well that’s the second time I’ve had this happen to the machine. No time, I want to give feedback!”

TO: “That was really great! Thank you so much. I was going to ask if you wanted to do another play through, but you ended up having to do one anyway, so that’s awesome!”

DH: “Haha, I just panicked and pressed a whole bunch of buttons, then yeah.”

TO: “So I guess, I will ask you first what your first impression of it was? Did you have fun?”

DH: “Yeah! It accurately depicts my own experiences trying to use the self checkout at a grocery store.” Laughter.

TO: “Really? So did you feel like it was more your experience, or did you feel like you were playing through another character?”

DH: “It felt like it was my experience, but consequence-free, so I just tried experimenting with it more than I probably would in real life even though I came across a lot of the same problems.” Laughter.

TO: “So did you find the problems were like accurately depicted?”

DH: “Fairly yeah. Perhaps a bit exaggerated, but for the most part, the same frustrations and kinks in the process.”

TO: “Was this your first time using an interactive fiction?”

DH: “Like uh, like this? Yeah, probably in this format. I mean, I’ve done “Choose Your Own Adventure Books” when I was a kid.” Laughter.

TO: “And this felt similar to that?”

DH: “Yeah, it felt very similar to that.”

TO: “Okay, I’m just going to write that down... And so you were saying before that you have used personas and scenarios in your process. Can you describe the way you’ve used them in the past?”

DH: “So, in my experience we work with web users visiting websites, basically, and we need to identify different personas and what type of people are visiting and how to describe the reasons they are visiting the site for and what is their goal when they get to the site and you have to trace how they interact with it or how they would interact with it.”

TO: “So you predict basically?”

DH: “Yeah. And there’s also stages of the process where you do testing along the user base, this is the base, are they users or readers or administrators and you come up with scenarios and find out what makes sense to them and you find out where they fall and what seems natural to them.”

TO: “So you make different personas and in this testing process are they based on real people or do you imagine them?”

DH: “In the testing process they are based on what will be real people. So whenever we are making a website we are designing for um, a specific audience, or various audiences, some of them have multiple audiences, so it’s about lumping those audiences into a generic persona. So that we can then decide does this site flow well for this persona, or do they get stuck.”

TO: “So you take uh, generic observations and then amalgamate them into a specific...”

DH: “yeah we sort of generalize how people will be using the website as a tool almost”

TO: “Into one person... How did you feel, or did you feel that it was different in this case? Because the way that this was designed was obviously with a specific persona in mind rather than an amalgamation.”

DH: “Right. Yeah.”

TO: “Did you feel it was different, or did you did you feel the same?”

DH: “It felt...it felt kind of the same, I guess, yeah it’s lumping into one persona, but really that’s what we’re doing anyway. That’s what we’re doing in our design process is saying even if you aren’t, you are this kind of a user now, this is your persona, this is how you are using the site, this is how you collect data, or find what you need, now find it.”

TO: “So it’s like an inescapable bias?”

DH: “Yeah.”

TO: “Interesting! Cause I noticed, I mean, one of the things that I’ve researched, is that there’s a discrepancy between what personas are meant to generate, which is sort of, a very honest, sort of, description of who would go through a system, but it usually ends up being curved a bit by the designers who are looking to have specific goals that come out of the process so I was interested to see if I could shift that a bit, digitally, but It sounds like it still, I mean the I guess the authorship is still through the person making it...”

DH: “In the end it’s all sort of a series of interfaces, and everything is predefined, so you kind of have to, anyways, in my experience, you end up having to lump everyone into those generic categories since that is what we are catering to. The goal of making this website is to have this class of people go through it in a certain way and what we’re there to judge is how easily they can get through that process. How intuitive it is.”

TO: “Really? That’s interesting I like that because that’s not something that has come up in my research. It’s not how easy or how intuitive is to do something, it’s can we generate a really realistic scenario to prove that our process to work. Whereas you’re talking about usability and ease of use and making things for people so that in the future they can get to their goal as easily as possible.”

TO: “So, I’m wondering what you felt about the choices that you had when you were playing, did you feel like you had **choice**?”

DH: “Sometimes. **Sometimes it felt like there was choice, and sometimes there was a noticeable lack of choice where you had to click the one link to proceed, as far as I could tell anyway.** I mean, all the links are very large and blue, but there could have been a hidden link in there.”

TO: “No, I wouldn’t do that!” Laughter.

DH: “I mean it’s a prototype, it could be there, right?”

TO: “I think what you pointed out, which was actually really interesting to me was that you couldn’t tell which ones were the links that would take you to a new —“

DH: “Yes.”

TO: “—location and which ones were ones you could play with in terms of coming up with a different word or...”

DH: “**Yeah, and once I found out that those were the ones that I could sort of change the word or something popped up, then I wanted to experiment with it more, because I wanted to see what all the different links could do.**”

TO: “So if you could—“

DH: “Yeah, I was a little **anxious at first** because I was like, **well if I went through one path, then I wouldn’t get back**, and you’re sort of set in the decision where there’s no going back kind of thing, **whereas knowing that there’s like you could do this as well as the other links, opened it up a little more.**”

TO: “**So being able to SEE your options would eliminate a bit of that anxiety.**”

DH: “Yes for sure, where understanding that clicking on this would get me where.”

TO: “Right. I guess one of the biggest questions I have, especially as a web designer and developer, where you must know how important it is to feel comfort or being able to feel comfortable while interacting with a software, how did you feel while you were interacting with the narrative?”

DH: “Um...I wouldn’t say “comfortable” just because a) the situation of the story itself it talks about anxiety a lot, talks about – and personally I hate grocery shopping, so just me being in that scenario, already gives me a bit of anxiety.”

TO: “Oh, interesting, **so you felt a bit of sympathy there.**”

DH: “Yeah! Like I understood.”

TO: “Well that’s good that it was able to communicate that, because for me, that felt like one of the major goals was to be able to communicate that. Did you like the digital interface? Was that something that you would use again?”

DH: “This specific one? The storyline one? Yeah. Um, in what means?”

TO: “I guess for you as a designer, would you take the software, would you use this in your own design processes, if you could adapt it?”

DH: “To kind of understand choices made by a user? Yeah, I think, I mean this is a very stripped down interface because it’s very just text with links, but yeah, absolutely,

because similar things happen in our testing where you have sort of a/b testing where we have two different pages and we put links in two different places or we change the way you do things to see what makes sense to the person, so it has the same parallel to it, just more text heavy.”

TO: “Do you feel like you end up doing some storytelling in the design process anyway, or is this a little more unnatural because it’s text-based instead of verbal, for example?”

DH: “Um, yeah, I think, and I am relating to my own field, is a lot of non-text-heavy things. There’s a lot of links or buttons, and a lot of call to action, instead of reading.”

TO: “So for communication you usually end up using more visual...”

DH: “Yeah, it’s a lot of like, visual cues, and um, prominence of um different directors, so if I’m like trying to test if someone can easily find “Research” on a site, I’m looking for if they know to click on the research link at the top or the call to action that says “find research here”, so it’s less about a story and more about like, I guess it is a story, but not explicitly written, it’s more about placement.”

TO: “So it’s more about metaphor; story doesn’t operate in a literal sense, but operates as a process.”

DH: “Yeah it’s more like a journey to get to the end goal.”

TO: “Was it interesting reading it as a story?”

DH: “Yeah! It made it more engaging.”

TO: “And in your process, do you end up at all involving clients directly or having non-designers be part of the process?”

DH: “Um. Definitely non-designers and definitely not clients because designers have their own bias and clients have their own bias, so I’d say clients are probably the worst

especially at this kind of testing because they have something in their minds but it's not necessarily what their focus is supposed to be; and they are the target audience I'll include them, but they are trying to get people from their audience, so we'll try to pull people from their audience in and have third parties, not so much anyone involved in the development of the site.

TO: "Do you think that if someone like that or a client or whomever played something like this that it would be beneficial to the design process? If they were able to communicate with you what choices they would make, or the construction of their own avatar?"

DH: "Yeah for sure, because it's written out, but it's still about...how they would navigate to get to the end goal, so, if this was constructed in a similar fashion but catered to something different, I actually think this would be really beneficial. Because there's no barriers. Like, in a design, there's a lot of barriers, design itself is so abstract whereas text is text, you can read, follow easily, so it'd be more about imagining yourself in a situation, through text, and less about just looking at something and visually identifying where to go."

DH: "and it's still the same process, too! Because you're still trying to figure out how many clicks it takes them to get here, or how many different paths they take, or what path they take, which would happen in a text as well; it's just different. Visual versus informative, I guess."

TO: "And if there could be more visuals here do you think that would make it a bit more playable? Would you be interested in seeing this develop into a playable scenario, or do

you think that this works as a narrative, does text somehow make the story more accessible in a sense.”

DH: “it’s interesting because it is – it is more accessible in away, um, because you can really describe situations better, or like, timelines almost, you can kind of put context to it, but you can’t really in design, you can just go “here you go, this is what it looks like” and then try to know where to go, but not really, there’s no context, they just jump in, clicking things, whereas this gives you background information, some uh... some guidance I guess, a bit more guidance. Which is interesting, and It sort of changes the perspective a bit, too.”

TO: “Do you feel like you would use this with a client at all, at the end of a design process, would you consider using this as a presentation tool?”

DH: “Yeah for sure, especially for a complex .... Um .... one and it would be an interesting tool to see you know how does the average user react when presented with all these options. Where do they go and how do we figure out how they come back to where we want them to go?”

TO: “Yeah, I feel like what would be interesting, so the way that it’s designed is to be accessible at three levels. The first level is the writing level where the creating happens, so you can create an avatar and participate in the creation of Persconario, would you personally be interested, like if you could construct an avatar, would you? And would you do it at the beginning or at the end, once you had played through it?”

DH: “So, constructing of the avatar, would it impact the actual narrative of it?”

TO: “It would.”

DH: “Then absolutely.”

TO: “Would you play through it once first and then create on at the end, or would you rather have that option right at the beginning?”

DH: “I would play it through once first and then create an avatar just to see the difference. I have a lot of curiosity.”

TO: “The strategy of the current prototype is so that you could read it, as a tool for empathy and sharing, but I’d be interested in expanding it to include people who would actually want to create their own persona.”

DH: “Input their own situational information.”

TO: “Yeah.”

DH: “Put some context to the whole situation if you play it through the proper way, even my approach to video games is very similar. At the beginning I go with the default, and maybe later I’ll go back and make my own.”

TO: “Really?”

DH: “Generally I don’t – I mean I’m not at all about customization right off the bat. I’m all about the experience first and then customization as a treat, almost.”

TO: “Did you feel like it was interesting or did it feel different to play a female avatar or did that become superfluous once you got past that first introduction?”

DH: “Not really, no. Um.”

TO: “Were you like, why is there only one lady there?”

DH: Laughter. “Uh, it wasn’t really gender-based, there was nothing that made me feel out of my own gender, so I don’t think it really impacted the narrative at all. I mean, if there were situations that were female-oriented maybe that would have changed it, but it seemed very neutral in terms of that.”

TO: “Were there any instances where you would have wanted to put in gender like if you were about to interact with the machine, would you feel differently in terms of gender?”

DH: “In this particular scenario, no, I mean it seemed complete. There was no situation that a girl would have had that would have been different in this case.”

TO: “The last question I have before I let you say anything else you want to include, is that, you seemed to enjoy the humour of the narrative.”

DH: Laughter “For sure.”

TO: “That humour, did you feel like it took away from anything or did it allow you to access anything. How did you feel about the humour?”

DH: “to be honest, the humour made me engage deeply with it, it kind of made me want to find out what was coming next instead of a droll “buy a banana, now coffee...” kind of thing, that would have been boring and I would have lost interest. But the humour kept me engaged and made me want to experiment and see where I could go with this. I was kind of waiting for more pictures! Not going to lie!” Laughter.

TO: “The old banana walrus!”

DH: Laughter. “I was trying to find another one after that! I couldn’t find another one”

TO: “That’s good to know! Some more illustrations. That’s good for me because that’s something I love doing.”

DH: “More illustrations!”

TO: “I wanted to bring people into something a bit more dynamic with the banana walrus. I wanted people to be part of a context that included personal touches.”

DH: “I loved that because it was not just clicking.”

TO: “So clicking isn’t enough?”

DH: “no, not in my opinion anyway. I like that there was more variety. The variation was...it just kept my interest more. It was just a bunch of links going to the next pages I probably would have been more anxious and frustrated and unsure, whereas now I’m like “cool! Let’s see what happens now!” And I wanted to disrupt the path as much as possible.”

TO: “I saw that! Things that seemed like an intuitive way out, you ignored. You were like, smash the buttons and see what happens! And you really seemed to enjoy experiment.”

DH: “It increased my curiosity about what could happen!”

TO: “Do you have any last thoughts?”

DH: “Questions...”

TO: “What would you do differently?”

DH: “So this... this um product...theoretically would test a user interacting in a grocery store using the self checkout... Maybe more options. The options seemed...kind of counter-intuitive...cause it would have been too anxiety-driven. It felt a little too guided, even though there were quirky side things, that would go on, which was good, but it still felt very restricted and guided. But that’s just ... that may be the way it’s supposed to be.”

TO: “No, uh, I understand what you’re saying about more options but less at the same time. You want more options but you want them less embedded as multiple links in a single page. So you want different narrative options without it being a clutter.”

DH: “It even ends... I mean the different paths ended at the same place, twice! They still merged at a certain point. But that’s even like in a video game, you still have a choice, but it still ends up in the same place and you still end up following the path more tightly.”

TO: “so if I included more choices it would give the illusion better of having more choices.”

DH: “Yeah.”

TO: “You want a better illusion!”

DH: “I want to be more convinced that I am in control.”

TO: “Very good point!”

## **Interview with Mark Boycott of Gibson Product Design**

October 23, 2013

Transcription of Interview

Part I: notes on first playthrough

MB (referred to MB):

Tara Ogaick (referred to as TO):

MB: “Do I jump right into it or do you give me any instruction?” Laughter. “I like it.”

Quiet reading of text. “Alright. Oh, there’s a grocery store!” Laughter. “Alright, where do I go from here?”

TO: “Wherever you like?”

MB: “Wherever I like! Okay, I’m going to check out our goals... to use the self-checkout machine at a grocery store – ok. Kind of want to check out that site now!”

TO: “You can always hit the Back button if you’re worried.”

MB: “I’m going to look at it later. Beans is going to the grocery store...she is nervous by nature. So I’m gonna... Yeah, I want some more info.” Laughter. Quiet reading. “Is this you? Are you Beans?”

TO: “I don’t know – it’s a bit of a secret! We’ll talk about it at the end.”

MB: “I want to find out more about her condition here. Banana walrus!” Laughter. More Laughter. “Alright, this is very abstract, but I uh ... I like this, I like this kind of ... it’s an issue you don’t usually design around. This is a nice way to uh...get me feeling a little sympathetic.”

TO: “Yay! Thank you.”

MB: “Yeah, these things are a bus crash usually. I used on once by the grocery store near my house and the guy had to come and unfreeze it like 3 times while I was using it because I would put in the wrong code or it would expect more weight to get dropped in the bag...”

TO: “Yeah, somewhat difficult! Which is why I thought this would make a good design scenario because it’s a situation that has a huge amount of feedback for it, but it doesn’t seem to be incorporated into the system or the service.”

MB: “Mmhmm.” Quiet reading. “You can’t open this in a new tab. Oh well. I’ll check out Reddit later.... It just keeps describing how terrible this object is! Yes. Yes. Some of these are a little extreme” (referring to the types of descriptors that can be alternated through in the text). “I don’t know if completely useless! Alright, going back to check on our goals here. Alright, we’re actually doing some shopping now! A small haul? Did you make that up?”

TO: “Yeah, haha, is that a problem?”

MB: “Three bananas, that’s just gonna feed the banana monster.”

TO: “Yeah the banana walrus!”

MB: “Yeah!” Laughter. “Check out the almonds. Feel like I’d love some almonds right now. My roommate is allergic to almonds. Just the word almonds make me hungry. Uses her face to hold open the lid! Well, I’m going with the elbow. Oh no! It seems I have pinned myself in a bit of a corner here. Mm... Maybe we should go back and use our face. Hm....an adequate number... How about if she used a pencil to prop the door open?”

TO: “The pencil would be too small.”

MB: “Yeah, then you couldn’t get your hand in there.”

TO: “Yeah, it’s a problem!”

MB: “Alright. **Alright that’s an easy one. It’s nice to have one of those every now and then. BUT I still read it!**”

TO: “Noted!”

MB: Laughter. **“She maybe needed a cart instead of a bag... Maybe we should have a “go back and get a cart” link!”**

TO: “I shall make an additional link for that!”

MB: “Package of spinach and cheese...croissants... quite heavy...still need coffee... coffee’s not very heavy; we can handle that. Beans should maybe go shopping at nighttime at one of those 24 hour stores.”

TO: “Interesting. Why is that?”

MB: “Less people. Easier for her. Alright, most expensive one. Well, it didn’t say anything about Beans being poor, so I think she can afford it. I’m thinking she stays home a lot, doesn’t go out very much, so she has some extra money to spend on beans.”

TO: “Interesting!” Laughter.

MB: “Buying socks is cheaper than the coffee – nah, we’re keeping the coffee. I’m thinking Beans wants to get out of there as soon as possible because of her anxiety, so we’ll get going here. Alright, I’m gonna go for the ... actually ... ok, yeah. I thought it was going to go to a different page, but that uh ... that makes sense. Everything that came up seems to make sense. Please place the item in the bag! I’m going to go with this one since it sounds familiar...put them there, and it doesn’t seem to like it. Can you use your own bags at a self checkout? Or if you put a bag on, would it be like, “What did you put on here?”

TO: “That’s a great question.”

MB: “Oh, attendants are such jerks!”

TO: “Haha, I know!”

MB: “Okay, let’s get the strawberries going. I don’t know if “boop” is the most comforting sound. It should be like,” clapping noises. “NO, I didn’t. I went for the twist-tie instead of the pencil. Hm. So she managed to find the code for almonds? Is this what happened? The one I saw, you have to go through lists and lists of produce items and find the right code, and then it might work? You get to apples and you’re like ‘apples, what, yes, I guess.’ And then there’s always another one.”

“Next, I will choose croissants. They’re too light, aren’t they? That’s what I would fear. So then what do you do? I just saw the line and thought it was Beans that goes away. OH NO!”

TO: “Oh you lost!”

MB: “How did that happen? Oh did I click that one?” Starts hitting the back button.

“Why would they escort you out for that?”

TO: “If you just start smashing buttons. I dunno!”

MB: “Yeah, I guess. I don’t know. Does it? Ummmm ... look scared. Cause they always come over and they’re like “what’s the problem, this is so easy.” This thing is driving me nuts! I came here because I want to go fast, but now I can’t even.”

TO: “They don’t even say anything, they just do it for you, and you’re like, “I’m so sorry!””

MB: “Alright. Yes, please do! Umm... usually, don’t have cash on me. Slowly becoming Beans here.” Laughter. “We’re just merging. Our brains into one person! Yeah.”

Laughter. “Alright, so I think Beans would be frustrated, but do I want to try and ignore the machine. It’s not too logical now. I mean, you can’t disagree with the machine. I don’t know what would happen if I clicked that! I don’t want to lose the game again!

This, this is a problem. The credit cards and the whole system.”

TO: “It does seem odd that there would be so many issues even though it’s implemented on such a huge scale.”

MB: “Can’t they just put the stripe down the middle? Then it would work!”

TO: “Right? That’s why I thought this would be a great design scenario because designers are NEEDED to be able to improve this.”

MB: “And something like that, it’s not just this product. It’s like every machine in every store has a problem with that.”

TO: “Mhmm”

MB: “Start smashing buttons in a panic – just kidding!” Laughter.

TO: “Yay! You win!”

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TO: “So, my first question is sort of an obvious one. How did you like it?”

MB: “It was good, yeah! I like it! I’ve never done anything quite like that before. And it was neat. Yeah, you have to think through – it forces you – because there are links that bring you to other pages that forces you to walk through every possible scenario which is really helpful, situations that you wouldn’t otherwise think through.”

TO: “And did you like the character?”

MB: “Yeah, I did, because it’s stuff like, if you gave her a more actual disability it might have been easier to separate myself from her, but it was abstract stuff so I was like yeah, there was an abstract problem that I could see, like that banana thing could get stuck to anyone. Walking down the street, this could happen to anyone, you know? It’s not like someone would see her and think “oh that girl has anxiety!” It’s not something you can see easily, like being in a wheelchair; it was a good way to lay out the problem to get more honest answers from people.”

TO: “Yeah, that’s what I thought. I wanted to have something that was a bit of a diversification from the persona process, because everything sort of gets broken apart in the typical persona since it’s supposed to represent a demographic rather than a person. So I wanted someone that would be representative, but also that there was something that

was a personality trait that could be shared. Something accessible and yet something that represented a person. That was my goal. I wanted an in-between between the typical persona and a real person's responses."

MB: "Yeah, I think that was really successful."

TO: "Woohoo!"

MB: "Cause it is I could see anyone in that demographic having anxiety."

TO: "Yeah, I am glad that the anxiety doesn't seem to be something that you did not want to sympathize with. You actually said that by the end of it, and you were making choices on her behalf."

MB: "Yeah, I was saying, as I was going along, that I was starting to stack all these things in my head. Like, I don't want to be around people too much, I don't want to sit around looking like I'm dumb and interacting with something and not getting it and having people come over and ask "why aren't you getting it?""

TO: "Do you need assistance?"

MB: "Yeah, exactly! Anxiety is something that everyone can feel at some point. So it's not a broken leg – it's, something random that I haven't yet dealt with."

TO: "I think that you raise an interesting point which is that accessibility on a physical level would be an interesting persona to create for this scenario. Because what I noticed is that while you were going through it, you were accommodating choices based on the personality and the limitations that you ascribed to the avatar. So, I think it would be beneficial to play through a persona or an avatar that you wouldn't have necessarily ascribed any kind of disability to."

MB: “Yeah, and it would be neat to have different characters. If you are focusing on the checkout at the end, the more people that run through that, the more inclusive your design is going to be at the end.”

TO: “So do you want to tell me about how you guys use personas or scenarios?”

MB: “So I would say that the first, most basic way that we do it is to put ourselves into the situation like if something, and it’s neat because we have some different demographics in the office, so if it’s a product for a person that is retired, then we’ll pick apart \*\*\*\*\*’s life, and then we find out what the whole process is, and then if it’s for a younger crowd, me and \*\*\*\*\* --we have a good perspective on younger crowds – and that’s what we use most, because we can cover most of the age groups within our group, or even one of our kids we ask what they would do, and that’s the first one and the one that we would go to most often. After that it would be um, basically, trying to run through, probably if we couldn’t put one of ourselves in it – especially if it’s a girl, for example – we’ll build a stereotype almost of what we think that person would be.”

TO: “Do you just imagine it, or do you have observations?”

MB: “Yeah definitely observations, but, we would start with basically just... what we can think of from real life, Um, but then the next level is that we have that conversation as a group. So we’ll say who is this going to be for and I find that is when they become really useful because if I think of a product by myself in my head, but if we get a group on board, everyone has to be thinking the same things, so having a character in the middle that they are not really connected to and she has to go to the grocery store or whatever, to get to the same page, and then we probably do some more internet research of anything –

what the trends are in the market for someone that age or what the style seems to be, like what materials they would wear, stuff like that.”

TO: “Do you ever bring in a real person to test it or is that later on?”

MB: “Um, yeah that would probably be when we have something to give them – it could just be an early prototype, but yeah, usually when we have something if we are going to get personal feedback from someone before we really have the concept, then it would probably be just one of us. We were designing a wristband a little while ago and as soon as we got the project I just started wearing wristbands just to see what and I knew I’d have to get into it and figure out why I don’t like it, but that’s before we even have the concept together because I’ll learn from myself before using it. By the time I want to have someone else invest their time in my project I will want to have something to give them – something legit – not just talking about an idea here, but like, “here” and they go through the use scenario.”

TO: “That is awesome. That is completely different than the types of personas that you are encouraged to create at the academic level of design where you go out and create all these formal observations and then you condense them into an honest perspective of a persona but one of the things I found in my research is that it doesn’t actually happen. So I wanted to preserve that the authorship is from the designer’s perspective, and that it doesn’t have to be a bad thing because you can still have your personality traits because they are not negative, and in fact it does represent a persona, and then if you have others interact with it, you’ll get their thoughts anyway about what they would do different or have available so I wanted to preserve the honesty and authorship of it because I found there was a huge gap.”

MB: “It’s pretty interesting because a lot of, some design firms, will get paid to do a lot of ethnographic research and really design their personas. They can obviously put a ton of time into doing it, but we don’t have the budget or the timeline to do that, and it’s more in-house designers might have more time to do stuff like that, but working at a consultancy, people expect us to get in fairly quickly because they are paying quite a lot.”

TO: “So time and budget are huge factors in terms of research and accessibility.”

MB: “So we have to try to almost pull some of that into our own time and sort of bring in as much personal experience we possibly can.”

TO: “I found that we would put ourselves in those scenarios, but as you said, it was on our own time. If we were always asking other people, it would delay the process and come up with a bunch of other legitimacy issues. So, I think that is really interesting and it is refreshing to hear your perspective because it is very honest and a good point to make. Design budgets are not always inclusive or have the budget to be.”

MB: “And it is really great research, but it can’t always be there. Look at any company in Ottawa, they probably don’t have any money to pay a design company like Frog to have twenty designers to look at something like this so they’ll have lots of people to go out and do lots of research, but you need a big team and a big budget.”

TO: “So, would you ever use this process at Gibson, if this could be modified to represent a product you were working on.”

MB: “Yep and definitely if it were some sort of template and it would fill in some of the blanks, I could definitely see this being a useful tool. I mean I used that thing many times that I was in this, and I was picking up things that I never would have. Doing stuff mentally is totally different rather than the whole use scenario without looking at the

product ever – I know you had a picture or two in there, but it’s not like I was actually using the product at all.”

TO: “So did you find that the narrative was beneficial? Or would it have been better to have more visualization?”

MB: “It definitely was helpful but you’d obviously have to do the in contact stuff with the machine. Let’s say we are designing a new checkout machine, this would give me a lot of insights. Talking to real users would give me a lot of insights. Using it myself would give me a lot of insights. So it would definitely be a tool –“

TO: “So it’s like an insight machine, rather than be a design tool it’s like an insight tool or a motivator for different--“

MB: “I think it would be a design tool in that it frees me up from looking at what exists now and thinking ok, maybe if I moved that button over here, it would be better. I’m not even looking at it so I’m just thinking that I want to get the task done and leave. So I think I’m like, stripping out parts of the machine that I might not need.”

TO: “That’s so interesting, and actually quite amazing because design, especially the digital design, is hindered by real life artifacts because designers are always trying to compete with preconceived notions of an object or an object that already exists, and I love improving what is already there, because I think we have a surplus anyway, so I think we can do some great stuff with what already exists, but it’s great to know that narrative could open up paths for exploration that didn’t exist before.”

MB: “You have to pay respect to what’s come before, though, you know. Things that have been iterated on in the past. You know there’s some intellectual property that’s been

built there that you need to respect, but it definitely got my head away from what's there and reorganizing and gives you more of a fresh take on it.”

TO: “So this is basically meant to be a reading tool, but as you mentioned, if you could create a character, at the end of the process, would you do it?”

MB: “Yeah, probably – well my first thought was, how would someone with a real physical disability use this – if they had an injury or if they had a wheelchair, how would they get through this scenario? I can just imagine myself out and getting more insights from that.”

TO: “I think that was the strongest aspect of watching you play. With our previous interviews I found that they thought about themselves, so it was really interesting because they were like, ‘I want to choose this so I’m going to go this way.’ But you were like, I’m going to put myself in the position of the avatar. Do you know why?”

MB: “What I was – at first, I was like, we’re just trying to buy groceries, but then I thought okay we are trying to design a checkout machine, but once I start thinking we are gonna design something, it was all about the user, what’s their issue. You really have to take your ego and whatever you think it should be and completely leave that out. I think that maybe I have become good at that in the last few years. That’s definitely something that has come up at work sometimes. You can’t be personally related to it, it has to be about the user.”

TO: “That’s awesome. Ok, and I’m not sure if you do anything with co-design, or what it is?”

MB: “Like the company? What are you talking about?”

TO: “Like when you have non-designers participate in the design process. Do you do anything like that?”

MB: “We’ll definitely have people who are non-designers in meetings, definitely clients and people that are in a position of power, get their say in the mix that’s a given for us, as far as I can see. But as far as specifically trying to bring someone in who’s not a designer, not very often, no. What we will do, I’ll bring it to my friends, who aren’t designers, and try to pick their brains about it.”

TO: “Does that go well?”

MB: “Yeah, people don’t always know about industrial design so much so I find they are interested in talking to you about it because that’s the only way that they’ll learn about what you do. If you tell someone that you’re a teacher people know really well, but you get looks if you tell people you’re an industrial designer.”

MB: “I find people are very interested in providing opinions if they feel that their opinions matter and impact something.”

TO: “So they’re happy to contribute if their opinions will be represented.”

MB: “Yeah, and people just excited about products before they’re made – when they’re ideas everyone is like “they could do this! They could do that!” and people just want to throw their ideas into it.”

TO: “That’s so cool. How often does that representation happen, that’s my question! I was going to ask how you felt about this as a digital process versus the traditional method for the process, which is usually more kinesthetic.”

MB: “Ours is more of a conversational thing where we hit the main issues, but this is more of a detail-oriented; really picking a certain issue all of a sudden because I have a

certain condition, but if we just have a conversation we'll be like we can't miss this because this is a key point, and we can't do this because we hate this feature on all the other ones, and we'll get a very broad checklist together but this is something where I'd find myself getting into very specific changes and very specific things I want to do."

TO: "Yeah, I really liked that I could go into detail. For example the almond lid-bin. And I have literally used my face or my elbow while I attempt to use that, so what I found in the creation of the narrative was that it allowed me to think about that because it wasn't just about getting to the checkout as fast as possible and using it as easily as possible, suddenly there are all these other design oriented—"

MB: "yeah, you realize you're in a system."

TO: "And I started thinking about how there could be a QR code or a barcode already at the almond bin and then you'd have that and you don't have to type it in to the machine"

MB: "Or use those little pencils"

TO: "And I hadn't had that opportunity to think about that in the traditional personas and scenarios. That's I think one of the strengths of creating the narrative for yourself. But I have also heard from the other interviewees that one of the strengths was stuff like the banana walrus."

MB: "Yeah, for sure, I would definitely agree with that. More visual stuff, not so much as object of interaction but as storytelling tool was very effective. Like I could see while she was trying to open the thing that she could have a really mean look on her face, like "I hate this, what I'm doing right now!" Laughter.

TO: "I'm really glad to hear that – so the images really helped that. How did you feel about the humour?"

MB: “The humour was great to keep me from getting too frustrated with it because that’s one of the things with those machines. Everything is just a hard step that you have to do. And if this is like that, then I’d get frustrated – I did get frustrated because these things are happening that you don’t want to happen or that is happening that you don’t want, so it’s good to have the humour in there.”

TO: “I wanted to see if that was a deterrent or a...”

MB: “As far as uh... If you were doing this, and if I made this at work, then I’d want everyone at work to do and the clients and everyone who is involved at all so the client might see it and think that the humour is meant to diminish the seriousness. So this was a great way of doing it because it was non-offensive and you assigned characteristics to it and it exists in your mind somehow.”

TO: “So you think that the creation of this tool in specific defined the product beyond its requirements?”

MB: “Yeah, I think, like we were talking about earlier, it makes you go to the almond stand and go find some strawberries, um, whereas someone when they are designing the end product they might just look at the grocery store and only the machines that they are working on. Where this is – for me I just realized that maybe there’s a feature in the cart that you use again in the checkout like you said about the RFID or the card you use is swiped as you get the items, but it definitely starts to be thought about in a more holistic way.”

TO: “One of the things that I noticed is that you just dove right into the links. I sensed a bit of hesitation...”

MB: “Yeah, at first, and at first I didn’t know if I should click on something over here (sidebar), but I didn’t feel like there was a different -- yeah there could be maybe a few pages where you are doing something but it’s more instructional, just warming the user up to using this, because at the end you are like you can click on any of these and there are no wrong answers, and as long as you are mentally following the path that you’re on, everything makes sense.”

TO: “And how did you feel about the links that didn’t take you anywhere but changed the text within the story?”

MB: “Um, sometimes I felt like I wanted them to take me somewhere else, and it was okay that they switched over, but it was just sort of more of the “same” and I felt like I was expecting a new page, that was a little bit of a let-down.”

TO: “What if they were a different colour so that you knew that certain links or highlighted text would take you to a different page versus the interactive changing one?”

MB: “It is kind of nice having them unified so that you are thinking about the decisions. Like, I could see things that make you more happy are one colour and they are red or green, but then I would just want to go for the green instead of just going through the experience of the problems. Cause there may be a path that only has 5 clicks and you get to the end. Do you have it figured out what the fastest is?”

TO: “Yes, but so far no one has had the smoothest, and I’m always worried that someone is going to get this in the 5-click bracket, but no one at all in my testing or case studies or friends has ever gotten the fastest way out. I think it’s fascinating, but I don’t know what it means!”

MB: “If you always took the easiest or the fastest way out, would you get through it the fastest? You would?”

TO: “If you want to deny Beans’ anxiety and you only think about the end-goal, you’ll get to the end of the scenario, but if you take risks and do the duty to the scenario, you’ll get a more full experience. And no two people have had the same experience. Which is amazing because there aren’t many divisions in the story, but the paths between each section is done differently by each user and it shows how people would navigate.”

MB: “That’s so neat!”

TO: “I was nervous about it because I didn’t think anyone in design had used Twine before!”

MB: “Oh, this is Twine?”

TO: “Yeah, and you can do anything you want in Twine.”

MB: “I thought Twine was like those little boxes that you buy – have you seen this product? You can plug sensors into it and stuff, and I think it has an accelerometer and stuff, and every time it got knocked over and stuff you’d know if someone was in your house. It tracks temperature and humidity and all that stuff.”

TO: “Twine in this case is an online open-software tool. How did you feel about the choices?”

MB: “I felt like there could have been a few more choices sometimes because they sometimes boiled down into yes or no or this or that, but something that just popped into my mind earlier when you were talking, something like this, people would be much more willing to try to break it since it’s not a physical thing. I find people treat things very fragile when they are in development and really that’s not beneficial in the end. You

should always try to break things to test it and see what the breaking point is and that's how you make it better. So here if you keep doing things wrong you are learning how to do it right in the future of your design process. But I find that happens so often because people think they need to be careful and not say anything bad about it or do anything bad to it.”

TO: “Interestingly so far it only starts with anxiety. So far every person has said that they started his nervously. They're like I don't know if I should click this link or this sidebar, but then when they have clicked like two links, they get more reckless. They are like I am going to click every bad option just to see if the scenario fails.”

MB: “and once I got to the checkout point that's when I was in that mindset, I was ready to mash some buttons if I was upset, but at first I would have even like no we can't do that, we have to play the game, and be cautious.”

TO: “That was the other reason I made this digital is because people can be more reserved and more hesitant to involve personal details and explorations but by making it digital people that do have accessibility issues that do have anxiety or that don't feel that they can communicate in the same way that others can, would be more willing to participate in something like this because it's a bit less stressful. It's a sandbox but you can mess with that space.

MB: “and you're not going to be made to feel stupid.”

TO: “I do want people to laugh a little bit, and the banana walrus is there just for the humour of it so that it would be more inviting and I'm pretty sure we hit all of my questions. One last one, what part of the story spoke to you the strongest?”

MB: “I think just the first little bit, like learning about the character, like the persona and trying to get inside someone else’s head and who is right there in front of you and you’re given some detail and you’re just trying to create his person in your head and assign this anxiety to them. I think that was really neat because the rest of it was experiences I’ve already had before. I’ve been to grocery stores and gotten almonds and used the checkout before, but getting inside a new user’s head, that was really neat.”

TO: “Was there something that you would rather have omitted?”

MB: “Not really. There are some choices that I’d never – like I’d never actually mash the keys.”

TO: “But I think that if you had the opportunity to see what would happen if I actually ever smashed the keys.”

MB: “I’ve heard stories about Nortel – you have a Mitel phone – but the guy who started Mitel would come in and when they made something he’d come in and mash the keys and be like, “why isn’t this working?” And they’d be like, “That’s the problem!” You don’t want to release something and then it breaks really easily or breaks when you mash the keys.”



# Teach Me TINA

## LEARNING FOCUSED Teacher

**Title:** Science Teacher  
**Company Name:** Crabapple Middle School

**Industry:** Education  
**Location:** Roswell, Georgia

**Description:** Crabapple Middle School has enjoyed twenty plus years of excellence in education since its opening in 1983. In 1988, Crabapple Middle became Fulton County's first National School of Excellence and a Georgia School of Excellence. In 2003, Crabapple Middle was recognized as one of the first Georgia Lighthouse School to Watch for excellence in middle level education.

"Tell me more! I need Internet at home and in my classroom. So, it's got to work. When I do have trouble, though, I want to be able to fix it quickly on my own."

My school continuously strives to be a premier educational institution in the state of Georgia. Technology is now a part of our everyday lives, so I use technology and the Internet in my classroom. I use it for personal projects, but also for classroom projects with all of my students. When in a classroom with 30 middle school kids, I don't have time to call the DSL provider if I have trouble with the connection. So, I need to be able to troubleshoot problems on my own, right there on site. If I have too many connection problems, I will report it to our school principal and recommend that we use a different DSL provider. As Teachers, we don't have a lot of time to deal with extra problems, outside of our everyday chaos.

At home, I use the Internet to do research for the book I am writing. I am also an avid cook, so I connect almost every evening to pick out recipes and view the recipes I've saved online. When I am at home, I have a little bit more time to troubleshoot if needed. And, I do prefer to fix the problem myself, if possible.

This user has a high need for connection and a moderately high willingness to troubleshoot problems when they arise. She is interested in what is happening and why the function is being performed. She wants to learn about her computer and DSL. Tina will study simple wiring diagrams, try to check connections and will download DSL software. She wants to learn more computer jargon, but explanations may be needed. She may also use a chat for customer support, to learn how to fix her DSL connection in her classroom or at home by herself.



### KEY VALUES

- Learning
- Educating and Innovating
- Autonomy

### CONNECTION NEEDS

In her classroom, for both personal and classroom use  
At home, for research, web browsing and checking email  
Connection needs to work most of the time or Tina will move to a new company

### QUESTIONS ASKED WHEN CONSIDERING A PROVIDER

- "How reliable is this service in providing a connection in my room and at home?"
- "Do they provide information to me on my connection?"
- "Do they provide online chat and an online troubleshooting tool?"
- "Do they contact me about upgrades and security updates?"

### EMPLOYMENT

Medium sized middle school - Science teacher - Southeastern United States

### TECH SAVVY

Knows some computer jargon, but may need further explanations for some terms and concepts

### COMMUNICATION PREFERENCES

- Likes seeing connection speed and other detailed information pertaining to her DSL connection
- Appreciates being able to learn about updates and new services from the main webpage
- Wants to be exposed to relevant articles pertaining to her internet connection
- Wants to be notified about key updates and upgrades and will update her computer when prompted. May look at detailed information about the update if it interests her

### SUPPORT PREFERENCES

- Writes an email or chat to customer support with questions or problems
- Will use a tutorial, especially on first visit to a tool or site and will read it carefully, applying knowledge to other areas of the company's products
- Expects a self-help tool and will troubleshoot on her own whenever possible, using the tool
- Will only call customer support via telephone as a "last resort"

### SECURITY CONCERNS

- Implements security tools and likes that they are provided for her
- Wants to be sure that her passwords are secure and appreciates any information that helps her with password security

### FEATURES AND FUNCTIONALITY BY PERSONA TYPE





through again or ask any questions. Then, the interview will begin, and a series of open-ended questions will be asked to gain further insights.

A computer will already be set up in order to test the prototype. I will not be recording any visual material. However, I would like to record the session using an audio recorder so that I may transcribe the session into text and refer to your specific answers and notes in my thesis.

You may choose to have your name changed. If you feel you would like your name to be omitted, please indicate it here:

**I would like my name to be omitted:**                      yes                       no

#### **C. RISKS AND BENEFITS**

There are no risks to participating in the workshop. However, you will be provided with tea or coffee at the end of your participation.

#### **D. CONDITIONS OF PARTICIPATION**

- I understand that I am free to withdraw my consent and discontinue my participation at anytime without negative consequences.

- I understand that my participation in this study is **confidential** (i.e., the researcher will know, but will not disclose my identity, unless I am comfortable with disclosing my full name).
- I understand that the data from this study may be published.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print)

MARK BOYCOTT

SIGNATURE

If at any time you have questions about the proposed research, please contact the study's Principle Investigator, Tara Ogaick by email or by phone (please see the top of this form).

If at any time you have questions about your rights as a research participant, please contact:  
Professor Antonio Gualtieri, Chair  
Research Ethics Board  
Carleton University Research Office  
Carleton University  
1125 Colonel By Drive  
Ottawa, Ontario K1S 5B6  
Tel: 613 520 2517  
Email: [ethics@carleton.ca](mailto:ethics@carleton.ca)

through again or ask any questions. Then, the interview will begin, and a series of open-ended questions will be asked to gain further insights.

A computer will already be set up in order to test the prototype. I will not be recording any visual material. However, I would like to record the session using an audio recorder so that I may transcribe the session into text and refer to your specific answers and notes in my thesis.

You may choose to have your name changed. If you feel you would like your name to be omitted, please indicate it here:

**I would like my name to be omitted:**                      yes                       no

#### **C. RISKS AND BENEFITS**

There are no risks to participating in the workshop. However, you will be provided with tea or coffee at the end of your participation.

#### **D. CONDITIONS OF PARTICIPATION**

- I understand that I am free to withdraw my consent and discontinue my participation at anytime without negative consequences.

## Appendix E:

### CONSENT TO PARTICIPATE IN Hypertext in the Design Process

This is to state that I agree to participate in a program of research being conducted by Tara Ogaick of the School of Industrial Design at Carleton University.

**E-mail:** tara\_ogaick@carleton.ca

**Phone:** 

**Project # 13-1064**

#### A. PURPOSE

I have been informed that the purpose of the research is as follows: Tara Ogaick is gathering data on how people create user stories and how digital storytelling tools may be used in the design process.

#### B. PROCEDURES

**An interview will be conducted with a designer or design researcher with at least 2 years of expertise in the field of design and development and the use of scenarios and personas. The designer or design researcher will first play through the prototype, *Persconario*, and talk aloud about what they are doing, the things they are thinking, their problems, different approaches and so on. At the end of their first play-through, the interviewee may choose to play through again or ask any**



- I understand that the data from this study may be published.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print)

---

SIGNATURE

---

If at any time you have questions about the proposed research, please contact the study's Principle Investigator, Tara Ogaick by email or by phone (please see the top of this form).

If at any time you have questions about your rights as a research participant, please contact:

Professor Antonio Gualtieri, Chair  
Research Ethics Board  
Carleton University Research Office  
Carleton University  
1125 Colonel By Drive  
Ottawa, Ontario K1S 5B6  
Tel: 613 520 2517  
Email: [ethics@carleton.ca](mailto:ethics@carleton.ca)

## Interview Questions

(Note, not all these questions will be asked. Rather, these are guidelines, follow-up questions, and specific goals that should be reached throughout the interview)

- Would you play this again?
- How did you become involved in design?
- How have you used design processes in the past?
- Have you ever read interactive fiction?
- How do you feel about the digital narrative versus the typical personas and scenarios narratives (or traditional paper narratives and stories)?
- How comfortable do you feel interacting digitally?
- How intuitive did it feel to play through Persconario?
- At what point would you use or create a user scenario in the design process?  
(Follow up: During research, during prototyping, during marketing, or during a presentation?)
- Does using the digital version of these processes make them open up differently?
- Would you be interested in creating a new scenario or persona for Persconario?
- What is the strength of a digital tool like this – your input, the reading of it, or the talking about and sharing of it?
- What would you use a user scenario for?

- Did you think that the creation of the user scenario helped define the product beyond its requirements?
- What is the importance of empathy in design?
- Do you feel that personas and scenarios are you have used them are honest? Or, are they designed with a purpose in mind?
- What is the most important part of a scenario for you: the who, the what, the when, the where, or the how?
- What tools would you use to create the ideal user scenario? Digital tools like computers, the internet, illustrator, etc? Or Analogue tools like notepads, observations, direct communication, and paper prototypes?
- Do you know what a metaphor is? How important are metaphors in stories? How important are metaphors in design stories?
- How do visuals relate to a user scenario?
- How do you think people tell stories now as opposed to ten years ago? Is there any difference?
- Have you ever participated in an online community or a blog? How did you feel about your experiences with those digital experiences?
- Do you design better with no restrictions, some restrictions, or precise restrictions?
- How important is interaction in a creative process?

- How important is interaction (like clicking, inputting words, etc.) in a dynamic narrative?
- Did you feel like you were a participant or a creator by playing Persconario?
- How would you define co-design? Do you think that Persconario would qualify as a tool for co-design?
- What do you prioritize when you design for people? How do you use design processes to help with this?
- How often are personas and scenarios used at work?
- Why are they created, and who are they for?
- How honest do you feel personas and scenarios are to the people that they are based on? Is it important that there is honesty in personas or scenarios, or is it more important to imagine?
- Did you feel that the persona in the digital tool was honest?
- Can you describe, briefly, how you typically make a persona from beginning to end?
- How did it feel to play through Persconario?
- Looking back on your experience just now, can you describe the differences and similarities between the digital persona that you just played through, and one that you would have created?
- Were you aware that it was a multilinear story, or was that irrelevant?
- What parts of the story spoke to you the strongest?

- How many parts of the story felt irrelevant?
- How easy was it to navigate through the story?
- Would you ever use this narrative with people outside of the design process? How so, and can we improve upon it?
- How would you create a character?
- Would you ever use this tool again?

## Appendix F:

### Academic Integrity Statement - Thesis Submission

(To be completed upon submission of Master and Ph.D. theses for examination) v1

Carleton University is committed to ensuring that all students conduct themselves in a manner consistent with the Carleton University Academic Integrity Policy. Recognizing that regulations and practices relating to academic integrity and intellectual property, as well as the culture related to their enforcement, vary substantially from place to place, all graduate students are required to review, comprehend and adhere to the Carleton University Academic Integrity Policy upon commencing graduate studies and upon submitting Masters and Ph.D. theses.

I am familiar with the Carleton University Academic Integrity Policy and I understand the potential consequences should my thesis be found to contain plagiarized content or violate this policy in any other way.

Name: Tara Ogaick



Date: 2013/11/18 (YYYY/MM/DD) Student Number: 

## Appendix G:



**Carleton University Research Office**  
Research Ethics Board  
1325 Duntton Tower  
1125 Colonel By Drive  
Ottawa, ON K1S 5B6 Canada  
Tel: 613-520-2517  
[ethics@carleton.ca](mailto:ethics@carleton.ca)

### Ethics Clearance Form

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical clearance. The REB found the research project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2<sup>nd</sup> edition* and, the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

New clearance

Renewal of original clearance

**Original date of clearance: 13 February 2013**

Date of renewal	<b>30 April 2013</b>
Researchers	<b>Tara Ogaick, Master's student</b>
Department	<b>Industrial Design</b>
Supervisor	<b>Prof. Won Joon Chung, Industrial Design</b>
Project number	<b>13-1064</b>
Title of project	<b>Hypertext and the Design Research Process</b>

Clearance expires: **31 May 2014**

#### All researchers are governed by the following conditions:

**Annual Status Report:** You are required to submit an Annual Status Report to either renew clearance or close the file. Failure to submit the Annual Status Report will result in the immediate suspension of the project. Funded projects will have accounts suspended until the report is submitted and approved.

**Changes to the project:** Any changes to the project must be submitted to the Carleton University Research Ethics Board for approval. All changes must be approved prior to the continuance of the research.

**Adverse events:** Should any participant suffer adversely from their participation in the project you are required to report the matter to the Carleton University Research Ethics Board. You must submit a written record of the event and indicate what steps you have taken to resolve the situation.

**Suspension or termination of clearance:** Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2<sup>nd</sup> edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.



Andy Adler, Chair  
Carleton University Research Ethics Board



Louise Heslop, Vice-Chair  
Carleton University Research Ethics Board