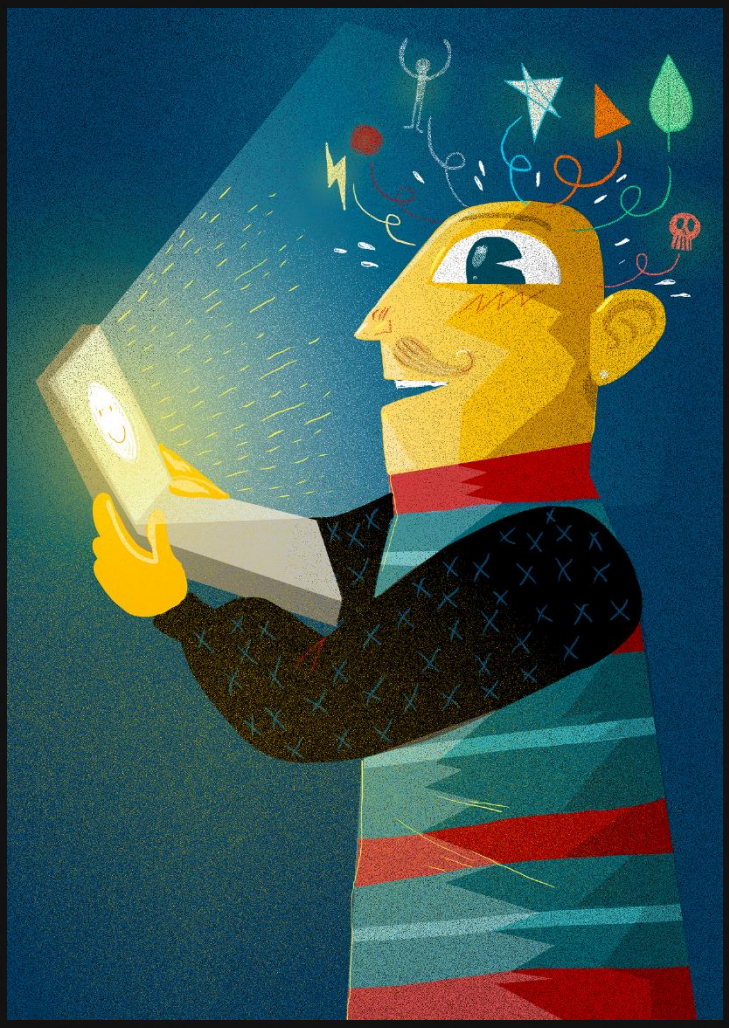
Game Environments



Untitled. Illustration by Gabriel Alayza Moncloa.

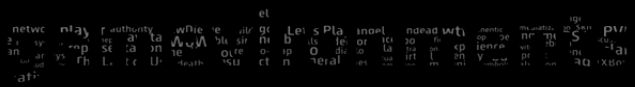
Special Issue

Revisiting Teaching and Games. Mapping out Ecosystems of Learning

edited by

Björn Berg Marklund, Jordan Loewen-Colón and Maria Saridaki

Issue 15 (2021)



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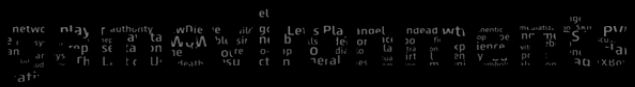

Report

The Unlucky Hans. The Difficulties of Adapting Fairy Tales as Text-Based Games for Young Readers

Michael Schlauch

Abstract
There is a vast amount of children's literature in the public domain that could be adapted for the purpose of game-based learning and reading. Here I recount my attempt to design a text-based game based on the popular fairy tale *Hans in luck,* with the purpose to improve children's engagement with text in primary school. Using the open-source tool *Twine* (2021), I made an interactive hypertext version of the story. Unfortunately, play-tests with children revealed that they found the interactive story to be little engaging and too predictable. I illustrate what design decisions may have contributed to this failure and discuss the drawbacks of converting existing literary works to an interactive format.

Keywords: Text-Based Games, Teaching, Learning, Fairy Tales, Pedagogy, gamevironments

To cite this article: Schlauch, M. 2021. The Unlucky Hans. The Difficulties of Adapting Fairy Tales as Text-Based Games for Young Readers. gamevironments 15, 351-361. Available at http://www.gamevironments.uni-bremen.de.

Game-based learning is often acclaimed as a more engaging and motivating experience than conventional self-study and reading (Gee 2005, De Castell 2011). This short paper describes an exploratory project I conducted at the beginning of my PhD research in 2020. My initial focus was to find new ways of bridging formal reading in primary school with children's engagement with digital texts and games outside school. I intended to explore the possibility of transforming existing children's literature and classic fairy tales into interactive text-based games. As many classic

fairy tales and children's literature are in the public domain, I deemed it worthwhile to make use of a set of openly available and pedagogically relevant stories. On the one hand, there are already many apps and online solutions, i.e., *Epic!* (2013), *uKloo* (2013), *Bookout* (2017), that promise to entice young children to read by providing an additional gamification layer with extrinsic incentives like rewards, badges and levels based on reading progress. On the other hand, this work examines the idea of augmenting the reading experience through the expressive affordances of the interactive narrative itself. In what follows, I review the adaptation of one particular fairy tale *Hans in luck* into an interactive text-based game. Originally, the testing was planned to be set in a 3rd grade of a primary school in South Tyrol, Italy, which uses German as the main language of instruction. Due to the COVID-19 crisis, the game has been tested with individual children on a voluntary basis, most prominently with my own then 8-year-old son. Based on the partial failure of the experiment, some general design propositions can be drawn from it and taken into consideration when game-based versions are to be adapted from existing literary works.

Design Intention and Process

For the design experiment, I decided to use *Twine* (2021) as a development tool. *Twine* is an open-source tool for telling interactive, nonlinear stories that are published in a versatile HTML format that works on most browsers and operating systems. Thanks to its graphical user interface, it is possible to create stories without prior coding knowledge. This makes it one of the more accessible tools for practitioners, teachers and media educators. During the last decade, a wide community of independent artists and game developers has been using *Twine* as a tool of personal expression, sparking what has become to be known as the "Twine revolution" (Harvey 2014).

In this case at hand, I adapted children literature following an interactive digital story format that resembles early hypertext fiction. In other words, I only focused on the multisequential, nonlinear story structure as the main novelty added to the original literary work. At the same time, the hypertext only contains graphic illustrations by R. Anning Bell from the original work (see figure 1). No other resources like animations or sounds have been added.

Figure 1. Illustrated story segment (lexia) with two options: acceptance or rejection of offer. Illustration by R. Anning Bell, public domain.

My main focus on interactivity stems from various theoretical claims. According to volition theory (Keller 2008), children are able to move from initial motivation to sustained effort depending on their ability of using the will, i.e., volition. Often, designers of self-directed learning environments underestimate the importance of maintaining goal-oriented behavior; for children it requires effort to continue to read despite discouragement and attrition. Therefore, as motivation stimulates initial interest and curiosity, we can consider volition as another mediating factor that contributes to the success of learning interactions. By requiring the reader to click on options that advance the story, interactivity functions as a call for action that reminds children of their intention to explore the narrative. This gave reason for the hypothesis that interactive elements like story-related links can provide volitional support to young readers and learners.

In a similar vein, current research on storybook apps distinguishes between two kinds of interactivity. There is interactivity that increases distraction and cognitive load. On the other side, "literary interactivity" (Bus, Sar and Takacs 2019, 53) maintains the integrity of the narrative and is intertwined with the story. As Smeets and Bus (2015, 901) summarize, "research conducted so far has provided us with several 'dos' and 'don'ts' for developing interactive e-books," defining beneficial interactivity as functionality that must be congruent with the story and should not add extraneous information. In a meta-analysis of studies on the effects of technology-enhanced stories (Takacs, Swart and Bus 2015, 29), "multimedia features," i.e., the inclusion of animated illustrations and sound effects appear to facilitate story comprehension among children. But many of the interactive elements prevalent in early storybook apps, like *hotspots* and ancillary games, were detrimental. Taking this into

consideration, I undertook the design choice to concentrate on the addition of narrative paths to choose from, as opposed to other kinds of interactivity, to retain focus on the content in a more engaging manner.

I selected classic children literature based on aspects of content and ease of technical adaptation. Most works in the public domain date back to almost a century ago. Content-related issues with the selection of stories concern the way minorities are represented or outdated gender models are portrayed. On the technical side, the complexity of branching narratives tends to increase exponentially with the number of available choices. The challenge is to implement multilinear stories while also minimizing the amount of alternative story lines to be conceptualized. Accordingly, the first choice fell on the original Grimm fairy tale *Hans in luck* because it comprises many moments where the protagonist himself is required to make a decision. In the original fairy tale, the protagonist accepts all offers and, in doing so, loses all his initial wealth. An easy procedure of creating an interactive version of the story consisted in adding narrative paths for the rejection of these offers. To reduce complexity and the amount of rewriting, however, the alternative paths lead back to the main story path (see figure 2).

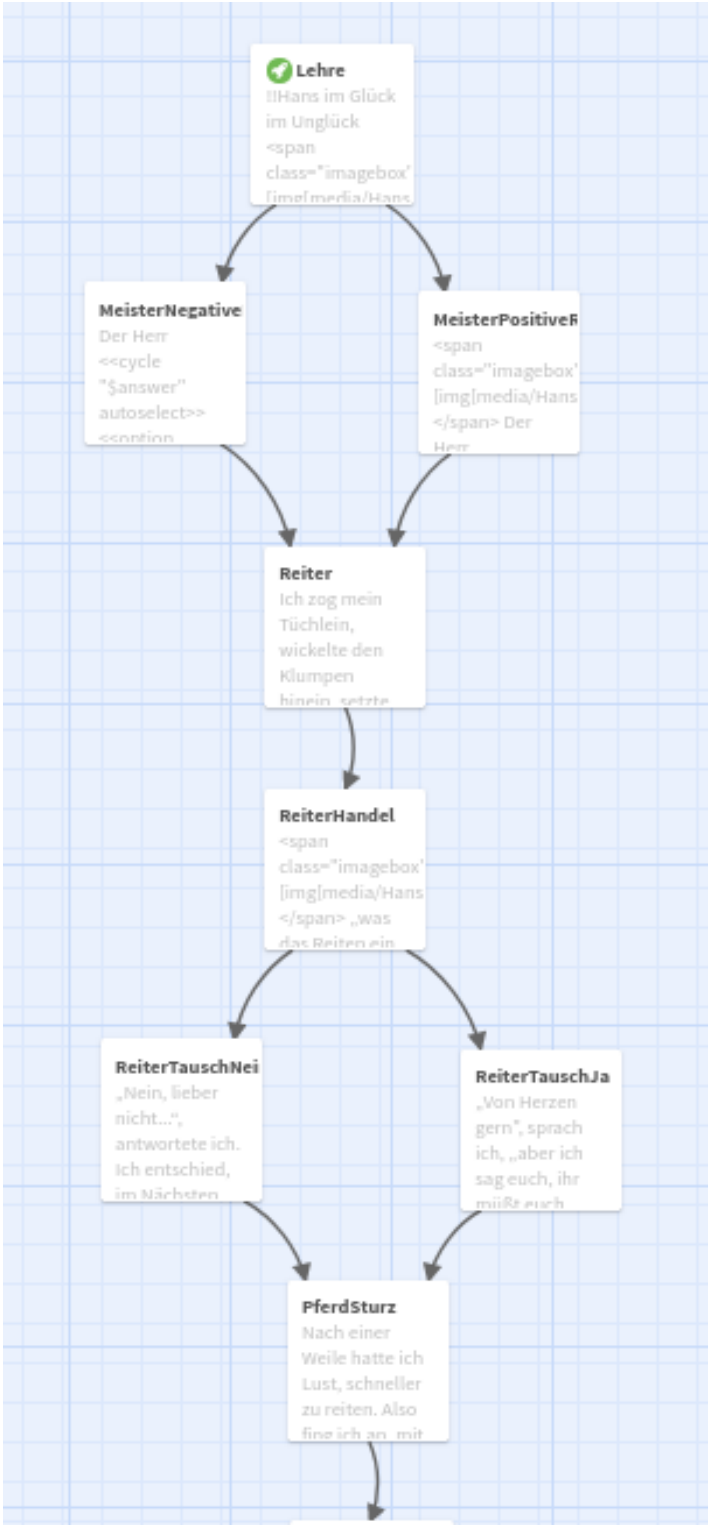

Figure 2. Part of the story structure viewed in *Twine*, all branches immediately lead back to the main story line.

Story-wise, this implies that whenever Hans declines an offer a misfortune follows so that his wealth is reduced, nevertheless. Regarding the text, the original lines of Grimm's version were retained, but rewritten from the first-person perspective of the protagonist. Many early works of hypertext fiction, such as *Afternoon, a story* by Michael Joyce (1990), share this characteristic.

Results

Unfortunately, the project did not exceed the pilot-testing stage. Children either lost interest halfway through the story or began to skip long portions of text. To illustrate this, we look at an exemplary play-through by an eight-year-old child that was video recorded while I took observatory notes. The total play-through had a duration of 23 minutes. The participant consistently chose the alternative option which has been added, where Hans declines the offers made to him but then incrementally loses wealth through unfortunate events. Yet, at minute eleven, the motivation to continue significantly declined, as the participant complained saying that the story is boring and that they already knew it. On the next story segments (i.e., lexias), the participant tended to click on links without reading any text beforehand. The debriefing revealed that the child at this point had recognized the recurrent pattern of decline/misfortune and found the story to be entirely predictable. The *Twine*-story about the lucky/unlucky Hans contains about 1920 words divided up into 23 passages, so that each passage contained 80-130 words. The participant was able to autonomously navigate and explore the nonlinear narrative. Nonetheless, this type of volitional support was not enough to compensate for the decline in interest and motivation as the story structure became too predictable.

Thus, the outcome of the experiment challenges some of the design decisions I outlined. First, interactive options do not necessarily have to coincide with decisions the protagonist takes. Another example of multisequential narratives are kaleidoscopic narratives as described by (Murray 2016). Here, an otherwise unchanged story is made interactive by letting the user choose to experience parts of it from different perspectives which reveal different sets of information. Second, in a reading research context, navigating hypertext fiction is often discussed for its potential to cause cognitive overload and confusion (Mangen and van der Weel 2017). As this experiment shows, the contrary, i.e., boredom and unfulfilled expectations about narrative choices can also be the origin of an inferior user experience. Third, the original idea of taking available literary works as a springboard to reduce the cost and effort of producing text-based games has been seriously challenged.

Conclusion

On a positive note, *Twine* has turned out to be an accessible tool for quickly developing branching text-based interactive narratives. Also, the failed experiment did not necessarily disprove the theoretical assumptions about volition and literary interactivity. Rather, it shows that creating an engaging user experience through textual interactivity alone proves to be more difficult than expected. More meaningful narrative choices are necessary. In consequence, more thorough changes must be made to the original linear narrative. What I also did not consider is that the inclusion of narrative choices modifies the reader's perceived distance to the story. The narrative perspective shifts from third to first person, as the reader identifies more with the protagonist. For classical literary genres like fairy tales, this transition can result in the meaning or moral of the story to be altered. For example, some story

outcomes, such as Hans being happy after a mixed set of events (exchanges and misfortunes), contrast with the clarity of the original message of the fairy tale. Although this might be useful for stimulating literary reflection and classroom discussions, it did not make the interactive narrative more accessible. In sum, for interactive narratives to be enticing, the effort and complexity of transforming a work that was originally intended to function well as a linear narrative may exceed the amount of work required to create a multilinear, interactive narrative story structure from scratch. While I have intentionally abstained from adding graphical elements that exceed what was contained in the original black and white print publication, the design of a digital interactive story warrants the opportunity to add multimodal resources (colored pictures and animations, sound effects, voices) that are able to convey meanings in a more efficient manner. Importantly, this allows for literary interactivity to act on different layers. This way, user decisions would have influenced not only the subsequent text, but also images, sound etc. As a major lesson learnt from this design experiment, the creative process of interactive storytelling requires much more attention than previously envisioned. Therefore, the focus of my PhD project has shifted from transforming existing stories towards facilitating digital storytelling with children through interactive media.

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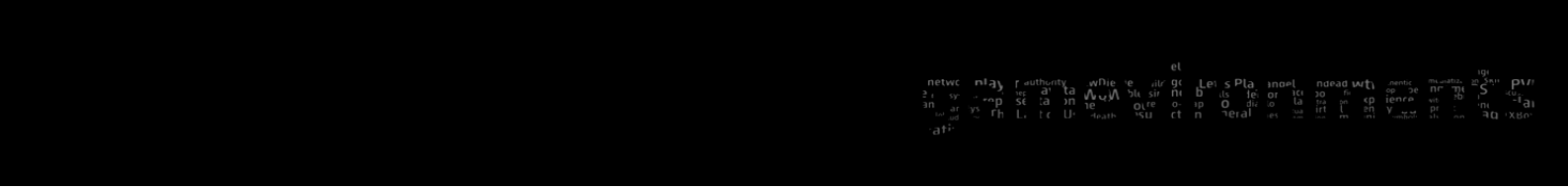

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