Weird View: Interactive Multilinear Narratives and Real-Life Community Stories

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Abstract. This paper presents our experiences with Weird View, a multi-branching interactive narrative, harnessing the power of hyperlinked structures and oral storytelling. True stories were collected by word of mouth from inhabitants of a terrace of houses in Dublin, Ireland, and supplemented with video and photography to form a collection of narrative fragments. A computer application was built to allow the narratives to be navigated. In this way, Weird View attempts to capture part of the community folklore and represent it to the community in the form of an interactive, nonlinear narrative. The viewer is presented with the fact that a community exists and is continually formed, around place, time, life conditions and social networks. When shown to the community, the Weird View project resulted in awakening community awareness through reappropriation of local, social and personal stories.

Introduction

A common use of information technologies is to make spatial separation of individuals irrelevant and thereby allow the formation of communities across geographical boundaries. Such online communities, made possible through the increased adoption of information and communication technologies, have received a significant amount of attention. However, the same technologies can also be used to reinforce more traditional types of communities, often based in shared spatial and cultural contexts. Such communities have been formed and maintained through a number of mechanisms, among which is a shared body of tales and anecdotes and the art of storytelling. The Celtic seanchaithe, or folklore storytellers (from the Gaelic term seanchas, for lore, conversation or talk [6]) are a good example of this tradition.

Information and communication technologies have spawned a series of ‘new media,’ such as multimedia, game applications, and more recently, mobile and ubiquitous computing applications, that offer new ways of telling stories. These media challenge the authors who work with them to invent new types of stories that suit the specific characteristics of each medium. The relationship of these new
media to the ‘old media’ (such as fiction, drama and oral storytelling) is not so much one of replacement as supplement.

*Weird View* is a digital narrative informed by oral storytelling traditions and postmodern concepts of nonlinearity and interaction. It uses multi-branching interactive narrative and hyperlinked structures to re-present a body of true stories collected from a community of people living in the same geographical area and connected by a tight social network. When shown to the community, *Weird View* appeared to stimulate the recollection of more anecdotes and foster a sense of awareness and belonging among community members themselves.

This paper first discusses the narrative traditions that preceded – and have most strongly influenced – work on *Weird View*: oral storytelling and postmodern ideas of nonlinearity and interaction. We then introduce the Dublin community that is the subject of the project and describe how the digital narrative application was constructed in terms of collection and reconstruction of story fragments as well as interaction design. Next, we describe the community's response to the finished application and offer an informal assessment of the extent to which the community members achieved any increase in awareness of themselves as a community. The paper concludes with our reflections on the strengths and weaknesses of the process.

**From Traditional Forms of Narrative to Digital Interactive Narrative**

Every medium has its own methods and aesthetic principles for translating experience into stories. As a multilinear interactive narrative in the form of a multimedia application, the *Weird View* project has more influences than can feasibly be traced in a single paper. However, the work draws lessons particularly from two traditions: the oral storytelling and postmodern literary ideas. This section introduces these influences in turn and explains how they inform the *Weird View* project.

**Oral Storytelling**

Oral storytelling is a very fluid medium that gives the storyteller the ability to change and shape the story in real time [1]. The oral bardic tradition provides the teller with a set of rules starting at the level of the phrase up to the organisation of the story as a whole. The rules serve to ease memorisation and performance, such that every telling is different, depending on the audience, situation and the dramatic interpretation of the bard [8]. Both listeners and performers are aware of the different branching possibilities of the story, and this particular awareness creates dramatic tension in the performance. A similar tension exists in interactive narratives at the moment of the reader's choice [8].

Although bardic traditions are often associated with medieval Europe, there are also examples of surviving traditions like the Celtic *seanchaith* or storytellers. *Seanchaith* travel from place to place to collect and narrate stories of Irish folklore, or if based in a single location, draw people from the area to listen to their lore. The oral tradition is a fundamentally conservative art, aiming at transmitting information from generation to generation. As a figure, the *seanchaí* in many ways recalls the medieval bard, and played a particularly important role in Irish culture, because of the suitability of oral storytelling as a way of transferring and preserving cultural heritage especially during the English colonisation. Even in modern Ireland, the *seanchas* tradition is considered an important form of expression and is still very much alive [6].

**Nonlinearity and Interactive Narratives**

Postmodern theories of narrative altered assumptions about the relationship between author and reader and brought to the foreground the importance of the reader in the process of constructing meaning in
the text. Many postmodern texts are designed to take advantage of the reader's active role in making the work meaningful. One technique involves using nonlinear structures that readers navigate to put story elements in various orders themselves. When the writer includes multiple possibilities in the development of the plot (i.e., a multibranching structure), the reader plays an active role in shaping her own path through the story. The expression of the author in this case is evident in the overall structure of the work and in the design of the set of choices faced by the audience. ‘Rather than creating finished works, the interactive artist creates relationships’ which he or she is able to represent ‘in a functional way,’ David Rokeby argues in his essay ‘Transforming Mirrors’ [10].

The power of this expression is multiplied by the fact that the interactors themselves become referents of the work. [...] [I]nteractive artworks offer us the tools for constructing identities, our sense of ourselves in relation to the artwork, and by implication, in relation to the world. [10]

Artists working in the domain of digital interactive art are taking up the challenges raised by issues of subjectivity and control. The digital medium with its computational speed and power seems to offer creative possibilities in this context. An early example is the hyperlinked Internet novel by Geoff Ryman [12]. In his story, Ryman describes an epic London underground journey where the readers can explore the seven underground carriages and engage with the 253 passengers' internal thoughts and external appearances. In this work, readers are challenged to explore and engage with the hypertext in their own individual way. Each reader will have her own experience of the work depending on her journey through the hypertext, and the experience will reflect her choices, preferences and point of view in choosing which character to follow and which path to explore within in the collection of story fragments proposed by the author.

**Weird View: An Interactive Multilinear Narrative**

In its simplest form, Weird View is a multimedia application, which in terms of structure takes a similar approach to interactive narrative as the work of Ryman. Weird View is based on a real terrace of houses, called Weir View 1 to 20, located in Lucan, County Dublin, Ireland. True stories were collected locally by word of mouth and produced with multimedia tools, such as video, audio and animation, to form an ensemble of narrative fragments. Weird View allows readers to browse the collection of story fragments according to individual preferences. For example, readers can choose to follow an individual character or explore stories belonging to a given house. Hyperlinks also follow themes such as ‘Salmon’ or ‘Moving House.’ These themes transcend characters as well as individual houses, relating anecdotes about fishing and salmon poaching in the community, or how a few families dealt with the ‘trauma’ of moving house.

**Weird View** draws upon oral storytelling traditions in a number of ways. First, the stories were themselves collected by word of mouth, casting the community members in the role of storytellers and the Weird View authors as audience. When the finished application was presented to the community, the roles were reversed, i.e., the Weird View application (and thereby its authors) played the role of storytellers and the community members became the audience.

In terms of its construction, Weird View draws upon postmodern ideas of reader vs. writer control. The ‘story space’ constructed by the authors consists of a number of fragments connected by relationships. The authors construct the fragments and link them via relationships but have no control over the way in which a given reader chooses to navigate the collection of stories.

**Weir View: Community and Narratives**
Real stories from everyday life provide interesting content for narrative. They have a special appeal that comes from the fact that they are directly connected with reality, provide us with examples and inspiration for our lives and prompt us to remember anecdotes, memories and similar stories. The act of recollection itself links memories together in organic web structures that recall the nature of hyperlinked structure.

The Weir View Community

The Weir View houses were built around 1880 to provide homes for the workers of Hills' blanket and cloth mill in Lucan, County Dublin. Situated on the River Liffey, the houses overlook a weir from which the mill harnessed energy to drive the looms. The inhabitants distorted the name of their buildings to the affectionate ‘Weird View,’ which was borrowed for the title of the project. This self-contained community of people lived and worked together until Hills' closed in 1988. The community was always quite small, probably around a hundred members at most, not wealthy but never poor, due to their work and rental conditions. The houses were rented to the community members until the Hills closed their business, when the families living there had the opportunity to buy them from their landlord at very advantageous prices. Some of the homes have been with the same family for several generations while others have been sold to people from outside the community, raising comments such as: ‘The people living in house number 20 are newcomers; they have been there for only twenty years.’

Collecting and Reconstructing the Stories

The initial contact with the community was through William Stapleton, a Weir View resident whom Weird View authors Jo Briggs and Valentina Nisi knew before the start of the project. Through him, they got in contact with a few of the former and present residents, and some of them agreed to meet and talk about life in Weir View. The method of collection of the stories varied. Digital and analogue audio recorders, cameras and video cameras were very soon discarded as they not only inhibited the storytellers but also distracted their listeners from important cues such as glances, gestures, and voice variations in the context of the narration. Some of the collection was done with pen and paper or by listening to the stories and transcribing after the meeting. Nisi and Briggs let the people tell their stories without interfering, functioning as recipients for their memories and anecdotes. The strong Irish oral tradition and the enthusiasm for telling stories was a source of great inspiration and creativity when the team had to script and produce the stories into multimedia fragments.

Briggs and Nisi managed to collect sixty colourful fragments, excluding the ones that the community did not feel comfortable exposing to the public. Omitted fragments included anecdotes about a journalist living next door to one of the sources, and some tragic stories of the accidental and violent death of one old community member. With this in mind, the project authors paid attention to the
narrative qualities of the stories rather than the anthropological and social details. They welcomed stories with interesting characters, surprising or funny endings, with minimal plot of conflict and resolution, careful to maintain some of the classical narrative elements that would characterise each fragment as a short, self-contained story.

The story material collected during the interviews mainly referred to the Weir View community from the forties to the sixties. At this time, the children seemed to belong to one big family, in and out of each other's house. Some neighbours liked kids and welcomed them in, like Lou from house number ten, who had no children herself, and treated Franjo, aged six or seven at the time, ‘like a doll,’ according to the memories of adult Franjo himself. Men and women got together for chores, such as washing the laundry at the nearby river, fishing, drinking or moving furniture from one house to the other. Of course not everyone got along. Some underground hostilities were running between houses and families, and verbal abuse was occasionally shouted from one front garden to the other, ‘You fat canal barge’ being a particularly memorable example.

After collection, the story fragments were first transcribed and then scripted and storyboarded for the multimedia production. Video, animation and photographic media were used to illustrate the content, and audio, narration and texts were added to complete the story.

Some community members contributed original material such as photos, letters and other realia such as old clay pipes, clothing and furniture. Annie Hewlett's nephew from house number five gave the authors his grandmother's photographic album; she was an amateur photographer and documented much of the community life when she was alive. The owners of some of the houses let Nisi and Briggs in and gave them permission to film and photograph the interiors of their dwellings. The residents seemed very proud to have their houses photographed and filmed, but they did not want to appear in the pictures.

![Figure 2: Lou's Lounge. Photo by Tim Kovart.](http://crossings.tcd.ie/issues/4.1/Nisi/)
When asked, none of the community members wanted to feature in the stories to represent themselves or other characters. Instead non-professional actors were hired to appear in video clips and still images and to supply voice-over narration.

**Designing the Interaction**

As oral histories are translated to the interactive digital narrative form, the task of the author shifts away from textual composition to collection and arrangement of material and design of the structure of expressive patterns that constitutes a multiform story [8]. The stories from Weir View were crafted to be able to fit into a modular structure where all the story fragments are interchangeable and have the same weight. The classical arched structure – introduction, complication, climax and resolution – is exchanged for a more fragmented one where each scene is self-contained and where a series of scenes can be experienced in any order. However, within each story fragment there is a mini arched structure. The intention is that a number of stories viewed by an audience member will convey a flavour of the Weir View atmosphere and style of life rather than a plot-oriented story path.

The *Weird View* story fragments are organized in a branching structure following two main criteria: the social network and the geographical area. The social network naturally ties together some of the characters that feature in the stories. People living in the Weir View houses were often related by friendship or family links. Members of the same family and friends and neighbours that appear in more than one story are hyperlinked to the other stories in which they feature. For example, Franjo is mentioned as one of the many children of house number five and also features with Mickey Byrne in various adventures, such as singing together at the Italian embassy at Halloween. So by following hyperlinks associated with his name in different stories, the audience can follow Franjo in his adventures.

The second navigatory criterion for the narrative is the spatial distribution of the stories. The intention is to provide the readers with a map of the story space that illustrates the relation of the content to specific locations. The interface to the stories takes the form of a schematic drawing of the row of twenty houses, imagined as ‘containers of stories.’ Readers can access stories related to each house by clicking on doors and windows on the drawing. The reader is free to explore either of the two types (social or spatial) of link at any time.
The result is a hyperlinked structure that consists of the collection of story fragments and the different types of links that connect them. Essentially, each story is a self-contained unit that is independent from the others, but which maintains a link to a specific house in Weir View and to recurring themes or characters. Due to this modular structure, the reader can end the experience at any time without missing the sense of closure.

The story fragments have been designed to give the reader a feeling of search and discovery. The cursor is thought of as a probe that allows the reader to knock on doors and windows of the houses, and the act of knocking is used to release the appropriate story fragments. As the video clip of a story plays, accompanying text provides hyperlinked keywords, such as themes and character names, which remain on the screen after the visuals have finished playing. The reader is free to choose whether to follow the textual links to a related theme or character or continue to explore the houses by knocking on more doors and windows.

![Figure 4: Weird View User Interface (Partial)](image)

The interaction is designed for readers to exercise freedom at the navigation level. So while the production and editing of the stories has quite a strong degree of authorship, this is intended not to interfere with the freedom of the reader to navigate the collection.

**Exhibitions and Community Response**

The *Weird View* project can be experienced in a number of different ways: as a dual-monitor installation, a single-screen CD-ROM and as an adaptation for the web. The dual-monitor installation was first exhibited at the Douglas Hyde Gallery at Trinity College Dublin in September 2000 as part of the exhibition of graduate work by students from Trinity College's MSc in Multimedia Systems. In the dual-monitor installation, one of the two monitors displays the schematic drawing of the row of houses and also features the cursor controlled by a pointing device. By clicking (knocking) on the houses, doors and windows, video clips of the story relating to the specific house are triggered and displayed on the second monitor. The audience can also explore the collection of story fragments by following the textual hyperlinks between characters or themes featured in the stories.

The single-screen CD-ROM version of *Weird View* entered the Medi@terra Festival in 2001. The
project traveled from the south to the north of Europe as part of the MicroMuseum. The MicroMuseum is a small, adaptable structure which makes use of digital technologies (CD-ROM art, net art, digital photography and interactive objects) to exhibit a large number of works of art, proposals and presentations. Weird View was most recently exhibited in the single screen format at the 4th Darklight Digital Film Festival held in Dublin in 2002. A version of Weird View adapted for the web by Jo Briggs is available at www.weirview.com.

**Project Exhibition in Lucan**

The dual-monitor installation of the project was shown in a special event room in Lucan Village town hall as a one-day exhibition for the Weir View community in October 2000. People from the village, some who were still living in the Weir View houses and even some who had moved away, came to the event. The community was reassembled in virtue of the work that had been done around it. The event had not been hugely publicised; some invitations were sent to the people whom we knew but the news was spread mainly by word of mouth. The audience included inhabitants of Lucan village and Weird View residents past and present. Franjo, who had appeared in several story fragments, came down from County Leitrim where he had been living with his family for many years. He had been one of the most active and helpful participants in the project and during the collection of stories invited the authors to go and visit him in his house in Leitrim for the weekend to give them more material for the project. The event room filled up quite quickly with 15-20 people. While some were taking turns engaging with the project, clicking different houses and examining the stories, the rest seemed busy chatting among themselves and recollecting events, people and fragments of the life in Weir View when they were there.

**Community Comments**

While interacting with the project, some inhabitants noticed missing details or different versions of the same stories. The same story would be different depending on the point of view from which it was experienced. For a given story fragment, the protagonist, the family and the neighbours would all have different interpretations of the facts. For example, the owner of house number twenty was called ‘Pudden.’ Explanations ranged from the fact that he seemed to eat a lot of pudding to the way he used to have his hair cut – using a bowl like a hat to guide the cutting. Some inhabitants complained about the inaccuracy of the clothing or of the objects used by the authors to interpret some of the stories. For example, Mickey Byrne remarked that the motorbike used to re-enact the story of him bringing it up the stairs and into his bedroom every night, was not the same as the one he used to have. However, despite such comments, everyone mentioned in the stories was very happy to have been recorded in the project. Some of the stories preserve a very local flavour and record traditions that would otherwise be forgotten. For example, Terry Clarke's father recalled the way in which freshly caught salmon was divided among the neighbours: the first salmon had to be sold to pay for the license, the second had to be eaten among the people of the street and the third could finally be sold for profit! Other examples of stories describing local traditions include how Halloween was bigger than Christmas in Weir View and how the children used to go and sing at the Italian embassy to earn pocket money.

Many more stories came out that afternoon that would have been worth incorporating into a second version of the project. Some people were surprised to find there were anecdotes missing (of which the Weird View authors had not heard) or that they were not contacted during the story collection phase. This suggested that wider publicity while collecting the stories and more time to carry out the research would have scaled up the project considerably, but also made it clear that an initial authored collection of stories can function as the starting point of communication and exchange processes among people
that otherwise would not engage in such an exchange. The *Weird View* project became a starting point for the community to recognise itself as such, and also provided a common ground for the members to exchange stories, ideas, feelings and different points of views. Some people in the exhibition room commented on what a nice and tight community they were when living all together in Weir View. This suggested that they were able to see themselves in a mirror that reflected them not only as single characters but also as a group of people with their life struggles and funny stories who got to share life together in some moment in time and space. They were able to look at themselves in a bigger perspective and recognise the whole picture they were composing together with the other community members.

People stayed for hours in the exhibition room, and at closing time most of them headed to the local pub to continue their exchange of stories and memories. Unfortunately, the authors could not participate in the session. However, reports on the day after told that some people became very nostalgic and did not want to leave the pub, remembering the good old times and ordering more pints. Others promised to each other not to lose contact again and to visit each other more often from then on.

From the amount of time people spent at the exhibition and in the pub, it seemed that the project did work as a catalyst for the community to become reunited and aware of itself. Comments of the type ‘weren't we a great bunch,’ the amount of new stories that came out in the occasion, the laughter and tears that were shed, are all indications (however difficult to measure and quantify) that the work did stimulate a sense of belonging and awareness among the community members themselves.

**Reflections on the Process**

As this paper has described, the community response, among other indications, shows that the *Weird View* interactive nonlinear narrative captured and stimulated a sense of community and belonging to a place. A feeling of awareness emerged from the community whose members felt empowered by the reappropriation of their local, social and personal stories through the narrative process and its distribution. Although the experiences presented here are not strong scientific evidence, they are promising preliminary results that motivate further research in the area of interactive narrative combined with real stories coming from a community of people. The artistic reinterpretation of the stories raises some interesting issues and opens avenues for discussion.

In the sixties, structuralist critics conceived the study of literature as a part of the social sciences and tried to develop a model that would serve theories of anthropology, sociology, psychology and linguistics. Critics realised that all these disciplines are concerned with narratives somehow, but the differences in purpose and materials make it very difficult to see how they are interrelated. The ways in which theories are dependent on the material selected for the study and the objective of the theorists is evident in the contrast between literary and anthropological approaches to narrative [21, p.23].

Rather than original realistic stories fixed in print, the anthropologist encounters dozens of oral tales, many of them only slightly different from one another. The question the anthropologist must try to answer is almost opposite to the one of the literary critic. Where the critic is concerned with what a given identifiable author means, the anthropologist is concerned with the purpose served by this collective myth. For the literary critic a single work is the locus of meaning. Features like point of view, characterisation, description and style, so important to the literary critic, scarcely exist in the oral tale. The anthropologist, as a social scientist, is committed to a methodology which is more constraining than that of the literary critic [21, p.24].
Aware of the difference between the anthropologist's and the narrative critic's objects of study, the authors of *Weird View* kept in mind that a story is an act of interpretation of the world, rooted in the particular perception of the author. There is no mechanical or digital way to substitute this and no reason for wanting to do so [21]. The author must be able to retain control over the many levels of artistic choice. So the authors did choose a strong authorship approach to shape and produce the real life stories collected from the community, being careful not offend anybody nor to infringe on privacy.

Since *Weird View* relies on the author's (or artist's) interpretation, the following questions were raised after the project exhibition to the Weir View community: Does this process facilitate the integration of the community's feedback or reaction to the stories? If so, is this a problem and are there ways to improve it?

The choices and the interpretation of the story fragments made by the *Weird View* authors during the production phase created a starting point for the people from Weir View to intervene, remember more anecdotes and criticise the ones already produced, which might have not happened without the authorial intervention in creating the initial collection. From the *Weird View* experience, it seems that the community needed an inspiration point to get their stories flowing, and this is exactly the purpose of the author and of the first layer of stories. A second iteration of the process, collecting more stories and incorporating them into the work, would include and involve the community much more, either taking into account their suggestions and desires or offering them a way of producing the stories themselves.

Interesting questions about the boundaries between public and private came up regarding the selection of the fragments to be used in the narrative. What kinds of stories are in the public domain or can be told in public without infringing on privacy? What rights do the authors have in choosing suitable stories, and how far should the community participate in the process of shaping the work? How far can the artist go when we talk about projects that deal with personal stories and privacy issues? The *Weird View* authors explained intentions and methods to the community during the collection of the content, but many choices still had to be made along the way and often with little time or means for consulting or agreeing with community members on all the issues that come up while the work was in progress.

**Conclusions**

Our path through the structure of an interactive work reflects our choices back to us, like a mirror, making us more aware of and responsible for our experience. The *Weird View* narrative acted as a mirror towards its audience in two different ways. First, it allowed the general public to learn about life in Weir View by exploring the community story collection and choosing their own path through it. This hyperlinked structure of *Weird View* allows the audience to follow what interests them in the story, leaving with a very personal idea of the community and of the work itself. Second, the audience that belonged to the Weir View community experienced the work literally as a mirror of themselves, against which they could compare, discuss and redesign their past, present and future.

The authors of Weird View saw the relationships among the community members' stories as a natural structure of hyperlinks and built the navigable narrative structure to allow the readers to experience it. The readers' freedom in navigating the hypermedia narrative recalls theories that stress the role of the reader in shaping the experience of the text. The project also taps into the Irish tradition of oral storytelling providing a stimulus to revive the process of telling stories among community members.

**Future Investigations and Design Iterations**
Further work in the area of digital narrative, oral traditions and community stories is now taking place in the Liberties area in the Dublin inner city. The disadvantaged conditions of this neighbourhood have motivated us to continue to work on community interactive story projects where the use of technology is pushed even further to accomplish a physically navigable distributed narrative structure and transform the sense of space into a sense of place. This work is very much informed by the experience with 

*Weird View* described in this paper.

In the *Portrait of the Liberties* project, each story relating to a specific Liberties site will be made available to the public in the precise location to which it relates, using a combination of Global Positioning System (GPS) and Wi-Fi (802.11) technologies. Stories collected from the area will be distributed along the *Wireless Ad hoc Network for Dublin* (WAND), a wireless network of nodes that stretches through the city from the Liberties area through the Dublin city centre into Trinity College. As described in this paper, the Weir View community was very stimulated by the nonlinear format of the story collection, where there was no beginning or end, and each story had the same weight as the others. We are continuing along these lines in the Liberties area, where we see the potential of stimulating communication and awareness among community members. We expect that increased awareness and a sense of themselves will encourage people to provide new stories and enlarge the collection that we will use as a starting point for the process.

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**Notes**

* The *Weird View* project resulted from a collaboration between Valentina Nisi and Jo Briggs in 2000-2001 as part of their MSc in Multimedia Systems at Trinity College, Dublin.

**References**


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Valentina Nisi is a researcher at Media Lab Europe with Glorianna Davenport and PhD candidate in the Department of Computer Science at Trinity College, Dublin with Mads Haahr. Her research focuses on how to design interactive distributed narrative experiences in public spaces. Her fascination lies in the use of wireless, networked and mobile technologies to tell stories in new ways, i.e., how to bring stories out into real space and merge architecture, environment and landscape with the narrative experience. Valentina's work has been presented and published in different festivals and conferences both in Ireland and internationally. She holds an MSc in Multimedia Systems from Trinity College, Dublin and a First class Honour Fine Art Degree from the Albertine Academy of Fine Arts in Turin, Italy.
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