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The Importance of Representative Likeness: Why we Should Represent Interactive Digital Narrative with Interaction

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Abstract

Scholarly work on Interactive Digital Narrative (IDN) has long been communicated using the non-interactive format of the academic paper. Yet, when we only tell or show, we do not interact, which means that we lose the most important aspect of IDN–the interactive experience. In this article, we consider the limitations of traditional scholarly representations when it comes to IDN and demonstrate a novel format which includes interactive artifacts within the article, a move we consider as a crucial step for advancing IDN scholarship.

Keywords: interactive scholarship, interactive digital narrative, academic engagement

The dissemination of academic output has mostly stayed the same for a long time. Conference proceedings and academic journals were established when print publications were the dominant way for distributing information in the times of steam locomotives, gas lamps, and horse-drawn carriages. While, more recently, many academic publications moved to digital formats and are now available online as web pages and downloadable Portable Document Format (PDF) files, there have been no fundamental changes.

However, there is something inherently problematic when we represent interactive experiences by non-interactive means. Interactive is about the experience; it is not about show or tell. When we show or tell, we are one level removed. Being one level removed can be helpful when we need a vision that explains to an uninitiated audience what an interaction with an advanced IDN system might look like. This purpose was well served by the vision of the Holodeck used by Janet

Murray in her seminal book Hamlet on the Holodeck in 1997 (Murray, 1997). The Holodeck appeared in the popular TV series Star Trek–The Next Generation. It depicted an entertainment space on board a spacecraft that created convincing, immersive, interactive narrative environments where crew members could interact with rich, unfolding experiences. As Murray emphasized, the Holodeck was a metaphor, not a blueprint for implementation. It served well in this role by alerting a whole generation of scholars and practitioners of the potential of IDN.

Figure 1: StarTrek TNg - The Holodeck

Some critics of the Holodeck vision have yet to notice the difference. The Holodeck is not a recording of an actual working interactive system, nor is it a design fiction. The Star Trek Holodeck is a TV production, a video, and, therefore, an entirely different category of work than an interactive system. This difference cannot be overstated. The Star Trek Holodeck shows; it does not invite the audience to participate in an interactive experience partially of their own shaping. Indeed, the difference between interactive and non-interactive forms has been widely discussed (Aylett, 2000; Bolter, 1991; Joyce, 1995; Koenitz, 2015, 2023; Laurel, 1986, 1991; Louchart & Aylett, 2004; Montfort, 2005; Murray, 1997, 2011). Yet this awareness so far has hardly entered scholarly output, which for the most part has been unchanged for decades–the proceedings paper, the journal article, the edited volume, and the monograph, with few exceptions (e.g. a separate playable part of an otherwise static essay (Juul, 2021)), stay non-interactive even if they have moved from printed form to the web. It is time to change this tradition, and this journal is at the forefront of this change.

To lead that change, a new publication framework must be realized to do justice to the interactivity in interactive digital narratives. The framework must maintain its roots in academic publishing, but it must reach higher and aspire to shape a new form of intellectual creation, demonstration, and distribution. As open-access publishing endeavors to make access to institutional knowledge more equitable, this framework endeavors to make a new kind of knowledge accessible. This knowledge has been frozen at most affording,

interactions like annotating, commenting, and linked citations. Given the technology platforms available, we can–and should–do better. To unlock the knowledge of interactive narrative research, there is a need for new tools and new ways of knowledge production–and for a journal, this means a publication framework that elevates interactivity and facilitates knowledge through interaction.

If we consider the main functions of an academic journal, we mark where growth and evolution must occur for a new generation of scholarship. First, a journal must share and disseminate academic scholarship. By all accounts, current distribution structures exist and serve up linear scholarship through videos, text, audio, and visuals. IEEE, ACM, Springer, and others excel in this regard. Over the last decade, they have worked to integrate video and 3rd party platforms such as YouTube into their digital offerings. Yet, downloading an article as a PDF only provides the text and, at most, a link to the media content. As scholars–especially scholars of interactive phenomena in areas such as HCI, IDN, UX, and games – we have sacrificed the core of our discipline, interactivity, for the ease of distribution offered by the lowest common denominator of the PDF and citation managers. This need not be the case. The bits and bytes of our intellectual efforts can take new forms but travel the same digital channels with the works we analyze.

Indeed, interactive forms have been tried to distribute scholarly research. Examples include a book review in Games Studies journal by Veli-Matti Karhulahti in the form of hypertext fiction (Karhulahti, 2016) and Distill, a now-defunct academic journal on machine learning that made a laudatory attempt to operate under such a vision of interactive scholarship from 2016 to 2021. Both examples realize the kind of interaction-enhanced scholarship in different ways. Karhulathi's work uses hypertext links and mimics the poststructuralist approach of early hypertext fiction such as Afternoon, A Story (Joyce, 1987). Distill's articles rely on custom-coded figures and diagrams, as in the New York Times' interactive journalism efforts. Both present approaches with different levels of interactive complexity from which our journal takes inspiration

The question of form and the proper level of abstraction is worthy of a more detailed discussion. If we can step outside of our PDFs, we might recognize that there has been a detrimental effect on the quality. of the knowledge IDN research (and the related field of game studies) has produced. While we may speak of equity and access, the readers of our publications cannot directly experience the games and interactive narratives we analyze in our articles. Furthermore, they may not have the funds to purchase an IDN work such as a narrative-focused VR experience. Yet another issue is time–it might take many hours to reach the point, the subject, we discuss about an open world or other expansive experience.

Consequently, our audience cannot feel the tension, energy, presence, agency, transformation, or immersion we discuss. And, for media archaeologists and scholars engaged in platform studies, the experiences they write about may be rare or no longer available. Our colleagues in other disciplines can quote excerpts or present data tables, engineering diagrams, technical schematics, anatomical diagrams, and more. Our field is left with high-quality stills, descriptions of interactive moments, and storyboards.

Given the form of the printed page and the digital PDF, we have presented our scholarship to the world

with a critical part missing–supportive, experiential examples. Our analysis, theory, and exposition are hamstrung by our inability to turn our readers into interactors and provide an opportunity to understand our arguments within the context of experiential examples. Imagine the strength of our scholarship if we could excise the scene of an IDN for our audiences to play through before moving on to our next analytical passage. Imagine discussing the merits of participatory storytelling to explore narratives of complexity while enabling readers to participate in the article. Imagine the force of a theoretical design ethics argument when the reader can experience the discussed moral trespass the approach is meant to protect against. Such interactive examples strengthen our scholarship, and our discipline desperately needs this new form.

This new form, let us call it interactive scholarship (for lack of a better name while we write this), should allow scholars to embed interactive examples of digital works within their publications. Furthermore, these examples should demonstrate particular situations and facilitate an experience for other scholars with the same set of variables without spending many hours to get to that game state. Such a capacity requires new academic-industry partnerships. A tool, a plugin, or a specific format needs to be created by development and design studios to 'snip out' content from their experience so it can be delivered as a fully encapsulated and playable experience that can be hosted online. Consider the demo CDs and floppy disks of yesteryear as examples. In this instance, we are not interested in the first levels of an experience to entice a purchase. Instead, a scholar could reach out to a studio like TenderClaws (https://tenderclaws.com/) and ask them to snip out a particular moment that they might use to demonstrate their analysis. TenderClaws could then use the technology in their game development engine to efficiently and swiftly send the scholar an executable of that moment. Alternatively, studios could give scholars access to such a technology for research purposes. We realize that creating such a tool comes with various challenges. They range from technical to legal–but these can be overcome, and there is existing research on the topic to build on in the form of "game quotes" (Franušić et al., 2023). An essential aspect of such an initiative is to assure accessibility for audiences with disabilities, e.g., screen reader compatibility and warnings about potential triggers for those with photosensitivity. A recent ICIDS publication concerned with screen reader software for Twine experiences is a promising step in this regard (Qiao & Sullivan, 2022)

In the remainder of the article, we want to present several milestone works which represent some of various forms IDN can take-AI chat bot, text-based adventure game, graphical adventure game and a tarot-based experiment in interactive story generation. We start with ELIZA, a work which results from early AI experiments (Weizenbaum, 1966), particularly in natural language processing (NLP). ELIZA's programming identifies keywords, reacts to them, and can use them in questions. While this mechanical aspect is relatively simple, the narrative framing turned ELIZA into a compelling experience and an IDN milestone. This work recreates a Rogerian therapy session, a form of psychotherapy where the therapist takes a neutral and reactive position. Typical exchanges during such a session might be the following:

- Patient: I am not feeling so good today
- Therapist: Tell me why you are not feeling so well?
- Patient: I had a fight with my mother!
- Therapist: Do you want to tell me more about your mother?

Such a formulaic structure can be replicated using simple NLP methods by identifying keywords such as "feeling not good," storing them temporarily, and then re-inserting them in a reply. The results can be compelling in the narrative context of a therapy session.

At this point, we invite you to try ELIZA (embedded below). Just start typing and imagine being a patient in a therapy session.

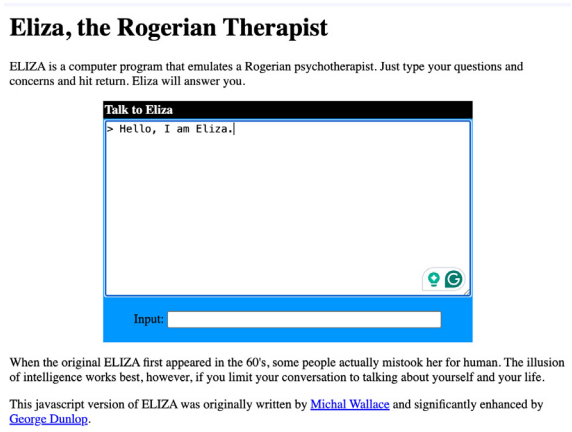

Figure 2: Eliza, the Rogerian Therapist

Weizenbaum famously reported that his secretary asked for "time alone" with ELIZA and that additional people got emotionally attached. To Weizenbaum, this development was deeply concerning. Consequently, he left the field and spent the rest of his life warning people about AI's dangers. Yet, the emotional attachment Weizenbaum observed is less of a function of clever AI programming and more a process of compelling interactive narrative design.. Eliza demostrates the power of interactive digital narrative (as Janet Murray already identified earlier (Murray, 1997)) and the ability to reach an audience and keep it engaged through the clever design choice of the overall narrative situation of a therapy session and the application of the design principle "Scripting the interactor." (Murray, 1997) This principle means the narrative designer can apply any means to help interactors understand their roles in an IDN and inform them about their appropriate in-role behavior and next action steps. Weizenbaum has masterfully–if unwittingly–scripted the interactor into their role as a patient and, by creating a reactive conversation that can last a couple of minutes, provide a space for experiences that can become deeply emotional.

At this point, we invite you to try ELIZA again. This time, attempt to engage but not as a patient. Notice how the experience begins to fall apart quickly.

ELIZA is also one of the first AI chatbots, and today, in the time of more advanced AI NLP capabilities, most prominently in OpenAI's ChatGPT, Eliza might appear simplistic. Indeed, for 2024 audiences, it might be difficult to understand how the work made such an impression initially. Yet, we need to be aware that in the 1960s, the belief in the capabilities of AI was different; it was much less critical, and many people were more willing to accept that actual computer intelligence was only a couple of years away. During the 1956 conference at Dartmouth College, where Marvin Minsky coined the term AI, it was assumed that creating a full general AI would be possible by the 1980s. The "AI winter" (a period where funding for AI research all but disappeared) and many failures in AI research, which resulted in a much more critical perspective, had not yet happened (cf. (Lloyd, 1995)). In that sense, Eliza is also an important historical artifact depicting a bygone area of a naive belief in "big AI" and, as such, a warning concerning the current hype around ChatGPT, Bart, and other AI writing assistants using Large Language Models (LLM).

Similar to contemporary LLMs such as ChatGPT, ELIZA can help you add depth to characters, their motivations, and settings as a writing partner. To test this out, try to engage in another conversation with ELIZA and roleplay a character like Cinderella talking about her relationships with her stepsisters. Consider how your interactions with ELIZA lead to a better understanding and perhaps identification with the character. Such an experience may put ChatGPT and similar AI assistants into the broader six-decades-long context of the development of human-computer co-creation.

Colossal Cave Adventure! (Does not work in Safari)

Colossal Cave Adventure, sometimes called Adventure (Crowther, 1976), is one of the first pieces of interactive fiction. Created in 1975 by Will Crowther, the IDN sets the stage for many design decisions in contemporary interactive stories and games. There are puzzles, inventory management, and seemingly open-world exploration. Using simple commands such as "go north" or "take key," the interactor can imagine an immersive story world in this text-based experience. The system of the IDN, void of high-fidelity graphics given the technological capacities of hardware at its release, still enables a process that allows agency, immersion, and transformation.

From the Mammoth Cave system in Kentucky, Adventure has a structure of "twisty little passages," according to Nick Montfort (Montfort, 2005). The text-based nature of the experience helps to create the illusion of dramatic agency. As the interactor cannot see, in visual detail, how their choices impact the story world, they must use their imagination. This internal visualization, similar to narrative meaning-making associated with literary fiction, involves a greater active creation of belief on the part of the interactor. There are no visual representations of characters or environments—the interactor must actively imagine them. The enhanced cognitive involvement through interaction makes it feel like choices have a more significant impact because they take more effort to visualize.

At this moment, we invite you to experience 5 to 10 minutes of Adventure. Pay close attention to how the minimal textual format encourages a significant cognitive involvement that encourages greater investment in your choices.

Figure 3: Colossal Cave adventure

This double hermeneutic circle (Koenitz, 2023) combines a minimal text aesthetic representation of the narrative and sometimes a challenging form of interaction via–text-input, which leads to a strong sense of immersion and agency. Each choice requires the interactor to exhaust more cognitive resources as they remember where they have been,where they are, and where they might go in the experience. Keeping track of items in the inventory without visual cues adds to this cognitive load. In addition, interactors have been known to draw or map out their journeys on paper to track their progress. We encourage you to do the same now. On a piece of paper, attempt to draw your journey through Adventure. At the same time, sketch images as they come to you as you make meaning through the experience. Notice how even though the IDN does not have graphics, audio design, or other hallmarks of contemporary gaming associated with immersion, it still draws the interactor in and immerses them in a sprawling story world.

Colossal Cave Adventure exemplifies this principle of transformation perfectly. As a text-based adventure game, it alters its narrative based on the commands entered by the interactor. Each command transforms the environment, leading the interactor to new situations and challenges. And many interactors find this experience very challenging. Unfortunately, the system does not provide much transparency on how its rules and codes change the world based on the player's inputs. This double-edged sword both immerses the user and frustrates them at the same time, as they may lose track of how their choices transform the narrative during their unique experience.

For instance, the player might choose to "go north" instead of "go south," leading to different experiences and encounters within the story. However, players may walk in circles if they do not know which command to enter. Likewise, an interactor may not notice that if they decide to "pick up the lamp," it changes the inventory and can potentially affect future interactions. In this sense, the game world is dynamic and changes based on the decisions made by the interactor, but this is only sometimes clear. This obfuscation encourages replayability, so we encourage you to engage in the experience again with greater attention to your choices and how they impact the overall experience.

The Secret of Monkey Island (Does not work in Safari)

The next example represents a considerable development in the history of IDNs–the move to visual depictions and graphical user interfaces. The Secret of Monkey Island (Lucasfilm Games, 1990) is an example of a graphical adventure game in a series that spans 32 years, as the latest installment was published in 2022: Return to Monkey Island (Gilbert, 2022). The first graphical adventure game, Mystery House (Williams, 1980), was published a decade earlier. The Secret of Monkey Island shows an already well-developed form, with color graphics, sound, an inventory system, and a range of commands enabled by a point-and-click graphical interface. The user interface elements of the game are always visible, including the available commands and the contents of the inventory. Due to this simplicity, there is no need for a training level. In addition, maps enable fast travel between different locations on the island, avoiding repetitive slow movement along previously explored paths.

At this moment, we invite you to experience 5 to 10 minutes of The Secret of Monkey Island. Consider what has changed from Adventure. Do you feel more or less in control of the narrative? Or is it that the engagement differs and any comparison is difficult?

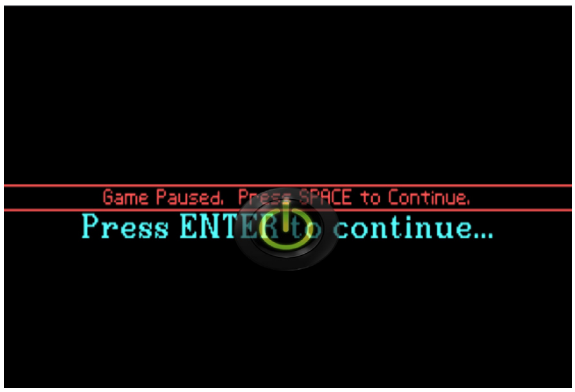

Figure 4: The Secret of Monkey Island

The title has stood the test of time and is still fun to play more than 30 years later due to a compelling combination of several factors. The narrative, with the many well-integrated puzzles, is still challenging and gives the interactor a feeling of accomplishment upon being solved. The user interface is intuitive, and the humor still works. As pixel art has become an art style, even the graphics appear retro rather than outdated.

In addition, The Secret of Monkey Island features one of the most memorable protagonists in gaming–Guybrush Threepwood–a mighty pirate by his own account, who is portrayed as rather clumsy and hapless, while his female counterpart–Elaine Marley–is the well-organized governor of the island. Instead of being a stereotypical male hero, Guybrush is more of a well-meaning but often confused character who gets rewarded for trying (in parallel to the interactor) even if he is mostly not in control and usually has a limited understanding of what is going on.

Now, try the game for another 10 minutes. How difficult and even frustrating is this experience from 30 years ago? Can you solve any puzzles during these 10 minutes? And would you wish for a more contemporary 3D interface with greater fidelity? Or are you so immersed that it does not matter?

Tarot-Based Narrative Generator

Tarot has been used for centuries as a method to give structure to storytelling, both in games and fortune-telling settings. As such, tarot cards have developed over time, expanding the symbolism and depth of meaning associated with each card. This provides a corpus for a large number of possible stories, making tarot a rich area of exploration for story generation. As a proof of concept, the Tarot-Based Narrative Generator (TBNG) was created by Anne Sullivan, Mirjam Palosaari Eladhari, and Michael Cook in 2018 (Sullivan et al., 2018).

The TBNG system is built as an interactive website. The design shows a Tarot spread (card layout) of five cards, with each act in a story denoted below each card. Some cards are upright, and others are reversed (upside-down), and they are displayed in that orientation. Below the cards is a section that shows a movie-style tagline as well as a story synopsis. The tagline and the story synopsis are both generated from a story framework using the meanings of the drawn cards. The interactor may draw a new card for any of the five locations or draw an entirely new spread.

To generate the stories, the system first chooses a story structure to fill in. Currently TBNG supports two types of stories: tragedy and comedy. Both story structures follow McKee's principles (Mckee, 1997), choosing a card for each of the 5 acts – Inciting Incident, Complication, Crisis, Climax, Resolution. For each act the card orientation is based on the chosen story structure, using Booker's plot frameworks (Booker, 2006) to inform the orientations for each of the story structure.

At this point, we invite you to try out the Tarot-Based Narrative Generator. Try generating a few stories and notice how the card layout changes for tragedies versus comedies. Change one card at a time and you can quickly get a sense of the expressive range of the generator.

Figure 5: A story of Comedy

The TBNG is a proof of concept, and as you have likely noticed from interacting with it, it is quite limited in its expressive range. The stories that are generated are very high-level, with an entire plot being described in a few sentences, which allows for a large amount of leniency in the story coherence. With only one sentence per act, there are large open areas for the interactor to be able to draw connections between the different card meanings. With additional story templates and structures, it could be useful as a creativity support tool, particularly in helping brainstorm new story ideas.

We invite you to generate a new storyline or two. Can you think of story plots that fit the structure provided by the Tarot-Based Narrative Generator?

As a proof of concept, there are many ways that the TBNG could be expanded upon. There are numerous tarot decks, each with different representations for each card. Even with the same tarot deck, there are multiple interpretations for each card, which could be used to add depth to the reading. The interpretations for each card are around a central concept, but there can be differences in range in terms of what they cover.

For instance, The Empress card has meanings that range from bearing children to reveling in luxury to getting things done. Looking at the cards layout as a whole and finding related meanings between the cards could improve the coherence of the presented story. Similarly, adding more spreads (card layouts) and story templates, particularly with more complexity, could improve the expressive range of the generator.

These changes, along with modifying the user interface to accommodate the more complex functionality could be used to create a more robust creativity support tool.

The New Normal

orchestrated playthroughs will become more complex. Instead, scholars must contend with interactors who may engage with designed experiences in ways their analysis does not support. In a sense, echoing Sicart (Sicart, 2011), the interactor might play against the scholar's analysis. This would be a change in line with the very nature of interactive digital artifacts. As has been argued (Murray, 1997), IDN creators are no longer the storytellers of old in complete control of the output but system builders (Koenitz & Eladhari, 2021) who have to be content with the perspective of observing with amazement what audiences will do with their creation (Koenitz, 2023). Scholars of IDN are now situated in the same position. And this is how it should be. As scholars, we should embrace this as the standard form of discourse not focused on a single product but rather an open process that encourages replay and re-engagement..

A New Frontier in Scholarship

With the launch of the first issue, we embark on a journey to uncharted territory and go boldly where few academic journals have gone before. As we seek new modes of engagement and analysis and a new form of intellectual artifact, we invite practitioners and scholars to join us. This journal marks the next frontier in IDN scholarship. To stay in Janet Murray's metaphor, we need to stop looking at videos. It's time to enter the Holodeck and experience it.

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