Locative Authoring: Evaluating the StoryPlaces Authoring Tool

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Abstract. Locative Narrative is a form of Interactive Digital Narrative (IDN) where the readers' location and movement are the main form of interaction. The StoryPlaces platform provides a general toolset for the creation and delivery of these location aware stories. However, while there is existing research on the reader experience with this technology, comparatively little is known about the author experience. We recruited five interactive narrative design students to participate in a usability test of the StoryPlaces pattern-based authoring tool, using observations, interviews, and analysis of their stories to understand their experience. We show that while participants superficially liked the interface of the StoryPlaces authoring tool, they had difficulty understanding the aspects that were less clearly visualised and struggled to test their creations. The patterns enabled them to add complex functionality easily but became a barrier if they wanted to deviate from them. Our findings mostly support Green's five principles of IDN authoring (on the value of visual metaphors and fast track testing), but suggests they need refinement as in application it was important to distinguish between the visualisation of different aspects of the story (location vs. logical structures), and that failure to properly visualise sometimes led to avoidance or displacement of activity rather than a drop in its quality.

Keywords: Interactive digital narratives, interactive storytelling, locative storytelling, user experience, usability test, authoring tools, sculptural hypertext

1 Introduction

Storyplaces[2] is a sculptural hypertext tool developed to explore the poetics of locative literature [1, 2]. Storyplaces allows authors to create narratives positioned in a real-world environment which readers read in-situ and must navigate physically via a location aware device (example screen shots in Figure 1). Authoring stories for locative systems is complex, authors must balance the needs of the story with interaction and agency all aligned with a real-world environment with its own opportunities and challenges [3]. Despite this complexity there is relatively little work exploring the

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experience of locative authors, and StoryPlaces, like many IDN tools, has an authoring tool lacking any formal User eXperience (UX) evaluation. Such evaluations help us to understand both the efficacy of the tools in supporting authorship and the impact of design paradigms, such as supported forms of interaction. StoryPlaces' particular pattern centric approach to authorship [1] means a formal evaluation can inform us of both the author experience and the impact of the pattern approach.

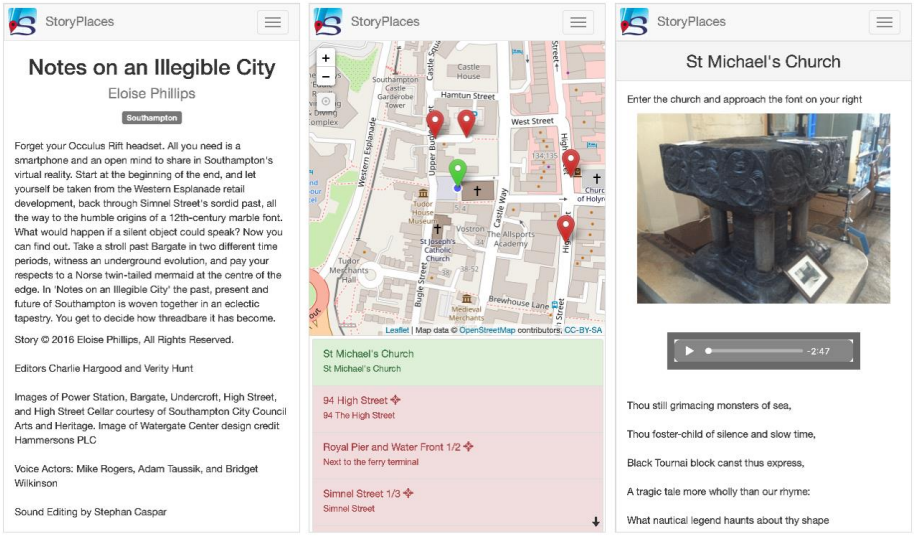

Figure 1 – A locative narrative presented in StoryPlaces where the reader must travel from place to place to explore the story.

The main aim of this paper is therefore to understand how the design of the StoryPlaces authoring system, and its pattern centric approach, impacts its users' intentions and their workflow. Additionally, Green [4] identified a list of five design principles relevant to IDN tools (Metaphor testing, Fast Track Testing, Structure, Experimentation, and Branching Interfaces) developed through empirical analysis of existing IDN authoring tools [5]. Through the study of StoryPlace's author experience we can extend our understanding of these principles and test them in the context of locative IDN systems.

As such we set out to answer the following questions:

1. What is the user experience of the StoryPlaces authoring tool?
2. What impact does the pattern-based design of StoryPlaces have on this experience?
3. Does the design of the tool impact this experience in line with the principles proposed in Green [4]?

To answer these questions, we undertook a qualitative task-based evaluation with five expert participants of the StoryPlaces authoring tool, using observations, interviews, and artefact analysis to create a picture of the authoring experience.

2 Background

2.1 Locative Narrative and IDN Authoring Tool Research

Locative Narrative (sometimes referred to as location-aware or location-based narrative) concerns storytelling works (and the systems that support them) where the content reflects the readers location, the reader travels to locations to interact with the IDN, and/or the story is designed to be read in the context of a specific location or category of place [3]. They can take a range of forms from intelligent tour guides [6], to cultural heritage installations [7], to mixed reality interactive experiences [8], to interactive locative games [9], and educational location centric experiences [10]. While these works make use of a variety of different technologies on top of the locative narrative, from Spierling's work with augmented reality [8], or Haahr's gameplay approach [9] there are common factors that unite the medium. Readers, typically using mobile devices, travel between locations where GPS, QR codes, or some other location detection allows them to access new content on the device designed to be read, viewed, or played with in place – either for diegetic reference (such as a tour guide specifically discussing the surroundings) or thematic relevance (such as a story designed to be read in a particular atmospheric context). Storyplaces [2] (as studied in this work) represents a significant step towards a generic platform with which to create and deliver a range of locative experiences.

IDN authorship is often supported by a range of tools which help to create content and define logic for the interactive story. The definition of what is an "authoring tool" is a topic of some discussion in the community [11,12], however broadly speaking applications designed to assist in the creation of IDN works can be considered authoring tools. This includes a range of proprietary and community tools such as the popular Twine [13], Inform 7 [14], Ink [15], and StorySpace [16], as well as academic research prototypes such as ASAPs [17], StoryPlaces [1, 2], IDTension [18], and Deig [19]. There are many others but documenting a full survey of all of them is beyond the scope of this paper. Authoring tools adopt a range of visual paradigms in their design, and while the nodal story graph as seen in Twine [13], StorySpace [16], and others is the most common, we also see domain specific languages such as in Inform 7 [14], and faceted approaches such as in StoryPlaces .

Authoring tools are a critical part of the wider framework of IDN practice and technology [20]. Their accessibility can influence who works in the medium, and their interface and design choices can influence the author [5] and consequently, the resulting works. However, despite this the majority of authoring tools do not present published UX evaluations from which we might learn how they support authors or affect their practice. A majority of tools, including Twine [13], StorySpace [16], ASAPs [17], Ink [15] and many others are only evaluated in the sense of presenting examples of works created in the tools, This is often due to a focus on the "reader experience" over the "author experience" with many works, such as those by Revi [21] and O'Flynn [22] focusing on the reader, and this includes existing evaluations of StoryPlaces [23]. Where author evaluations do exist, they are often limited to informal collaborations with authors [24, 25] that fall short of rigorous evaluation, or limited quantitative

studies that do not fully explore the experience [26], or a focus on forms rather than the authoring tools themselves [2]. This is not to say that full rigorous evaluations of the author experience never happen, Engstrom's work with Deig and Poulakos' work with SWB [27] describe detailed studies of the author experience, but these are the exception and only seen for a minority of tools.

There are a number of 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 [20]. Furthermore, existing established UX methods such as task centric usability studies [28] 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 [19] are commendable it is important to remember the need for pragmatic UX methods [28,29] and relying on high-cost difficult methods for our domain will be an inhibitor to research. As Greenburg and Buxton called for, there is a need for bespoke methods suited to the tools in question way from methodological dogma [30], and in this paper, we continue to develop our own approaches to pragmatic authoring tool evaluation.

2.2 Green's Principles

Green's principles of IDN Authoring Tool UX are based on empirical data gathered from user studies of author response to tools [5] and interfaces [1]. They can be summarised as follows:

- **Metaphor Testing** - Interfaces that use a visual metaphor to represent story structure and connectedness will result in less testing of non-complex stories.
- **Principle of Fast-Track Testing** - Letting users jump to any state of the story enables more rapid and focused testing sessions.
- **Principle of Structure** - Interfaces that use a visual metaphor to represent story structure and connectedness enable idiosyncratic organization and management of an author's own story structure
- **Principle of Experimentation** - Interfaces that use a visual metaphor to represent story structure and connectedness enable easier experimentation of structure and connectedness.
- **Principle of Branching** - Interfaces that use a visual metaphor to represent story structure and connectedness enable easier creation and management of branches.

Greens principles were originally validated with three traditional IDN authoring tools (Quest [31], Inform 7 [14], and articy:draft 3 [32]) as well as the Novella design [33], and our study will extend this to a locative authoring tool as well as seek to gather further evidence on the validity and specifics of these principles.

3 Methodology

We undertook a task-based usability test of the StoryPlaces authoring tool, gathering data through a qualitative observation and interview methodology supported by

descriptive quantitative data. The study was approved by Bournemouth University ethics board (Ethics ID: 43208).

Invitations were disseminated via an email advertisement and via word of mouth to game design students with IDN authorship experience. Participants who expressed interest were provided with an information sheet that explained the details of the study, what it hoped to achieve, what data would be collected, and how the data would be used. If participants decided they wanted to take part, they were allocated a 1 hour and 45-minute slot upon agreement to attend the usability test and follow up interview in Bournemouth University's Talbot Campus.

All participants were provided with a consent form to sign prior to beginning the test. Once consent was granted a fifteen-minute introduction to StoryPlaces was given, and the participants were introduced to their story and task. They were then given an hour to experiment with the tool and continue writing a preprepared part-completed story, an adaptation of the classic Grimm fairy tale *Hansel and Gretel*, which we geolocated within Talbot Woods, a woodland area near Bournemouth University. This approach of having participants finish a preprepared story that is started for them has been used previously with some success [5] 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 was present as an observer and made notes on the activity of the participants without intervention except to answer specific questions.

We purposefully sought to recruit participants local to Bournemouth and preferably familiar with certain parts of town for them to be able to attach familiar and feasible locations to their portion of the narrative. We did however provide the participants with a sample of coordinates from various locations and an image library for their use.

Following the usability test, a 30-minute semi-structured interview followed in which we inquired about the participants' experience with StoryPlaces. Interview questions were framed in such a way that would enable a collection of information relevant to the participants' overall experience while exposing how StoryPlaces confirmed or refuted the design principles identified by Green [4]. The top-level questions were common across all the interviews (although the conversation was allowed to deviate from these in order to explore the participants' perspective). They included a set of **Introduction** questions to act as an ice-breaker and establish the experience and skillset of the participant, a set of **Experience** questions focused on their way of working with the authoring tool, participants use and mastery of its functions, and their perspective on its positive and negative aspects, finally a set of **Post-Activity** questions exploring their reactions and reflections in terms of the story they had created, interest in further exploring the tool or medium, and any suggestions on changing the tool in the future. The stories that they created were also stored and later analysed to answer specific questions around interactive structure.

We limited ourselves to five participants and focused on in-depth qualitative analysis. Our scale of experiment is relatively small; however, we purposefully took the approach demonstrated by Nielsen and Molich [34], who claimed that an ideal number to conduct individual evaluations for a study such as ours is between three to

five people, as greater numbers have proven to be no more effective in showing a system's issues.

Further we focused our study on the experience of authors of using the tool rather than their abilities to use it. As such we sampled our participants to have general IDN experience with authoring tools, rather than ask for explicit knowledge of locative narratives. Their ability to create a "good locative narrative" was less relevant for us at this stage of our work than their ability to express story ideas in the tool and be comfortable enough to interact with the tool in a genuine capacity.

4 Analysis & Findings

A summary of the participant information is shown in Figure 2. In total we recruited 4 male and 1 female participant, all with previous experience in writing with tools such as Twine (branching hypertext) and Inform 7 (natural language parser based). In the following sections individual participants are identified with P1-5.

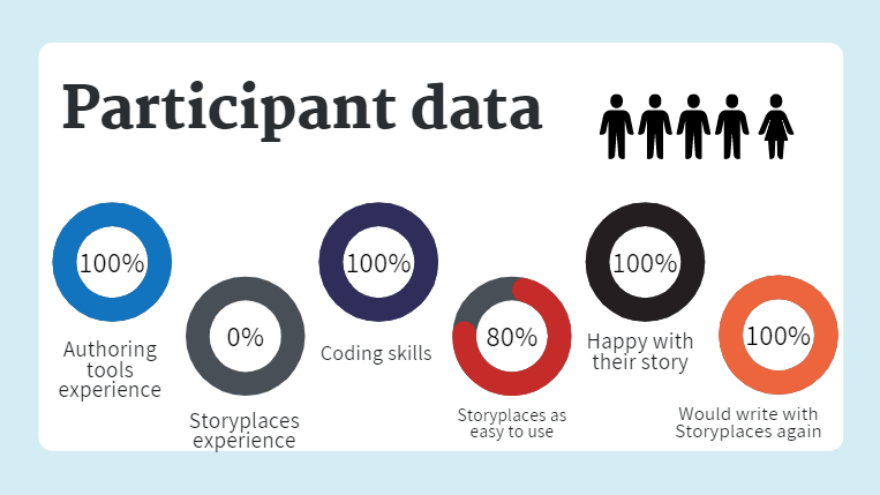

Figure 2 - Basic quantitative participant data

None of the participants had any experience with StoryPlaces but all participants had a basic level of coding skills. This was sufficient for them to grasp the constructs of variables, conditions, and functions within StoryPlaces:

"I have like brief knowledge on like programming or like coding but not like a whole lot, just enough to be able to logically plan how things work." - P1

All the participants superficially liked the interface and the approach taken by the tool:

"The UI is pretty simple... It's representing concepts and ideas like constraints and variables which is like, in my mind, is quite coding vibe, but it's like making it very user

friendly for people who obviously aren't very coding savvy.... It becomes like a visual thing, rather than writing a programming language. It's far more approachable. I am not very good at coding at all, but I understand a lot of concepts." - P5

4.1 The StoryPlaces User Experience

Our first research question is around the overall user experience of StoryPlaces and to answer this we undertook inductive coding of the interviews, shown in Table 1 (where *No. Participants* reflects the number of people who generated that code at least once). The issues mentioned fell broadly into three high level themes, positive aspects of the tool, negative aspects, and aspects that were felt to be missing.

Table 1 - StoryPlaces experience feedback

Themes	Feature	No. Participants
Positive concept	User interface	4
	Ease of use	2
	Browser accessibility	1
	Map	1
Negative concept	Non-intuitive navigation	3
	No Structure or Node Graphs	3
	No run-time testing	2
	No Documentation	2
Missing concept	Amendable content design (fonts, colours)	2
	Run-time testing or compiler	2
	Responsive map on pages	1
	Sorting function on components	1
	Search function on components	1
	Amendable system settings (mode)	1
	Time-consuming navigation	1
	Programming environment	1
	Non-directed pages	1
	Interactive dialogue	1

There were several **Positive Concepts**, and participants were overall pleased with the tools' interface, and happy with what they could achieve in the limited amount of time they were offered:

"The tool is a lot easier to use than I was expecting. With the whole drag and drop functions with the pins and stuff like that, it was very accurate with just the locations

which I really enjoyed and the UI (User Interface) and just like the general just interface of it is just nice." - P2

"Yeah, I think with how it turned out I was quite happy. I mean if I had longer and be able to work a bit more, I probably could have done bit more, but I'm quite glad with what I ended up with. I basically made it have a branching path essentially, which is kind of neat, different." - P4

Given the opportunity they would use StoryPlaces again:

"Yeah, I would have to like, have a story in mind that makes sense to use this tool for. Like it'd be really cool if I was doing like a historical thing that was set in, I don't know like the great fire of London and then you went around like London." - P3

However, some of this positivity may have come from the medium itself – locative storytelling – which was previously unknown to all the participants:

"Being able to just look at the location thing is…. It's like, oh this is where I am, you know… cause it's a fictional narrative based on everything you know. Having like little stories that go along, you know, even if you don't have the visuals of like the squirrel that I had. You might not have that visual, but you have enough material to be able to encourage the world that you're creating… This is unlike anything I've used to create before, which is quite interesting, right?" – P1

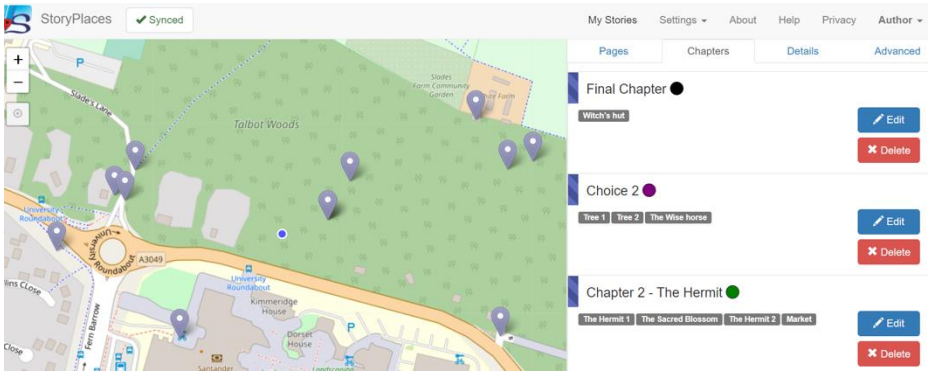

Figure 3 - The StoryPlaces Authoring Tool. The map component (left) visualises locations, and the chapter tab (right) visualises pages and chapters

Graphical views of the work were a key part of the **Negative Concepts** identified. StoryPlaces has a detailed graphical view of locations within the fiction, and it also shows a partial view of logical structure, but this is only the chapters of the story and the positions of the pages within those chapters (Figure 3 shows one of the participants stories loaded in the tool – with the graphical map on the left, and semi-graphical representation of chapters on the right). Previous work has shown that these graphical

aspects of Storyplaces do make it easier to achieve some tasks than in other tools [35], but these graphical aspects were not always sufficient for our participants. In particular StoryPlaces does not provide graphical visualisation of navigational paths between pages, or the links between rules and constraints that govern those paths (e.g., that a certain variable must be set in order to read this page). Visual graphs were something that most users commented on:

"I would like if I was gonna make like a big project I would need, some sort of visual representation of how the player can get from page to page… because once even with the three [pages] that I made I got really confused on being like go from here to there to here... 'cause if they're similar names [page names] I have to like keep it in my head." – P3

They also were behind negative comments around navigation, as the information was held in different panes and tabs, and participants were not always clear where to go to find particular elements.

Runtime testing was also identified as a shortcoming. StoryPlaces offers testing by launching a temporary copy of the story in reading mode. This means that to test the story's behaviour authors must read the story from beginning to end (or to the point they want to test) in order to experiment and make adjustments. This can be an arduous process depending on the size of the work and which points are being tested. For example, when looking for unplanned dead ends:

"I think if there's no nodes when it's not the end, I think like a sort of note saying 'there's no nodes here' either you haven't assigned the next node to appear either within the page itself or within the chapter it's in. … It's really hard to check up on those things, and that's something that I've experienced." – P4

Most of the **Missing Concepts** theme were around addressing these shortcomings, for example by introducing *run-time testing*, *logical maps*, *sorting and search*. Some of the things requested, such as *interactive dialogue*, are possible in StoryPlaces, but its focus on granular Storylets and a lack of visualisation of conditional structure make dialogs complex to author at any scale. Other additions would be genuinely new to the tool, such as *non-directed pages* (pages that don't show up on the map, so readers have to search for them), *content-design* options to enable different fonts and styles, and a *programming environment* that would enable conditional content within pages.

4.2 The Impact of Patterns on the User Experience

Our second research question is around the impact of the patterns embedded into the StoryPlaces tool. These are **Phases** (a way of scoping that enables for easy episodic structure such as Acts or Chapters – and is called Chapters in the tool), and **Unlocking** (a way of creating navigational paths in sculptural hypertext systems by unlocking new pages as old ones are read). Authors were told about these elements of the tool, but the task did not require them. By looking at their practice we are therefore able to identify

whether authors were embracing and understanding those patterns or whether they were resisting or avoiding them. In the remainder of the paper *observation* data is indicated by (O), *interview* data by (I), and *analysis* of the produced stories by (A).

Table 1 – Participants in favour of StoryPlaces patterns

Chapters & Unlocking	P1	P2	P3	P4	P5
Were new chapters created? (A)	✓	×	×	×	✓
Were old chapters evoked? (A)	✓	✓	×	✓	×
Has the unlocking pattern been used in pages or chapters? (A)	✓	✓	✓	✓	✓

The analysis revealed that all of the authors used the unlocking pattern, and all but one (P3) either used or extended the existing chapter structure. However, while most participants seemed keen to experiment with the tool, many were puzzled as to why their structures failed to respond the way they expected. This was often linked to the unlocking of chapters. It was easy for participants to grasp attaching unlocking constraints on pages and to chain them together (unlock them one after another) but when those pages were part of a chapter none of the participants thought to replicate those unlocking constraints on the chapter themselves (thus opening up a new stage of the story). When pages are within chapters, both need to be unlocked before a reader can see them.

The interviews also revealed that the structure that the patterns imposed was not always helpful to the users' specific goals and needs.

"How do I make this interesting? I'm like, OK, I could possibly test the users on their observation and like how engaged they are without disciplining them… I was thinking like how do I reward those who are observing more and getting like involved with their surroundings … how can I do this in a way that will help people progress without just giving them the answers and I was just like working that out whilst also having like this quiz thing. Being written out and getting that to work with the system was a bit difficult I guess." – P1

This fits the problem of *conceptual misalignment* between the expectations of the author and the affordances of a tool [36, 37], and suggests a general problem with embedding patterns in the interface [38] which gives certain structures a primacy that the author might not share.

4.3 The Storyplaces User Experience Against Green's Principles

As well as the user experience of StoryPlaces it was our intent to test whether our participants use of StoryPlaces reflects the design principles identified by Green in [4]. For each principle we drew on the observations, analysis, and the interviews to understand their behaviour with the tool and compared that behaviour against the predictions made by Green. Tables 2-7 show the evidence for this analysis.

Principle of Metaphor testing

Table 2 – Green's principle of Metaphor testing

Principle of Metaphor Testing	P1	P2	P3	P4	P5
How many times did they test during authoring? (O)	3	1	4	1	3

All participants tested their story at least once but only two of them during the writing stage of the task. The rest mostly tested at the beginning to see how the existing story worked before they modified it, or at the end to see whether what they did worked as planned.

Green's principle of metaphor testing states that having a visualisation of the story structure will result in less testing. StoryPlaces visualises locations, and some logical structure (chapters), but not any other logical structure (such as branches). In observation we noted that the participants who tested more frequently (P1, P3, P5) were the ones that tended to have more examples of these invisible logical structures.

We suspect that for P2 and P4 being able to visualise how pages were grouped in chapters was sufficient to reduce the amount of testing that they needed to conduct. We also note that the overall level of testing was low, but that this is probably a factor of the limited time participants had to complete their task.

Principle of Fast-track testing

Table 3 - Green et al.'s principle of Fast-Track Testing

Principle of Fast-Track Testing	P1	P2	P3	P4	P5
Have they asked for fast-track or current node testing? (I)	×	×	✓	✓	✓

The principle of fast-track testing states that letting users to jump to any story state will result in more rapid and focused testing. StoryPlaces does not have this function, and instead only allows stories to be tested from the beginning. Three of the participants asked for this feature (P3, P4, P5), so it was clearly missed. However, there was not a clear correlation between users who asked for the feature, and those that undertook multiple tests (Table 2). This indicates that the response to its absence ranges from perseverance to avoidance, and that in at least one case (P4) the reaction was not to have slower and less focused testing, but rather to simply reduce the amount of testing that was undertaken.

Principle of Structure

Table 4 - Green's principle of Structure

Principle of Structure	P1	P2	P3	P4	P5
Have they felt the need to invoke visual graphs for structure organisation? (I)	✓	×	✓	×	✓
Did they use an external representation of structure (O)	✓	×	×	×	✓

The principle of structure states that using a visual structure in the tool will allow idiosyncratic organisation by the author. Several of the participants (P1, P3, P5) suggested that visual graphs would be helpful during their creative process, and two of them (P1 and P5) requested a piece of paper and proceeded to use that to draw out and organise their story. This indicates that the principle is correct, but that the lack of visual structure does not necessarily lead to a lack of authorial structure, but rather the displacement of that activity to outside of the tool.

StoryPlaces does have a visualisation of chapters and pages, and colour codes pages to show their membership to different chapters, but this was clearly not sufficient to fulfil this principle. It could be the case that they were simply unfamiliar with this way of organising a story, but most participants directly mentioned graphs and one of the participants (P5) claimed that they use graphs for everything that they do, which implies that it is a desire for a specific kind of representation – one that matches their own mental model of their story.

Principle of Experimentation

Table 5 - Green's principle of Experimentation

Principle of Experimentation	P1	P2	P3	P4	P5
Have they created chapters and added pages to them? (A, O)	✓	×	×	×	✓
Did they experiment with advanced features? (O)	✓	×	✓	✓	✓
Did they reconfigure their structure during the task (O)	×	×	×	×	×

All participants were keen to experiment with the tool. Four of the participants wanted to test the advanced constructs on purpose merely to see what they could achieve. Even the participant that did not experiment with these features (P2) expressed that while they were satisfied with the basic functionality, they would invoke the advanced constructs if they really wanted to do something specific. However, this experimentation did not extend to the story or its structures. Only two of the participants created new structural elements (P1 and P5 who both created chapters), and none of the participants reconfigured their structure or tried out alternative arrangements. This supports Green's principle and indicates that the visualisation of logical structure within StoryPlaces is not sufficient.

Principle of Branching

Table 6 - Green's principle of Branching

Principle of Branching	P1	P2	P3	P4	P5
Were they confused about the creation of branches? (I)	×	×	×	×	×
Have they created branching pages or chapters? (A, O)	✓	×	✓	×	✓

The principle of branching states that if there is a visual representation of story structure then it is easier for users to create and manage branches (points of agency and divergence within the story). Participants did not seem to be struggling to create nodes

even with the lack of a visual metaphor, and all seemed to have been able to create a set of pages with unlocking behaviour to manage progression. However, while P1, P3, and P5 created explicit branches using the unlocking feature, P2 and P4 did not, and instead stuck to a linear structure, even though in the interview they stated that they were comfortable with how this could be done. P2 and P4 are the same participants that were also reserved in their use of structure (Table 4), so it is unclear whether this is because of the tool, or because of a personal preference for more linear or structurally simple experiences.

5 Conclusion

In this paper we have presented a focused UX study on the experience of authoring with the StoryPlaces locative storytelling tool. We examined the experience of five participants who were skilled working with interactive digital narrative, but novice to the tool, through a task-based evaluation with data gathered through observation and semi-structured interviews. We were aiming to create a picture of the overall user experience, explore how the patterns embedded into the authoring tool impacted on that experience, and to explore whether our findings reflected Green's five design principles (identified in [4]).

On the overall experience: our participants were able to use the tool and praised the clear user interface, especially around locations, but the other aspects of visualisation (the relationship between chapters and pages) were not seen as sufficient with participants calling for a visual representation of the logical structure that lies behind the story. In short, participants understood how to do specific things within the tool but struggled to fully understand their creation as it grew. Testing was also an issue, with StoryPlaces simple launch-from-start approach criticised as increasingly arduous as the story size and complexity grew. Most of the suggestions were based around correcting these shortcomings, but participants also wanted more control over the style and presentation of their story, as well as new functionality such as contextual content, and hidden pages.

Regarding the use of patterns within the tool: our participants were all able to successfully use unlocking to create navigational paths and were also able to use the chapter functionality to pace the story (although there was some confusion over the unlocking of pages, and the unlocking of their parent chapters – both need to be unlocked before a page is visible). However, the use of patterns means that the tool is strongly encouraging the author to use it in a particular way, and in some cases, we saw a clear *conceptual misalignment* between what the tool offered and what the author was trying to do. The effectiveness of the patterns thus rests on their alignment with the author's expectations and needs. When they align they are effective, but when they do not they can actually hinder the author from achieving their goals.

Finally, we looked at whether our analysis followed the five principles set out by Green [4]. The principles are mostly based around the visualisation used in a tool. Applying them to StoryPlaces was thus complicated by the fact that StoryPlaces breaks

its visualisation into different parts: a visualisation of the locations (which users found effective) and a partial visualisation of the logical structure in the form of the relationship between chapters and pages (that was less effective). Generally, we found that the principles held, but that we needed to distinguish between these two aspects (for example, participants who leant towards locative structure tested less frequently than those who leant towards a more complex logical structure). The principles all imply that the presence of one design phenomena leads to a given behaviour or experience - however from this study our understanding of this behaviour has become richer. For example, inability to jump to story states in testing does not necessarily lead to slower testing, it can also lead to the avoidance of testing. Similarly, the lack of a visualisation of the logical structure did not always lead to a lack of organisation, but instead to that organisation is redirected and occurring on paper alongside the digital tool. This implies that the principles can as a result of this study, and further studies, be refined to depict a broader set of resulting behaviour.

Our work provides an example evaluation of an authoring tool, specific suggestions for the next generation of locative authoring tools, lessons for integrating patterns into authoring tool interfaces, and a partial validation of Green's five principles. We hope that it will contribute to introducing more user-centric research methods in the understanding and improvement of IDN tools. IDN authoring is both an expert and expensive activity, yet with a relatively small set of users we have uncovered novel and actionable insights that have helped us understand how we can improve StoryPlaces and contributed to our theoretical understanding of authoring tools. We hope to inspire more tool creators to seek out users and authors and test their tools in this managed way. If we improve our tools based on the needs of authors, we can accelerate their evolution, and ultimately allow creative minds to exploit IDN beyond our own expectations.

6 References

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