

# The Genarrator Authoring Experience: A UX evaluation approach

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## ABSTRACT

The Genarrator platform provides a user-friendly visual interface toolset for the creation and hosting of interactive hypertext multimedia stories. Launched in 2010 as free-to-use online tool, it currently hosts more than 1300 working narratives. While there is existing research on the reader experience with this kind of technology and the narratives it offers, comparatively little is known about the author experience. We previously conducted an online survey involving 24 interactive narrative design students who had used Genarrator for an assignment as an initial approach to receive constructive feedback about the tool from people who had genuinely used it before. Wanting to explore further input from authors and understand on a deeper level the experience that Genarrator offers for narrative authors we decided to conduct a small usability test study with narrative design students who previously provided feedback on the tool, and further employ observations, interviews, and analysis of their stories to understand their overall experience. We conclude that our user experience approach, albeit small, allowed us to observe realistically how authors use Genarrator and recognise conceptual differences between how we as tool creators see the tool and how our participants as authors view it as users.

## Keywords

Interactive digital narratives; interactive storytelling; user experience; usability test; authoring tools; hypertext

## 1. INTRODUCTION

Genarrator (genarrator.org as of 9/7/23) is a free-to-use and free-to-publish online hypertext authoring and publishing tool and it is offered via standard internet browsers. It was conceived and developed by James Pope and launched in 2010 following a ‘proof of concept’ project with Year 10 students in a Dorset secondary school [1]. It enables authors to create interactive multimedia and branching-path narratives, via a visual interface, initially loosely modelled on PowerPoint so as to be easily understood by ‘non-technical’ authors. Genarrator was designed and later redeveloped on the basis of reader response research with a range of Interactive Digital Narrative (IDN) examples and a diverse selection of readers in addition to ongoing use in education and community settings [2-5].

The Genarrator site now currently hosts around 1300 completed narratives. Genarrator offers text and media-asset organisation tools (e.g., image placement, layering and sizing), a hyper-linking system, and a dynamic map function which allows authors to continually view and organise the linked-slide (node) structure of their narrative (see fig. 2). It also allows authors to control ‘plot’ via a functionality called ‘display rules’ which hides/reveals narrative items or screens (sometimes referred to as slides)

accordingly, as the end-reader completes pre-requisite phases of the narrative. Media assets produced outside of Genarrator, in for example Photoshop, are readily imported into and stored in Genarrator, and many design and editing tasks can be carried out online within Genarrator, with all completed narratives published and curated on the Genarrator website’s homepage (see fig.1).

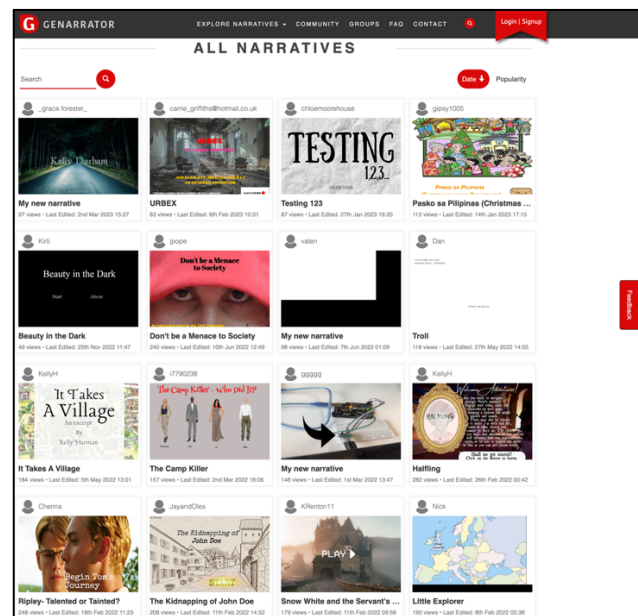


Figure 1 - Genarrator ‘view all narratives’ homepage

Like many IDN tools, Genarrator is an authoring tool lacking any formal user experience (UX) evaluation [6-9]. There is a significant gap in our understanding of this, and we wanted to take a small step forward in conducting a small-scale evaluation using Genarrator, since it has been used in higher education and in community settings since 2010 and has produced around 1300 fully functioning IDNs. As this was our first such UX evaluation for Genarrator we wanted to start small and base our approach on Nielsen’s advice on discovering faults in a system [10]. Thus, we used a small number of people as a steppingstone for approaching the improvement of Genarrator by employing UX methodologies and incorporating feedback from authors of the tool. We were inspired by a similar approach that proved effective in a previous study [8], and we considered that a usability evaluation of the tool with people who have used it before would help us understand the efficacy of the tool in supporting authorship, and the influence some of its particular design features and authoring paradigms may invoke during that authoring process: Genarrator uses, for example the concept of the narrative map, which displays the structure resulting from authoring decisions, rather than the

paradigm used by e.g. Twine<sup>1</sup> in which the map is the designing tool.

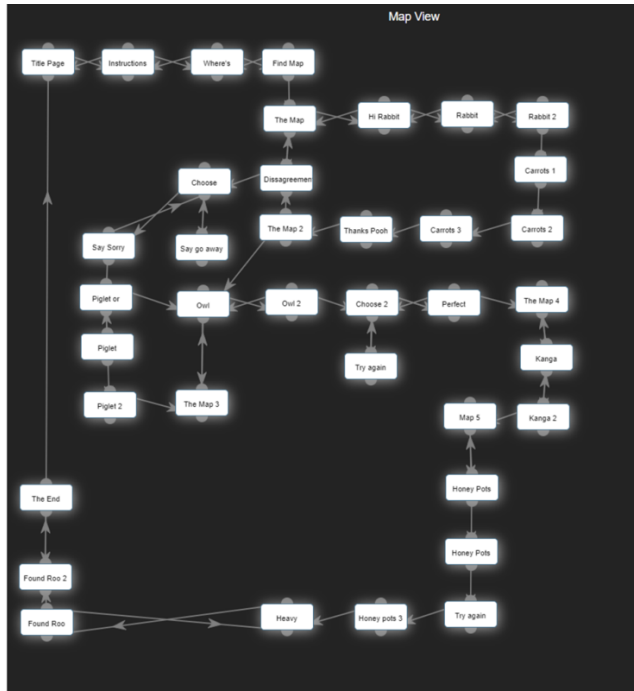


Figure 2 – example of a Genarrator narrative map

The main aim of this small study is therefore to test the possibilities of understanding an IDN tool by observing people who use it, as well as identify how the design of the Genarrator authoring system, with its various features and paradigms, impacts users' creativity and workflow.

The research objectives towards the above aim are:

1. To understand the author experience with Genarrator
2. To observe how authors exploit Genarrator to create their narrative.

## 2. AUTHORING TOOLS

IDN authorship can be supported by a range of tools which help authors to create content and define narrative logic [8]. The definition of what is an 'authoring tool' is a topic of some discussion in the community however, broadly speaking, applications designed to assist in the creation of IDN works can be considered authoring tools [11]-[12]. This includes a range of proprietary and community tools such as Twine, Inform 7<sup>2</sup>, Ink<sup>3</sup>, and StorySpace<sup>4</sup>, as well as academic research prototypes such as ASAPs, StoryPlaces, IDTension, and many others [13-16]. Authoring tools adopt a range of visual and structural paradigms in their design, and while the nodal story map as seen in such

tools as Twine, StorySpace, Genarrator, is the most common, we also see domain specific languages such as in Inform 7 and faceted approaches such as in StoryPlaces.

Authoring tools are a critical part of the wider framework of IDN practice and technology [17]. Their accessibility and performance in use can influence who works in the medium, and their interface and in-platform features can influence the author and consequently the structure and content of the resulting works. In the case of Genarrator, the *raison d'être* of creating the platform in the first place was to open up the field of IDN to English and Media Studies students, as well as young people we would work with in the local community, who might well be interested in digital creative writing, but who would not know code or indeed be at all familiar with the opportunities and attendant challenges of interactive narrative writing and reading.

Another driver for the design of Genarrator was the belief that the opportunities afforded by the technology might be missed because of the perceived and real obstacles created by that very same technology. What might look attractive and appealing to a writer with some experience of interactive media might look daunting and off-putting to a writer with little or no digital media know-how.

However, despite the significance of the authoring tool's conceptual models and functionalities to the process and product, most authoring tools do not present published UX evaluations from which we might learn how they support authors or affect their practice.

A majority of IDN tools are only evaluated in the sense of discussing and/or analysing examples of works created in the tools, or the experience of the 'reader' (where 'reading' includes listening, watching, playing, choosing and so on [6]). This focus on the reader experience over the author experience is seen in many studies, from 'classic' hypertext studies, e.g. Miall in [18] to more recent works such as those by Revi and O'Flynn [19]- [20]. Where author evaluations do exist, they are often limited to informal collaborations with authors that fall short of rigorous evaluation [21]; or limited quantitative studies that do not fully explore the experience [22]; or a focus on forms rather than the authoring tools themselves [23]. This is not to say that full rigorous evaluations of the author experience never happen: Engstrom's work with Deig in [24] and Poulakos' work with SWB [25] describe detailed studies of the author experience, but studies of this type are the exception.

There are several potential explanations for this issue. Reader experience remains an important part of IDN research, and readers are both easier to recruit and potentially easier to work with [26]. Furthermore, existing established UX methods such as task-centric usability studies as seen in [27] raise challenges for authoring tool evaluation where representative tasks are hard to identify and even harder to execute within a study. While longitudinal works such as Engstrom's are commendable it is important to remember the need for pragmatic UX methods, and relying on high-cost difficult methods will inhibit research [26]-[27]. As Greenburg and Buxton say in [27], there is a need for bespoke methods suited to the tools in question away from methodological dogma. So, for this paper we employed a bespoke approach which took advantage of access to many digital storytellers who had completed sizeable projects using Genarrator. Clearly, with c.1300 narratives on the platform's site, a much larger survey and investigation *could* be carried out, but that would be subject to the usual constraints of time and funding. For

<sup>1</sup> Hypertext branching IDN tool: <https://twinery.org/>

<sup>2</sup> Conversational parser based IDN tool: <https://ganelson.github.io/inform-website/>

<sup>3</sup> Narrative scripting IDN tool: <https://www.inkstudios.com/ink/>

<sup>4</sup> Hypertext fiction IDN tool: <http://www.eastgate.com/storyspace/index.html>

now, our approach is logical, practicable and contained enough to serve as an inspiration to conduct more elaborate studies in the future.

### 3. METHODOLOGY

During academic year 2021-22, undergraduate students who were taking the 'New Media Narrative' course, and postgraduates who were taking the 'Interactive Storytelling' course at Bournemouth University, who all had experience with Genarrator and had completed a project using it, were emailed with a survey link on Genarrator to answer some questions about their experience authoring with the tool. 24 students completed and returned the questionnaire. Following that survey, to further explore its findings, later in 2022 we undertook a task-based usability test of the Genarrator authoring tool. This study was approved by Bournemouth University ethics board (Ethics ID: 43988). Calls for participants were disseminated personally via email to students who had previously taken a creative writing course, completed the survey and used Genarrator to write a complete story.

All participants were initially provided with an information sheet that explained the details of the study, why they were contacted and what the study was looking to achieve. If participants decided they wanted to continue, they were allocated a 1 hour and 30-minute slot upon agreement, to attend an online usability test and follow-up interview via a Microsoft Teams call. Participants who agreed to proceed with the study were provided with a consent form to sign prior to beginning the test. Once consent was granted, arrangements were made for the online meetings which took the form of moderated usability tests. On the day, the participants were briefly introduced to a part-completed story and were tasked with continuing that story. As all participants were already familiar with Genarrator, no introductions with the tool were commenced prior. The participants were given an hour to experiment with the tool and continue writing the part-completed story, which was an adaptation of the classic Grimm fairy tale 'Hansel and Gretel'. This approach of having participants finish a prepared story has been used previously with success [8] and permits an evaluation of an authoring tool without the extended longitudinal effort of the author writing an entire story from scratch, while also ensuring the author engages in more than the limited set up activities of a cold start. During the task the first author/researcher was present as an observer and made notes on the process without interfering with the author's task unless to answer any questions the authors had while authoring.

Following the usability test exercise, a 30-minute semi-structured interview followed in which we inquired about the participants' experience with Genarrator. Interview questions were framed in such a way that would enable a collection of information relevant to the participants' overall experience. The top-level questions reflect the research objectives as set out in the introduction to this paper and were common across all the interviews (although the conversation was allowed to deviate from these to explore the participants' perspectives). They therefore included questions to:

- establish the authors' overall response to the authoring tool within the context of this exercise
- understand authors' creative process while using Genarrator, and what obstacles or benefits Genarrator afforded

The scale of this study is relatively small however, we purposefully took the approach demonstrated by Nielsen and Molich, who claim that an ideal number to conduct individual evaluations for a study such as ours is between three to five people, as greater numbers have been shown to be no more effective in showing a system's issues [10]. Thus, we recruited 4 authors and observed them while trying to complete the story of 'Hansel & Gretel' with Genarrator.

### 4. ANALYSIS

We are aware of the risk of what Silverman calls 'anecdotalism', the use of a few carefully selected extracts to 'prove' an argument [28]. The nature of this study is such that there was no argument to pursue or hypothesis to defend, rather questions for which we gathered evidence towards answers. The study was therefore inductive insofar as the researchers had objectives they wished to meet, and to that end the data has been *examined*, rather than utilised in the service of a preferred view or set of views. Since the conception of Genarrator and after years of usage, we had not approached evaluating the tool with real users before until the survey we circulated back in 2021.

Before the usability exercise, participants had not used another digital storytelling platform to any significant extent. Twine, Unity, Inkle and Klynt had been tried in a limited form, but Genarrator was the only tool they had used to create a complete IDN. In addition, none of the participants had a sustainable level of programming skills. Those who had a brief introduction to programming languages, admitted they did not inherit any practical skills further from using them once or twice for specific projects. As creative writing students, our participants were experientially not highly technical, however all encountered the tool previously and made use of an extensive range of features dictated by their writing assignment at the time.

Our first objective was: **To understand the general authoring experience with Genarrator.**

Perhaps because of their prior experience with Genarrator all participants eased into the tool relatively quickly. They all seamlessly navigated the tool to explore the narrative that was assigned to them for completion and very quickly started to work on it further. General observations gathered while authors were working on the narrative were that all participants were confident to use the tool aside from one participant who needed a bit of time to refresh their mind on navigating around. We were surprised to observe one participant who was confident enough with the use of the tool to anticipate where the tool was hindering their work with glitches. The participant was well trained to work around bugs without second guessing.

We also noticed a strong focus on the narrative text, fonts, sizes and other stylish components, from participants who relied less on testing the functionality of the narrative in terms of how their pages and the connections between them worked. This might have been because the participants leaned on the creative writing spectrum rather than a more technical spectrum. For example, P2 explained: *"coming on this course as a creative writer, it was really important that the story was strong. So, I wrote the story first, or at least you know the first part of it and then once I got the story together written out in Word, then I sort of transferred it across with the different elements"*. P1 further suggested: *"I would have felt very agonised with just plain text, I think one thing that would have helped a lot of people is would be the ability to make*

artwork in Genarrator like how you know in Word you can draw a shape or you can use a highlighter tool or a pen or a pencil, or like MS paint stuff like that..."

This was further proved by the lack of utilisation of the tool's display rules or the attached narrative map seen in figure 2 above.

Based on classroom observation and student assignment submissions prior to this research, we initially anticipated that every user would have employed the map to help them visualise and organise their narrative structure, however this exercise has clearly provided us with a different picture. Aside from trying to figure out the structure of the narrative that was set by the researcher who wrote the first half of the story, participants explained that the inability to interact with the map and dynamically change the narrative structure from there, rendered the map somewhat unnecessary. For example: "I know that there's the map view in Genarrator but that's not, you don't exactly edit your stories on that, it's just a representation of the links, whereas in Twine you can use that as the interface to build your story." – P1

This is also relevant to our second objective: **To observe how authors exploit Genarrator to create their narrative.**

P2 said: "I looked at it [Genarrator map] and it made me a bit more confused, so I went back, and I went along the bottom to see which bit linked towards [what]."

P4 on the other hand understood the map's function but felt it wasn't reliable (possibly a glitch). Both P3 and P4 suggested that the map was primarily a reactive function and would be better if it could be used as a design tool as well as a visualisation tool, thus agreeing with P1's suggestion stated above.

Additionally on the use of the display rules, albeit everyone having been introduced to it and in fact used it on some level, it seemed as though it was something unknown to all participants until they were interviewed after the usability exercise and asked about it. P1 had been aware of this function but had not used it, instead finding another (albeit much more time costly) method of creating alternative outcomes to users' choices: "We just started working on Genarrator and you know, it just kind of got lost while we were figuring out all the other stuff... Yeah, I think we gotta brute force the stuff that we want to do, and I think with maybe display rules would have been easier. It just wasn't something we thought about." - P1

P2 and P4 were entirely unaware of the function. At this point, we might conclude that inadequate in-class instruction, plus the lack of on-site tutorials leads users to ignore or be unaware of a useful feature in a tool. Kitromili et al in [29] refer to this as a situation of 'Known Unknowns' and 'Unknown Unknowns' for the lack of an authoring tool's documentation to convey clear and exhaustive information on the use of the tool and what it allows people to do. A strong indication of how that applies to our tool is mentioned here by P3: "It's kind of a bit unclear if you didn't know, so that would probably be my feedback is that if it's not already on Genarrator, maybe an explanation as to what display rules are, would be useful, but it may be already on there, as I say, I don't know." Here we see a case of 'Known Unknowns', where the participant recognises a feature of the tool, but the tool does not make evident how that function works or where the documentation for that function is. What this also means is that Genarrator narratives may tend to be less interactive and more linear than they might have been if users were fully aware of the display rules functionality. The Genarrator FAQ page

(<https://genarrator.org/faq>) does have a short explanation of display rules, and a video demonstration was provided to enrolled students, but it seems evident that a more visual and encouraging tutorial is needed: it will of course require further user evaluation to discover if this is sufficient to bring the functionality of display rules to users' attention, and if indeed the function is seen as helpful when it is employed.

## 5. CONCLUSION

In this paper we discussed via a small-scale usability evaluation the observations we gathered on the authoring experience of the IDN tool Genarrator. We have not here discussed how the compositional model and the various in-platform features influence the *kind* of narratives that are produced: that is in scope for further research. But we were surprised to learn that there was a lack of enthusiasm for some features in the tool that we considered an aid to the author, such as the map function, and the display rules. In the case of the map there was even a wish that it could be used as a composing tool, not just a structure depiction device. This mostly tells us that authors, even if they had previously used the tool before were not fully aware of its affordances.

Overall, we gathered many examples in the user evaluation where participants had difficulties we had not predicted before despite the age of the tool and its use. Perhaps the most valuable lesson here, is that we underestimated our understanding of how Genarrator is perceived and used by actual people. Here we have tested with a small number of authors who were introduced to the tool via their academic courses. We are now wary that recruiting a slightly greater number of people that have self-discovered the tool, as opposed to students who have been taught how to use it, will likely allow us to uncover different results however, we consider that this exercise and any similar exercises to this one, that focus entirely on the use of the tool and less so on the mechanics of it, is likely to offer more insights on the communication problem between person and machine and indeed the overarching 'authoring problem'.

Having gone through this exercise, we realise being guilty of not implementing this before ourselves, how important employing proper user experience research methods in testing technical tools made for creative purposes is, in the IDN discipline. This is especially true when their mere reason for existing is to offer that non-technical approach to creative people. We hope that with this small piece of work we can influence colleagues to investigate an amalgamation of UX with IDN research and open a discussion on the need for new or existing UX methodologies that can support IDN creation going forward.

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