

# Storytelling in the Digital Age

Lic. Paweł Ratajczyk

---

Master's thesis  
2018

 **Tomas Bata University in Zlín**  
Faculty of Multimedia Communications

---

Univerzita Tomáše Bati ve Zlíně  
Fakulta multimediálních komunikací  
Ateliér Digitální design  
akademický rok: 2017/2018

## ZADÁNÍ DIPLOMOVÉ PRÁCE

(PROJEKTU, UMĚLECKÉHO DÍLA, UMĚLECKÉHO VÝKONU)

Jméno a příjmení: Lic. Pawel Ratajczyk  
Osobní číslo: K14353  
Studijní program: N8206 Výtvarná umění  
Studijní obor: Multimedia a design – Digitální design  
Forma studia: prezenční

Téma práce: Vyprávění v digitálním věku

Zásady pro vypracování:

1. Rešerše
2. Analýza
3. Stanovení filozofie
4. Vypracování projektu
5. Zhodnocení projektu

- a) teoretická část v rozsahu 30 – 35 normostran textu
- b) prototyp nebo funkční model nebo fyzický model v měřítku 1:1, 1:2, 1:3, 1:5, 1:10 podle charakteru projektu a konzultace s vedoucím práce
- c) grafická prezentace v rozsahu minimálně 3,5 m<sup>2</sup>

Na samostatném nosiči CD-ROM odevzdejte v minimálním počtu 10 kusů obrazovou dokumentaci praktické části závěrečné práce pro využití v publikacích FMK. Formát pro bitmapové podklady: JPEG, barevný prostor RGB, rozlišení 300 dpi, 250 mm delší strana. Formáty pro vektory: AI, EPS, PDF. Loga a texty v křivkách. V samostatném textovém souboru uveďte jméno a příjmení, login do Portálu UTB, obor (ateliér), typ práce, přesný název práce v češtině i v angličtině, rok obhajoby, osobní mail, osobní web, telefon. Přiložte svou osobní fotografii v tiskovém rozlišení.

Rozsah diplomové práce: viz. Zásady pro vypracování  
Rozsah příloh: viz. Zásady pro vypracování  
Forma zpracování diplomové práce: tištěná/elektronická

Seznam odborné literatury:

Carr, Nicholas G. *The Shallows: What the Internet Is Doing to Our Brains*. New York: W.W. Norton, 2010. Print.

Manovich, Lev. *The Language of New Media*. Cambridge, MA: MIT, 2002. Print.

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. Berkeley, CA: Gingko, 2013. E-book.

Piper, Andrew. *Book Was There: Reading in Electronic times*. Chicago: University of Chicago Press, 2012. Print.

Rose, Frank. *The Art of Immersion: How the Digital Generation Is Remaking Hollywood, Madison Avenue, and the Way We Tell Stories*. New York: W.W. Norton, 2011. Print.

Vedoucí diplomové práce: MgA. Bohuslav Stránský, Ph.D.  
Ateliér Digitální design  
Datum zadání diplomové práce: 1. prosince 2017  
Termín odevzdání diplomové práce: 11. května 2018

Ve Zlíně dne 1. prosince 2017

doc. Mgr. Irena Armutidisová  
*děkanka*



MgA. Bohuslav Stránský, Ph.D.  
*vedoucí ateliéru*

# PROHLÁŠENÍ AUTORA BAKALÁŘSKÉ/DIPLOMOVÉ PRÁCE

Beru na vědomí, že

- odevzdáním bakalářské/diplomové práce souhlasím se zveřejněním své práce podle zákona č. 111/1998 Sb. o vysokých školách a o změně a doplnění dalších zákonů (zákon o vysokých školách), ve znění pozdějších právních předpisů, bez ohledu na výsledek obhajoby <sup>1)</sup>;
- beru na vědomí, že bakalářská/diplomová práce bude uložena v elektronické podobě v univerzitním informačním systému a bude dostupná k nahlédnutí;
- na moji bakalářskou/diplomovou práci se plně vztahuje zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, zejm. § 35 odst. 3 <sup>2)</sup>;
- podle § 60 <sup>3)</sup> odst. 1 autorského zákona má UTB ve Zlíně právo na uzavření licenční smlouvy o užití školního díla v rozsahu § 12 odst. 4 autorského zákona;
- podle § 60 <sup>3)</sup> odst. 2 a 3 mohu užít své dílo – bakalářskou/diplomovou práci - nebo poskytnout licenci k jejímu využití jen s předchozím písemným souhlasem Univerzity Tomáše Bati ve Zlíně, která je oprávněna v takovém případě ode mne požadovat přiměřený příspěvek na úhradu nákladů, které byly Univerzitou Tomáše Bati ve Zlíně na vytvoření díla vynaloženy (až do jejich skutečné výše);
- pokud bylo k vypracování bakalářské/diplomové práce využito softwaru poskytnutého Univerzitou Tomáše Bati ve Zlíně nebo jinými subjekty pouze ke studijním a výzkumným účelům (tj. k nekomerčnímu využití), nelze výsledky bakalářské/diplomové práce využít ke komerčním účelům.

Ve Zlíně 8. 3. 2018

.....  
Jméno, příjmení, podpis

1) zákon č. 111/1998 Sb. o vysokých školách a o změně a doplnění dalších zákonů (zákon o vysokých školách), ve znění pozdějších právních předpisů, § 47b Zveřejňování závěrečných prací:

(1) Vysoká škola nevydělečně zveřejňuje bakalářské, diplomové, disertační a rigorózní práce, u kterých proběhla obhajoba, včetně posudků oponentů a výsledku obhajoby prostřednictvím databáze kvalifikačních prací, kterou spravuje. Způsob zveřejnění stanoví vnitřní předpis vysoké školy. Vysoká škola disertační práce nezveřejňuje, byla-li již zveřejněna jiným způsobem.

(2) Bakalářské, diplomové, disertační a rigorózní práce odevzdané uchazečem k obhajobě musí být též nejméně pět pracovních dnů před konáním obhajoby zveřejněny k nahlížení veřejnosti v místě určeném vnitřním předpisem vysoké školy nebo není-li tak určeno, v místě pracoviště vysoké školy, kde se má konat obhajoba práce. Každý si může ze zveřejněné práce pořizovat na své náklady výpisy, opisy nebo rozmnoženiny.

(3) Platí, že odevzdáním práce autor souhlasí se zveřejněním své práce podle tohoto zákona, bez ohledu na výsledek obhajoby.

(4) Vysoká škola může odložit zveřejnění bakalářské, diplomové, disertační a rigorózní práce nebo jejich částí, a to po dobu trvání překážky pro zveřejnění, nejdéle však na dobu 3 let. Informace o odložení zveřejnění musí být spolu s odůvodněním zveřejněna na stejném místě, kde jsou zveřejňovány bakalářské, diplomové, disertační a rigorózní práce, již se týká odklad zveřejnění podle věty první, jeden výtisk práce k uchování ministerstvu

2) zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, § 35 odst. 3:

(3) Do práva autorského také nezasahuje škola nebo školské či vzdělávací zařízení, užije-li nikoli za účelem přímého nebo nepřímého hospodářského nebo obchodního prospěchu k výuce nebo k vlastní vnitřní potřebě dílo vytvořené žákem nebo studentem ke splnění školních nebo studijních povinností vyplývajících z jeho právního vztahu ke škole nebo školskému či vzdělávacímu zařízení (školní dílo).

3) zákon č. 121/2000 Sb. o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon) ve znění pozdějších právních předpisů, § 60 Školní dílo:

(1) Škola nebo školské či vzdělávací zařízení mají za obvyklých podmínek právo na uzavření licenční smlouvy o užití školního díla (§ 35 odst. 3). Odpírá-li autor takového díla udělit svolení bez vážného důvodu, mohou se tyto osoby domáhat nahrazení chybějícího projevu jeho vůle u soudu. Ustanovení § 35 odst. 3 zůstává nedotčeno.

(2) Není-li sjednáno jinak, může autor školního díla své dílo užít či poskytnout jinému licenci, není-li to v rozporu s oprávněnými zájmy školy nebo školského či vzdělávacího zařízení.

(3) Škola nebo školské či vzdělávací zařízení jsou oprávněny požadovat, aby jim autor školního díla z výdělku jim dosaženého v souvislosti s užitím díla či poskytnutím licence podle odstavce 2 přiměřeně přispěl na úhradu nákladů, které na vytvoření díla vynaložily, a to podle okolností až do jejich skutečné výše; přitom se přihlídnou k výši výdělku dosaženého školou nebo školským či vzdělávacím zařízením z užití školního díla podle odstavce 1.

## ABSTRACT

Digital media offer new ways of telling stories. By studying the unique features of digital media: interactivity, hypertext, networking, virtuality and simulation this dissertation examines the narrative innovations they bring and illustrate them with several case studies.

Interactivity and hypertext were used in storytelling, even before the Digital Age, in experimental, traditional media narratives—hypertext books, gamebooks and Kinoautomat. Nevertheless, it is the digital medium where they could flourish into electronic literature, interactive fiction, video games and interactive films.

Networking—the next feature of digital media—is a very powerful one; combined with the human need of creating and sharing the stories it results in unique narrative activities. Even looking at surveillance webcams may create a story in the recipient's mind. The creative potential of networked groups is used in collective poetry writing; fan fiction; and alternate reality games—extraordinary marketing campaigns for music albums and films.

The two last qualities—virtuality and simulation—are a mix of all the digital media features. 360° VR games and films offer immersion into alluring alternate worlds. Simulation games generate stories from series of algorithms. Some projects take advantage of being able to read the user's location to create a more individual experience, as a result of this connecting the real and virtual world.

The Practical Part of this dissertation describes the writing and design of *Vyraj* a gamified electronic novel in the form of a multimedia mobile app. It tells the story of Yrja—a girl living in a post-apocalyptic world where time is corrupted, the technology is forbidden and human's knowledge and stories are lost; forced to leave her village she goes to the underworld to discover the past and reverse the destiny of her folks. The story is accompanied by 360° digital collages, linear illustrations, animations and original music.

**Keywords:** story, narration, storytelling, digital media, mobile application, design.

## ABSTRAKT

Digitální média nabízejí nové způsoby vyprávění. Studium unikátních vlastností digitálních médií: interaktivity, hypertextu, networkingu, virtuálnosti a simulace tato disertace zkoumá narrační inovace, které digitální média přinášejí a ilustruje je několika případovými studii.

Interaktivita a hypertext byly použity při vyprávění ještě před digitální revolucí v experimentálních dílech — hypertextových knihách, gameboocích a Kinoautomatu. Nicméně jedině v digitálních médiích interaktivní a hypertextové příběhy mohou rozkvést do podoby elektronické literatury, textovek, videoher a interaktivních filmů.

Networking — další velmi důležitý atribut digitálních médií, který v kombinaci s lidskou potřebou vytváření a sdílení příběhů vede k jedinečným narativním činnostem. Dokonce i sledování bezpečnostních webových kamer může vytvářet příběhy v mysli diváka. Tvůrčí potenciál networkingu se používá při psaní kolektivní poezie, fanfikce a v alternate reality games — mimořádné marketingové kampaně pro propagaci filmů a hudebních alb.

Dvě poslední vlastnosti — virtuálnost a simulace, jsou kombinací všech atributů digitálních médií. 360° VR hry a filmy nabízejí ponoření do lákavých alternativních světů a simulační hry vytvářejí příběhy ze série algoritmů. Některé projekty využívají možnost zjišťování polohy uživatele a díky tomu mohou vytvářet více individuální zážitky, který spojuje skutečný a virtuální svět.

Praktická část této disertační práce popisuje psaní a design *Vyraje* — elektronické literatury s prvky hry ve formě multimediální mobilní aplikace. Román vypráví příběh o Yrji — dívce žijící v postapokalyptickém světě, kde čas je poškozen, technologie je zakázána a lidské znalosti a příběhy jsou ztraceny; nucena opustit svoji osadu, vypraví se do podsvětí, aby objevila minulost a zvrátila osud jejích lidí. Příběh je doprovázen 360° digitálními kolážemi, lineárními ilustracemi, animacemi a originální hudbou.

**Klíčová slova:** příběh, narrace, vyprávění, digitální média, mobilní aplikace, design

## ACKNOWLEDGEMENTS

I would first like to thank my thesis advisor MgA. Bohuslav Stránský, PhD. He consistently allowed this paper to be my own work but steered me in the right direction whenever he thought I needed it.

I am grateful to my partner and best friend Mateusz Słowakiewicz for his never-ending support and having faith in me and the project even in my dark moments. *Vyraj* is beyond any doubt our common brain-child.

Last but not least, I would like to thank my parents for supporting me spiritually throughout writing this thesis and my life in general.

*After nourishment, shelter and companionship,  
stories are the thing we need most in the world.*

Philip Pullman

I hereby declare that the print version of my Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

# CONTENTS

<b>THE THEORETICAL PART .....</b>	<b>11</b>
<b>1. DEFINITIONS .....</b>	<b>13</b>
1.1. STORY .....	13
1.2. DIGITAL MEDIA .....	14
<b>2. INTERACTIVITY AND HYPERTEXT .....</b>	<b>16</b>
2.1. CAN PAPER BOOKS BE INTERACTIVE? .....	16
2.2. INTERACTIVE FICTION .....	18
2.3. HYPERTEXT FICTION .....	20
2.4. GRAPHIC ADVENTURES AND RPGS .....	21
2.5. INTERACTIVE CINEMA .....	22
<b>3. NETWORKING .....</b>	<b>25</b>
3.1. EVERYONE IS A STORYTELLER .....	25
3.2. DIGITAL POETRY .....	27
3.3. FANFICTION .....	28
3.4. ALTERNATE REALITY GAMES .....	29
<b>4. VIRTUALITY AND SIMULATION .....</b>	<b>31</b>
4.1. 360° VIRTUAL REALITY .....	32
4.2. SIMULATION GAMES .....	33
4.3. LOCATION-BASED STORY .....	35
<b>THE PRACTICAL PART .....</b>	<b>36</b>
<b>5. OBJECTIVES OF THE PROJECT .....</b>	<b>38</b>
<b>6. STORY .....</b>	<b>39</b>
6.1. SETTING .....	39
6.2. PLOT .....	42
<b>7. INSPIRATIONS .....</b>	<b>44</b>
7.1. <i>DEVICE 6</i> .....	44
7.2. <i>PHALLAINA</i> .....	45
7.3. <i>PRY</i> .....	45
7.4. <i>NAUSICAA' OF THE VALLEY OF THE WIND</i> .....	46
<b>8. DESIGN .....</b>	<b>47</b>
8.1. STRUCTURE .....	47
8.2. TYPOGRAPHY .....	49



8.3.	GRAPHICS .....	51
8.4.	INTERACTION.....	54
8.5.	MUSIC AND SOUND.....	55
<b>9.</b>	<b>FUTURE POSSIBILITIES .....</b>	<b>56</b>
	<b>CONCLUSION .....</b>	<b>57</b>
	<b>BIBLIOGRAPHY .....</b>	<b>58</b>
	<b>LIST OF FIGURES .....</b>	<b>61</b>
	<b>APPENDICES .....</b>	<b>62</b>

## INTRODUCTION

The wheel, the printing press and the World Wide Web are considered to be the greatest inventions of all time (*The greatest inventions*, 2015). The wheel enabled more efficient moving in space. The printing press along with the earlier invention of writing allowed time travel—the intangible human thought could now be preserved, replicated and easily shared in both time and space. The World Wide Web, the internet and the computer did not only improved time travelling of thoughts but opened the door to a whole new world to be discovered: the digital world.

The invention of digital media started the digital revolution which lasts until today. Its impact is often compared to the effects of the industrial revolution in XIX century. In less than 40 years the digital world integrated with the real one and affected almost every part of human life: the way people communicate, do business, sleep, talk, even the way they tell their stories.

## **I. THE THEORETICAL PART**

Digital media adapted and revisited the art of storytelling in many ways. The purpose of the thesis is to examine how the narrative changed and what new possibilities of telling a story the digital media brought. The thesis also looks for the predecessors of the changes in storytelling that are usually considered to be possible only in digital media.

The Theoretical Part consists of five sections. The first one regards the definitions; next sections focus on the changes of narrative due to the attributes of digital media: Section 2: interactivity and hypertext; Section 3: networking; Section 4: virtuality and simulation.

## 1. DEFINITIONS

### 1.1. Story

*Wherever there are humans there appear to be narratives* (Cobley, 2014: 2). The ability to speak is what differs human from animals. Stories help people to deal with time, destiny and mortality, give meaning to human life and explain the unknown (Ryan, 2004: 2). The grief of Demeter or the despair of Amaterasu—these myths beautifully describe changing of the seasons but even the scientific explanation—Earth’s journey around the Sun—is composed in the form of a story.

Nevertheless, it is not only about taming the world—people tell stories just because they cannot stop, because narratives fascinate and engage them even if they know they are untrue (Boyd, 2007: 1).

There is no need for complexity to have narration. As Gérard Genette (1988 cited in Herman 2002: 27) writes: *For me, as soon as there is an action or an event, even a single one, there is a story because there is a transformation, a transition from an earlier state to a later and resultant state* but it has to be *a transformation that is expected or desired*.

In *Narrative across Media* Marie-Laure Ryan (2004: 8–9), after studying different approaches to define a story, proposes to *regard narrative as a cognitive construct, or mental image, built by the interpreter in response to the text*. This broad definition of a story is used in the thesis. However, Ryan also gives three conditions under which text can be qualified as narrative:

1. *A narrative text must create a world and populate it with characters and objects. ...*
2. *The world referred to by the text must undergo changes of state that are caused by nonhabitual physical events: either accidents (“happenings”) or deliberate human actions. These changes create a temporal dimension and place the narrative world in the flux of history.*
3. *The text must allow the reconstruction of an interpretative network of goals, plans, causal relations, and psychological motivations around the narrated events. This implicit network gives coherence and intelligibility to the physical events and turns them into a plot* (Ryan, 2004: 8–9).

This definition is compatible with both verbal and nonverbal forms of a story as it does not specify what type of signs are used to encode the meaning of a text.

However, Ryan (2004: 9–10) also distinguishes “being a narrative” from “possessing narrativity”. Because of that, for example, pictures, music and dance can have narrativity without being narratives in a literal sense.

Last but not least, this thesis does not differ the terms “narration” from “story” therefore it uses them as equivalents.

## 1.2. Digital media

It seems almost like a cliché of media studies papers, but it is impossible to discuss media without mentioning their great visionary—Marshall McLuhan. His famous aphorisms such as “global village” or “the medium is the message” were mainly based on the research on television and radio, but they can easily be applied to the internet as well. McLuhan published his most influential theories in the 60’s, but even today his thoughts are very accurate. He even predicted the invention of World Wide Web almost thirty years before it was invented (Levison, 2004: 28–29). Unfortunately, McLuhan *died on the last day of 1980, almost literally on the doorstep of the personal computer revolution that would change so much of our world, yet be so explicable via insights and comparisons McLuhan had earlier made* (Levison, 2004: 1).

McLuhan (1994: 90) gives a very wide definition of medium. In his famous publication *Understanding Media*, he describes it as an extension of a human. According to this: clothes are the extension of human skin; the phone is an extension of voice; television is an extension of sight and hearing; computer—an extension of brain. Electronic media, in general, enhance human in a unique way because they extend our central nervous system (Bobbitt, 2011).

In a more common sense: media are tools people use to communicate.

*Digital media are any media that are encoded in a machine-readable format* (Digital media, 2016). For example, digitalized images (jpg, gif), videos (mov, mp4), audio (mp3, wav), databases, e-books, CDs, DVDs, podcasts, etc. However, Richard Smith (2013) points out a significant deficiency in this description:

*If you put the radio on the internet, you certainly have digital media. And if you put a newspaper in a tablet, then you have digital media, as well. The problem with sticking with that definition is that it misses two important elements that have been made possible by the combination of computers, software, and networks: interactivity and group forming.*

Other scholars provide even more features which differ digital media from traditional and therefore contribute in its more detailed description. These attributes are interactivity, hypertextuality, virtuality, networking, and simulation (Lister et al., 2009: 12–43). Other examples of digital media which reflect these features are among others: The World Wide Web, social networking sites, email, chat rooms, forums, blogs, voice image transmissions, mobile applications, computer games, immersive virtual environments and screen-based interactive multimedia.

On the other hand, as “traditional” the thesis considers both the intangible media such as language, writing, gesture; as well as print and analogue technology: printed books and newspapers, pictures, film, audio tape.

The content of medium can be another medium (e.g. text is a content of a book or email). When content is a combination of more than one medium, it is called multimedia. This term also applies to traditional media such as illustrated books, comics, rock opera concerts and screenings of silent films with live music. Multimedia are perfect content for digital media because it is easy to use and mix them. The internet is one of the most interesting ones because it is a *chameleon*. *It is the first medium that can act like all media—it can be text, or audio, or video, or all of the above* (Rose, 2012: 2).

The uncapitalised words “internet”, “web” and “net” are used in the thesis following Long’s (2004) argumentation for *WIRED*. The only exception is when citing other sources where the original spelling is kept.

## 2. INTERACTIVITY AND HYPERTEXT

Marie-Laure Ryan (2001: 16–18) interprets interactivity in two senses. First—the figural sense—*describes the collaboration between the reader and the text in the production of reading*. The second—literal sense—sees interactivity as *the textual mechanisms that enable the user to affect the “text” of the text as a visible display of signs, and to control the dynamics of its unfolding*.

The first definition is comprehensive, according to it reading and reception of a text is never a passive experience as the reader will always imagine things while reading. The second one narrows the description to the area of digital media.

Interactivity surely did not come with the rise of digital media. Even traditional oral storytelling often has some amount of interaction with an audience. In fact, a good storyteller should interact with his listeners—influence their moods, cause tensions and play with feelings to strengthen the transmission. The same story is often narrated differently—for example, to suit the recipients’ age. A simple response to the listener’s question is also considered as basic interaction.

Interactivity in digital media has much in common with the second key term which marks the novelty of digital media—hypertext. It provides a network of links to the other texts that can be immediately accessed. Reading hypertext is non-linear or, perhaps more accurately, a “multilinear” experience as the reader moves from one text to another (Lister et al., 2009: 25–29).

The term hypertext is also used to describe all kinds of non-linear, networked structure. It can be found in contents, indices, citation methods, reference and library, however moving from one text to another is much more difficult. Moreover, hypertext does not have to be entirely textual as the links may lead to pictures, films, music and other media. For this reason, some scholars use the term “hypermedia” (Lister et al., 2009: 29).

### 2.1. Can paper books be interactive?

A printed book is hardly a medium for interactive storytelling. However, some authors managed to make the book interactive. A well-known example is *Rayuela* by Julio Cortázar published in 1963 and translated into English as *Hopscotch*. The novel is divided into 155 short chapters which can be read in three ways: progressively from chapters 1 to 56; beginning with chapter 73 and then “hopscotching” through the book in the order written in *Table of*



*Instructions*; reading it in your own order. Each reading method changes the reception of the narrative and builds a slightly different story.

Other examples of hypertext books are James Joyce's *Ulysses*, Jorge Luis Borges' *The Garden of Forking Paths* and Mark Z. Danielewski's *House of Leaves* (Fig. 1).

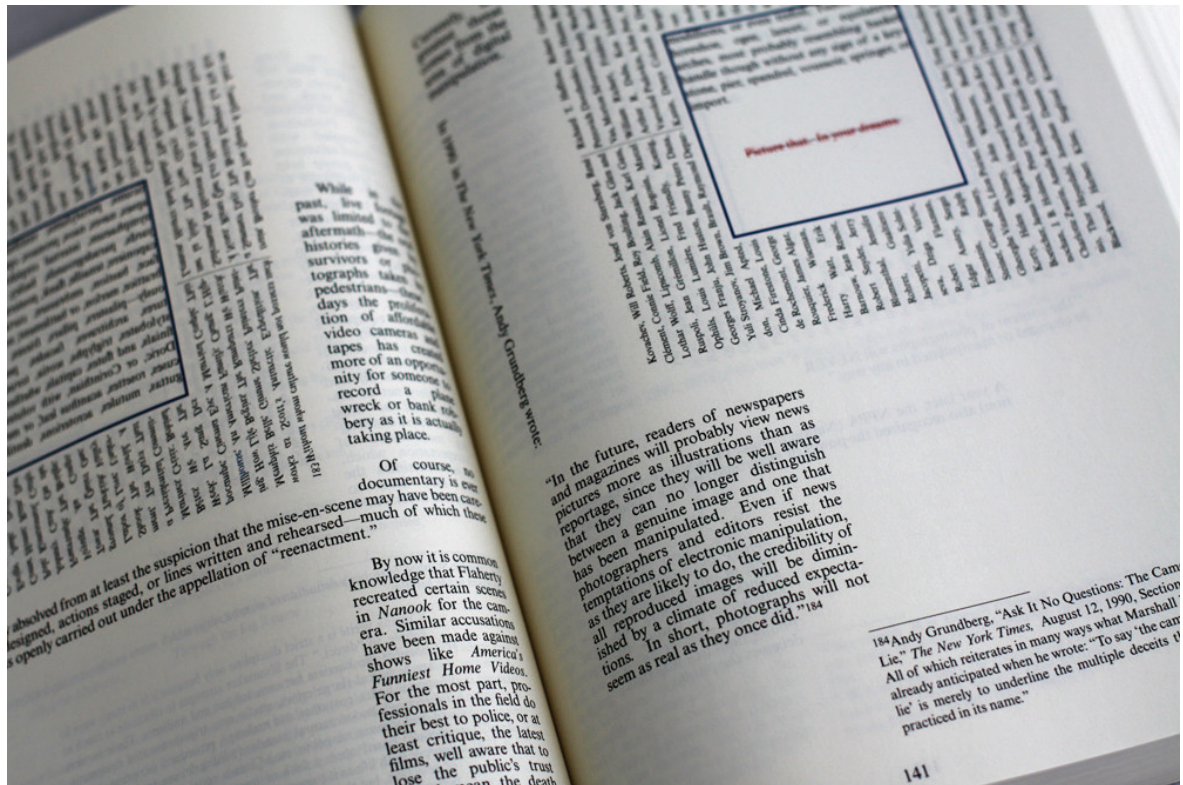


Figure 1 A spreadsheet from *House of Leaves* (Oskoui+Oskoui, ©2013).

More complex interactivity may be found in gamebooks where the reader's actions interfere with the story. The basic gamebook is a branching-plot novel such as the famous series of books *Choose Your Own Adventure* published by Bantam Books. The reader is almost always the protagonist of the story, and after reading a couple of pages, he is advised to make a choice and turn to the adequate page or paragraph from which the story will continue leading to a lot of different plots. The number of possible endings varies from 12 to 40 (Costikyan, 2007: 7–8).

More complex types of gamebooks—*Solitaire adventure* and *Adventure gamebook*—combine branching-plot novel with various elements of the role-playing game (RPG)—creating a character with individual abilities, drawing maps, resolving actions or using a game system. However, gamebooks in contrary to RPGs are always *Single Player* books. A classic example may be the series *Tunnels and Trolls* and *Lone Wolf*.

## 2.2. Interactive Fiction

Gamebooks are predecessors of interactive fiction (IF). This term encompasses one of the earliest computer games—*text adventures*.

In early 1977 Will Crowther created a game called *Colossal Cave Adventure* which is unfair, stylistically inconsistent, and frustrating, but it also has been tremendously influential. It is indeed an interactive descendant of gamebooks and the first known interactive fiction (Jerz, 2010).

IF uses text parsers to translate the player's input into commands. Depending on the game the commands differs from very simple requests such as “go south”, “take lamp”, “pull lever” to complex sentences, e.g. “put the blue book on the writing desk” (Fig. 2).

```
YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK BUILDING.  
AROUND YOU IS A FOREST.  A SMALL STREAM FLOWS OUT OF THE BUILDING AND  
DOWN A GULLY.
```

```
go south
```

```
YOU ARE IN A VALLEY IN THE FOREST BESIDE A STREAM TUMBLING ALONG  
A ROCKY BED.
```

```
go west
```

```
YOU FELL INTO A PIT AND BROKE EVERY BONE IN YOUR BODY!
```

```
NOW YOU'VE REALLY DONE IT!  I'M OUT OF ORANGE SMOKE!  YOU DON'T  
EXPECT ME TO DO A DECENT REINCARNATION WITHOUT ANY ORANGE SMOKE, DO  
YOU?
```

```
yes
```

```
OKAY, IF YOU'RE SO SMART, DO IT YOURSELF!  I'M LEAVING!
```

Figure 2 An excerpt of *Colossal Cave Adventure* (2018).

It may seem that in times of photorealistic, three-dimensional, open-world games with very complex stories the text adventures would be the relics of the past. However, the success of *Lifeline*—the series of mobile games developed by 3 Minutes Games proves it wrong. In fact,

IF successfully switched the devices from computers with Command Line Interface to advanced computers with connection to the internet or smartphones.

The first game in the *Lifeline* series is an excellent example of a program which managed to remain a pure text adventure while also taking a huge advantage of some of the smartphones' and smartwatches' features. What significantly differs *Lifeline* from earlier IF and game-books is that the user is no longer a protagonist. The main character is, in this case, Taylor who is an astronaut lost on some distant planet, desperately seeking help. The character is unprepared for such conditions; Taylor is a student who won a ticket for the scientific expedition. The spaceship in which the character was travelling crashed on some moon. Taylor managed to send a signal using the communication device and the message reached the user's phone.

After some exchanged messages the user has to choose between two options (Fig. 3). The types of choices differ, sometimes it is just keeping the conversation going, learning more about Taylor's situation, surroundings and the character's past. Taylor responds like a real person—the user's answers and questions may comfort or get the protagonist angry. Despite the conversational part Taylor often needs advice. The user's instructions may lead to tragic situations; the worst is undoubtedly Taylor's death. The goal is to help the character to get out of the moon. Sometimes the answer to Taylor's question is not so easy and requires some research, e.g. how large dose of radiation is fatal to a human.

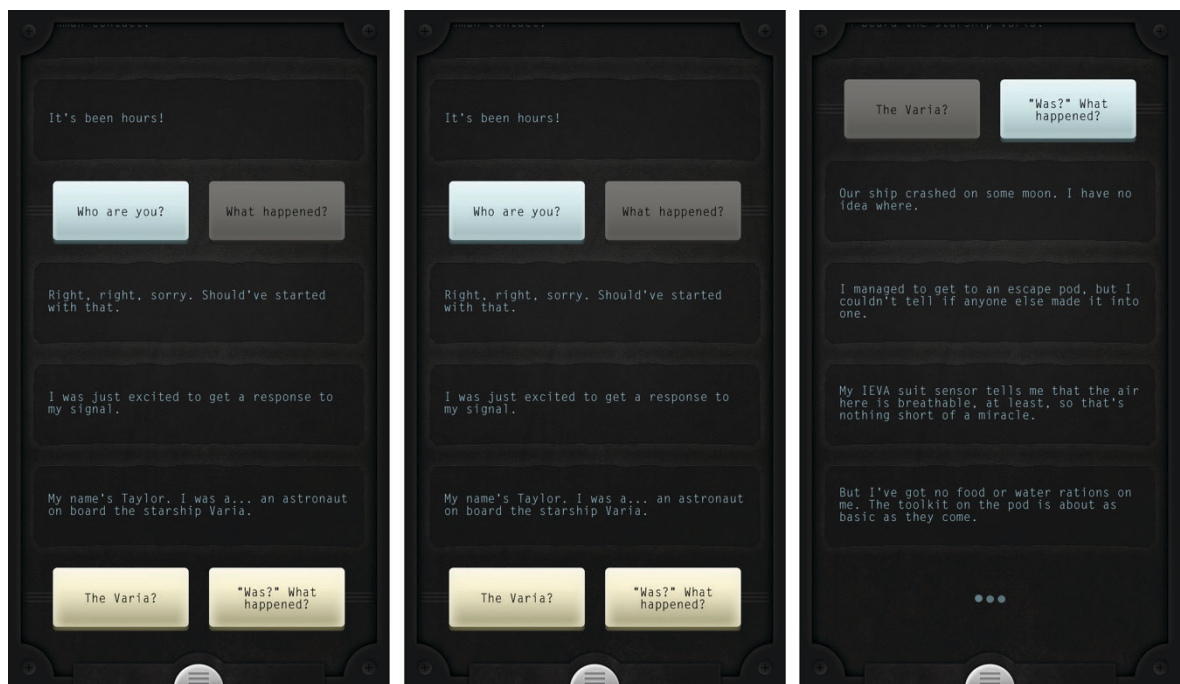


Figure 3 *Lifeline* gameplay (3 Minutes Games, ©2015).

The protagonist's gender is intentionally omitted throughout the game. It is another binary choice that the authors *asked the player to make without actually asking them to. It's silent and implicit, but it gives the player ownership over how they view Taylor* (Hudson, 2015).

The most significant element of the game which could not be achieved in gamebook is that the messages from the protagonist come in real time so the user may feel that he is texting and reading the character. When Taylor is busy or just goes to sleep, the messages do not come.

The user's immersion in the game is entirely different from other text adventures because he cannot imagine himself as some fictional hero in a fantasy world. However, he still is a part of the created world. Even without picturing himself as someone else the immersion might still be unyielding because by begin able to give advice the user feels responsible for Taylor. As Dave Justus—the writer of *Lifeline*—points out:

*When people are playing it, it's not just about the time that they're interacting with Taylor. It's all the rest of the time when they're thinking about Taylor. The whole goal was to make something that would become a part of people's lives* (Hudson, 2015).

### 2.3. Hypertext Fiction

Ten years after *Colossal Cave Adventure* was released the visionary novelist Michael Joyce wrote the first electronic hypertext fiction. *afternoon, a story* was distributed on floppy disks; three years later it moved to Storyspace—a software specially designed by Joyce.

The story regards Peter—a recently divorced man who witnesses a car crash. The plot varies with each reading which unveils more and more details (*afternoon*, 2016). Thus, *afternoon, a story* is counted to electronic literature category rather than IF; there are no goals other than revealing the complete story by reading all different scenarios.

Another thing which differs *afternoon, a story* from IF is that the plot variations are fundamentally different: the car crash is either fatal or not so serious; its victims are Peter's ex-wife and son or strangers; in another scenario, the protagonist himself causes the accident. However, there is no essential difference in the reading order. Thus, the author might as well done the same thing in a print environment (Ryan, 2004: 341).

Hypertext storytelling had its devoted evangelists, others saw it as a threat to traditional narrative. Nevertheless, this genre of electronic literature never settled for good, primarily because it is incredibly difficult to write. One of many problems is, for example, the need to reintroduce characters or concepts in every section.

#### 2.4. Graphic Adventures and RPGs

Along with the development of a graphics monitor text adventures evolved to graphic adventures. At first, the game mechanisms were quite similar: after seeing a passage of text or graphics the player makes a choice leading to another passage or area of the world. The narrative was in most cases linear. The gameplay allowed users to return to the known game locations and was often enhanced with an inventory system and a set of puzzles. As Costikyan (2007: 8) notices:

*In essence, adventure games are not all that dissimilar from game books—except that because they are digital they can be more interactive with new areas opening up and new items becoming available as the game progresses.*

Later digital games such as RPGs offer more freedom (e.g. richer character design with its look, personality and skills; choice of which path to take next). The gameplay can be non-linear meaning that the player can confront the challenges in chosen order, or his choices and actions may lead to different endings. Games that offer considerable freedom in uncovering and changing the outcome of the story are sometimes named “open world games”. Nevertheless, the most of RPGs mostly have a linear story; seldom they have multiple endings or simple branching storylines as they are more challenging to develop.

Massive multiplayer online games (MMO) are particular kind of RPGs as they are played simultaneously by many players through the internet. The storytelling in these games is also unusual as MMOs (with a few exceptions) *are almost “devoid” of story. That’s because these are “never-ending games”: story ultimately depends on change, and players cannot be permitted to make real and meaningful changes to the game world* (Costikyan, 2007: 9). This lack is compensated with mini-stories—quests that the character may accomplish (Costikyan, 2007: 9–10).

Quests are an essential part of RPGs. Each of them often reveals a bit of the story which completes or broadens the main narrative. Quests can be encountered by the player in various order which gives some variability.

However, some players do not care about the story at all. They skip the majority of spoken passages or written materials and are interested only in killing monsters, exploring the game world and levelling up their character.

## 2.5. Interactive Cinema

*Kinoautomat: One Man and his House* was the first interactive film and a smash hit of the Czechoslovak Pavilion at Expo '67 in Montreal. The performance combined projected movie with interventions from two stage moderators (Fig. 4). At the crucial moments, they encouraged the audience to vote using the specially constructed devices with two buttons—red and green. Each represented the different storyline. The direction chosen by the majority was followed by the projection team (Činčerová, 2010).



Figure 4 Presentation of *Kinoautomat* during Expo '67 in Montreal (Dufresne, 2016).

However, the possibility of influencing the story was, for obvious reasons, only deceptive. Both story variants always had the same consequences, and the causality of the story met again at the same point. Thus, the interactivity was only illusory. The film does not have an actual branching plot structure. It is a satire on democracy—everyone gets a chance to vote, but voting never changes anything (Stanton, 1997).

Czechoslovak Television in 1985 broadcast a series *Rozpaky kuchaře Svatopluka* which was realised as *Kinoautomat*. The audience gathered by the televisions voted by lighting up the light bulbs. The deflection of electricity consumption in the whole country was monitored

and then read as a result of the voting, later the camera also sensed the lighting of the windows in the Prague Bohunice housing estate (*Rozpaky kuchaře Svatopluka*, 2017).

Digital media are perfect for interactive cinema: from branching plot movies with a simple interface through experimental non-linear films and videos to complex multimedia projects merging the cinematic qualities of films and the interactivity of computer games. Perhaps the most interesting aspect of this fusion is changing the role of the user from passive spectator to actively involved player. *Stories become games, games become stories* (Rose, 2012: 6). The gap between films and games is closing.

Playing the latest bestselling open world 3D RPGs such as *Hellblade: Senua's Sacrifice*, *Horizon Zero Dawn*, *The Witcher 3: Wild Hunt*, or *Assassin's Creed Origins* it is hard not to have a feeling of watching a film and being involved in it at the same time. These games derive many from the achievements of the cinema. Each picture looks like a movie shot with carefully set composition, light and scenography; directed actions of flesh-and-blood characters with their witty conversations and interesting personalities; beautifully choreographed fights; a soundtrack that builds the mood.

Besides the large-scale productions, there is also a place for indie games that sometimes works with a different approach to storytelling. Sam Barlow's *Her Story* is both an interactive film and a video game using hypertext and non-linear storytelling. The skeuomorphic interface shows only an old police computer screen. The virtual device has access to the database with short clips showing a British woman answering the questions about her missing husband. In this game, the player takes on the role of a detective. The goal is to solve the case by analysing the videos and their transcriptions, searching for new clips and sewing all the bits of information together. Despite the visual and interactive simplicity, the game was a huge success due to the excellent, thrilling plot and innovatory approach to storytelling.

The advantage of digital media (and the internet in particular) is also used by documentary filmmakers. These multimedia projects are called web documentaries or webdocs. In contrast to films webdocs are not limited by broadcast time, and thus they offer more levels and detailed information about the topic as well as more freedom in its exploration. It is up to the user to decide which sections to browse and which to skip. Most webdocs have a linear story during which at certain points it stops, and the user may explore the content.

Webdocs creators use various elements to intrigue the user and strengthen the message. The main story of *Bear 71* ([bear71.nfb.ca](http://bear71.nfb.ca)) is told by using a series of videos from surveillance cameras and voiceover narration (Fig. 5). Between the sequences, the user can explore the side stories by virtually moving his position on the stylized map of the forest. *Welcome to Pine Point* ([pinepoint.nfb.ca](http://pinepoint.nfb.ca)) tells a story of once prosperous and now abandoned mining town and its former inhabitants. The website looks like a scrapbook with some additional information to explore. It intensifies the feeling of the long-gone golden age of Pine Point. *Forget Me Not* ([forgetmenot.tv](http://forgetmenot.tv)) is a webdoc etude regarding Alzheimer's disease. By using cinemagraphs and arranging them as a pile of photos the creators achieved something very unusual—the user can experience how the sufferer's world is eroded by the disease.

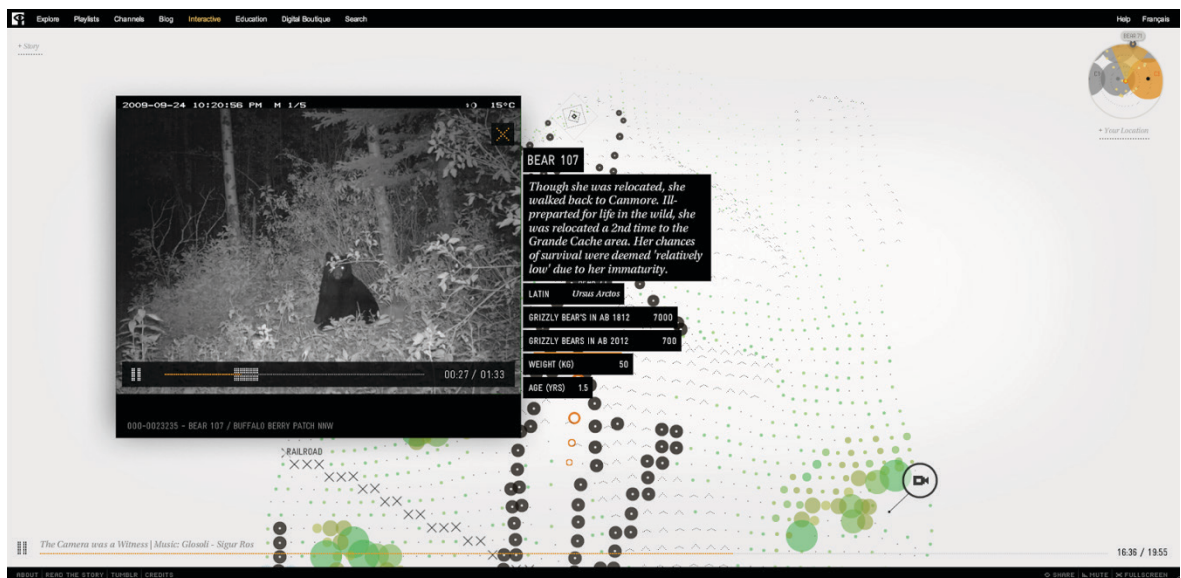


Figure 5 A screenshot from *Bear 71* (National Film Board of Canada, ©2012).



### 3. NETWORKING

Chaos is something unimaginable, and that is why the human mind is continually looking for order and harmony even in the most abstract elements. A dot on paper is just what it is. However, in two points, if we want it or not, we see an imaginary line. Unconnected dots may look like shapes; only a few lines are enough to resemble three-dimensional objects (Frutiger, 1989: 16–24, 91–92). Moving shapes are not recognisable as abstract compositions but as action scenes containing characters with their emotions and desires (Rose, 2012: 1–2). That is because *stories are recognisable patterns, and in those patterns we find meaning. We use stories to make sense of our world and to share that understanding with others. They are the signal within the noise* (Rose, 2012: 1).

People subconsciously create stories even by looking at live recordings broadcasted online from security cameras. This kind of entertainment is something between watching a slowly developing soap opera and playing a game. However, *webcams do not tell stories, since all they do is place a location under surveillance, but they provide a constant stream of potentially narrative material. ... In this dramatically impoverished environment ... the smallest change of state becomes a narrative event: a shadow stroking a linoleum floor, a car leaving the office parking lot, or a change of pattern in the sand of the cat box* (Ryan, 2004: 353–354).

From these bits of information, the digital voyeur's mind creates a story with its characters and their actions. The endless plot without the beginning unravels in real time even when no one is looking. The spectators pay quick visits to the webcam trying to catch the most exciting pieces of the puzzle (Ryan, 2004: 353).

This kind of entertainment surprisingly finds quite a high number of its enthusiasts. In 2013 Polish State Forests launched live streaming of webcams showing a glade in Białowieża Forest—one of the last primaeval forests in Europe. The website gathered hundreds of “digital hunters” longing to catch the king of the woods—the European bison. Four years later, on Saturday evening, over two hundred viewers were watching the animals whereas the official Facebook fan page gained over one hundred thousand likes.

#### 3.1. Everyone is a storyteller

In the texts with a high level of interactivity and hypertext, the borders between the reader and the writer are blurred. The reader becomes a “wreader” as some scholars suggest

(Ryan, 2001: 9). Moreover, since the shift to Web 2.0 everyone can be a creator. The user may contribute in one of many communication channels: from humble email distribution lists, through forums and blogs to social media and websites with user-generated content.

By uploading a post, a photograph or a film the new narratives are born. Thanks to the connection to the internet the stories may reach countless of recipients. Moreover, these works sometimes live their own life—they are shared and commented, evolved or improved by other user-creators, interpreted or remixed. In the internet slang they “go viral”. Thus, some stories spread by digital media are the results of a collective creative act.

Taking no account of simple communication purposes people share their experience for many reasons, for example: looking for understanding and trying to understand; dealing with problems and helping others to deal with theirs, and finally when they have something interesting to tell and cannot keep it to themselves.

No other traditional medium allowed so easily for that many users to contribute as creators or to share their stories. Some of the digital designers and developers exploited this phenomenon in projects based almost entirely on users’ contribution.

Hugues Sweeney, a producer for French Program’s Digital Studio at Canada’s National Film Board (NFB), came up with an interesting thought: *I got hooked on insomnia because it is an extremely widespread phenomenon. And I think internet is the best way to talk about it. Internet equals insomnia* (Pangburn, 2013). It initiated the next NFB’s project *A Journal of Insomnia*—an immersive, interactive, online documentary.

The project had two phases. In the first one, insomniacs all over the world shared their thoughts via the project’s website during their sleepless nights by recording webcam testimonies, audio stories, drawing, writing or taking photos.

In the second phase, the website turned into a teaser, with the ethereal digital voice of the narrator stating:

*At night I can’t sleep. In developed countries, 30 percent of people are insomniacs like me. Since the fall of 2012, privately under the cover of darkness, I have been meeting them and collecting their stories. Welcome to A Journal of Insomnia. Only by making an appointment and coming back tonight will you receive the full experience. It’s your turn now to invest part of your night.* (National Film Board of Canada, ©2013)

The appointments are scheduled at night. Few minutes before the meeting the user receives a confirmation phone call. In the documentary, the spectators can meet four insomniacs. One of them is Sarah from Montreal. The footage shows her apartment, as she tells several insomniac observations, stories and dreams. The documentary is not quite a pleasurable experience. The creators put an effort to interpret Sarah's discomfort; the footage looks like degraded and glitchy VHS (Pangburn, 2013).

*A Journal of Insomnia* is a well thought out, beautifully and carefully constructed, complex project. On the other hand, some digital creators worked with people's need to share their stories in a more straightforward way as in the project *your #stormur*. It is a unique music video for the song "stormur" by Sigur Rós composed of fan-submitted footage uploaded to Instagram with a #stormur hashtag. The entries are randomly generated into the video with two clips being shown next to each other; therefore, making every viewing experience different. The result is not only an ever-evolving and always-altering music video but also an overview of fans' interpretations of the song.

### 3.2. Digital Poetry

*"Late Night Thoughts"*

*Feelings are like*

*coctails and*

*I'm the bartender*

The poem by Aarvi, Anishq and Shruti (2017) is one of many great collaborations between the users of *Haiku Jam*. This mobile application connects poetry lovers from all over the world. The rules are simple: the first person chooses the title and writes the first line, then it is sent to the next randomly selected user who adds the second line and then passes it to another person who completes the concluding verse. The poems with the highest amount of likes from the community appear at the best-of-a-day ranking list. Each of them is a miniature story; some are truly moving or intriguing. Thankfully, not all the users are that serious, so there is also a lot of hilarious haikus such as this one by Jayesh, Rounak and Lydia (2017):

*"College Confessions"*

*Slapped the professor*

*Tasted beer*

*Not in that order*

Nevertheless, *Haiku Jam* with its well-designed mobile app is a somewhat sophisticated project compared to its predecessors. Probably the first ever collective poetry writing—Multipoetry (Multipoezja in Polish)—took place in an online chat in 2001 and became a lifetime project of its initiator and moderator—Michał Zabłocki (Onet.pl, ©2001). In 2008 Czesław Śpiewa released a music album *Debiut* with all the lyrics being written as a part of Multipoetry. The recording was sold in more than thirty-thousand copies and certified as a double platinum album in Polish certification scale (Czesław Śpiewa, 2016).

The poems and lyrics are extraordinary and often surprising as in “The Cheerful Hat”:

*I fit my body into the dress  
I put in my legs, breasts and hands  
But I leave my head on the table  
Because I'd rather go to the city without my head  
No one will know who I am  
  
Only the rustling dress will betray me  
So I'll wear a hat on my neck  
You'll recognize me today because of it, my friend  
I dress fashionably just for you  
  
Not in a bra, tights and pants  
I get new ideas just for you  
I lost my head just for you*

(Zabłocki, 2012)

### 3.3. Fanfiction

Bronwen Thomas (2011: 205) defines fanfiction as *prose fiction of any length, style, genre, and narrative technique, produced by fans of a wide range of cultural products including TV shows, movies, video games, Japanese manga and “classic” literature*. Fanfiction exists since antiquity, but only the invention of the World Wide Web with its group-forming and networking abilities allowed its phenomenal growth.

Nevertheless, as Busse (as cited in Thomas, 2011: 207) argues fanfiction is interesting not only because of the stories themselves but because of the process of its creation, dissemination and reception. In her study, she goes even further contending that the fanfiction text can only be understood and evaluated concerning the community that produces it.

The fanfiction websites developed review culture where the roles of authors and readers become virtually interchangeable. Before the publication, the author shares the text with the editors—the so-called Betareaders. They can correct spelling, advise on plotting and characterisation or highlight and debate the departures from the “canon”. After the publication, the readers can participate in the process of creation by commenting the texts (Thomas, 2011: 209–211).

*The authorship and reviewing overlap, authorship is (re)constructed to incorporate the activity of responding to comments and advice, while readers are (re)constructed as active participants in the creative process (Thomas, 2011: 211).*

The process of updating the story follows the reviews. However, the authors add new chapters rather than change the already published texts in the light of the readers’ comments. Nevertheless, the closely related processes of reviewing and updating are unique qualities of online fanfiction (Thomas, 2011: 213–216).

### **3.4. Alternate reality games**

Many marketing campaigns used the new possibilities that the networking had brought. Jordan Weisman is an innovative game designer and an author of the most notable campaigns—alternate reality games.

The entries to these parallel worlds were themselves hidden clues. The game which supported the movie *Artificial Intelligence: AI* started to unfold when among myriads of other credits someone noticed the strange title “sentient machine therapist”. The clue led to the bizarre websites about robot rights. The movie fans around the world started their joint investigation. The numbers of the players reached 3 million by the time of film’s premiere (Rose, 2012: 21–22).

The initial clue to the game promoting the Nine Inch Nails’ concept album *Year Zero* was hidden on the T-shirts sold in Lisbon at the venue where the band was playing. The bolded letters in the tour schedule read together created a sentence: “I am trying to believe.” The website iamtryingtobelieve.com regarded some strange new drug used in the US water supply. Another fan dialled the number composed of the bolded numbers. The recorded voice announced “Presidential address: America is born again” and was followed by a teaser of Nine Inch Nails’ new song. In the venues where the band had concerts, the fans were looking for USB flash drives which contained other clues (Rose, 2012: 27–30).

The games slowly unfolded and became more complex and puzzling. The clues could have been hidden everywhere: in spam emails, images meta-data, newspaper advertisement, online games, fake websites. Some of them were real-life experiences. The players of the game *Why So Serious*, which promoted the first film of Christopher Nolan's *The Dark Knight* series, were instructed to pick up birthday cakes from certain bakeries across the United States. Inside the cakes, they found mobile phones with an instruction to keep them turned on and charged at all times. The phones were a tool used by the Batman's arch-nemesis Joker to communicate with the players—his new henchmen. Their job, as it revealed at the end of the game, was to help in the villain's getaway (Rose, 2012: 9–13).

The games were carefully planned. They had interesting plots and structures which were accurately integrated into the films. The goal of all the games was to piece the fragmented story together. The players, however, were also co-creating the stories.

*Through the connective power of the Web, a group intelligence emerges to assemble the pieces, solve the mysteries, and, in the process, tell and retell the story online. Ultimately, the audience comes to own the story, in ways that movies themselves can't match* (Rose, 2012: 14).

The games rewarded their most dedicated players with exclusive trailer screenings or concerts. Nevertheless, one of the on-going rewards was the immersive experience in which the real world mingled with an alternate reality of the film.

#### 4. VIRTUALITY AND SIMULATION

The last two features of digital media—virtual and simulated—are the mix of all the other attributes. Both are difficult, complex concepts and, in some cases, are used interchangeably.

“Virtual”, especially “virtual reality” (VR) became a popular term in the 80’s and 90’s thanks to the movies such as *Tron*, *Videodrome* or *The Matrix* as well as rising new technology including VR headset, motion detectors, wired gloves and bodysuits. By using these inventions, the user can experience the *immersion in an environment constructed with computer graphics and digital video with which the ‘user’ has some degree of interaction. The movies imagine a condition where human subjects inhabit a virtual world which is mistaken for or has replaced a ‘real’ and physical one* (Listner, 2009: 36).

The term can also describe the space where participants of online communication feel themselves to be. In this sense it can be used not only to digital media but also retrospectively: virtual reality is where a person is talking on the telephone, watching films, reading books or contemplating pictures (Listner, 2009: 36).

Virtual shopping, virtual banking, virtual meetings and virtual sex—are some of the examples of another usage of the term. “Virtual” became the feature of technologically advanced postmodern societies in which many aspects of everyday experience are simulated. Screen-based 3D worlds are no longer explored only by video game players but also by, e.g. technicians, pilots and surgeons (Listner, 2009: 36).

However, in the digital age, the sense of “virtual” has changed from meaning a state that was “as good as” reality to mean or be synonymous with “simulated”. In this sense, it represents a world alternative to the real or even “better than the real” (Listner, 2009: 36).

Simulation while being artificial, synthetic and fabricated is not false or illusory because the processes of its fabrication, synthesis and artifice are real. They all produce new real objects that are experienced within the real world which they augment. Differing simulation from imitation and representation is crucial. The simulation does not necessarily have to be an imitation. For example, the world of Pandora from James Cameron’s *Avatar* does not imitate an original space and existing creatures, but it exists. It becomes much easier to see simulations as things in their own right, rather than as mere representations of other things. Simulation is real *before* it imitates or represents anything (Listner, 2009: 37, 44).

#### 4.1. 360° Virtual Reality

If computer games made the cinema screen interactive and changed the passive viewers into active players, then VR went even further liberating the screen from its rectangular frame, extending it to 360° sphere and putting the player in the middle of it. The storytelling in VR can be either more cinematic or gaming experience depending on the level of interaction and freedom given to the user.

Paliwoda (2016) describes three roles that can be assigned to the users in the VR storytelling. The first one is an observer. This role is most similar to traditional movie spectator. The user becomes a camera situated in the middle of the spherical screen and can look around a scene as the linear narrative plays out in front of them. The second one is a player; in this role, the user has more freedom in controlling the pace and flow of the narrative. If it has a branching plot, the player's choices influence the direction of the story. The third role is a character, and it occurs when the player is at the same time one of the protagonists of the story.

The costs of developing VR projects depend on the level of interaction. Thus the majority of 360° videos fits in the first category (Paliwoda, 2016). *The Displaced* produced in 2015 by The New York Times is an excellent example of a VR video. It is a story of three children who were driven away from their homes because of war. The only interaction is the ability to stop, start and skip forward or backwards through the video.

*Fantastic Beasts and Where to Find Them VR Experience* for Google Daydream is a much more interactive game. Using the VR remote control, the player can affect the environment. Because the action is happening in the world of Harry Potter, the remote is depicted as a magic wand (Fig. 6). Besides interacting with objects, the player can also cast spells by making specific gestures.

360° storytelling faces several difficulties. The most significant challenge is guiding the viewer's gaze towards the action. Even if the action is entertaining the spectator will probably look in all directions to explore the whole scene. It is not necessarily a disadvantage but rather a new feature. As Vecchioli (2016) noticed: in VR the atmosphere prevails over the narrative. Other issues pointed by Vecchioli are more technical than storytelling problems and regards the editing, 3D sound design and the immersion into the graphic representation of the player's body.





Figure 6 A screenshot from *Fantastic Beasts and Where to Find Them VR Experience* (2018).

## 4.2. Simulation games

Simulation game is a category of video games which simulates real-world activities. In most of the games, the world conditions are predefined, and the user starts playing with a blank space usually land (*Caesar*, *Pharaoh*). In other games the world or some of its parts are generated by the series of algorithms at the moment the user starts the game resulting in each new game being a different experience. For example, in *Civilisation* series, the maps are generated by setting several parameters, such as average climate or landmass types. In *Dwarf Fortress* the game generates not only a new terrain but also the history of the world.

The player casts the role of a powerful entity—monarch (*Caesar*), company owner (*Railroad Tycoon*), major (*Simcity*) or god-like entity (*The Sims*). The goal is to maintain the entrusted system (world, city, company, group of people) in excellent condition while facing the generated obstacles. Players cannot win since the fictional world is in perpetual evolution, but they drive satisfaction from observing the unpredictable behaviour of the system (Ryan, 2004: 351–352). Some games are divided into missions (*Pharaoh*) to give the user the feeling of fulfilment by meeting the objectives. After that, the user may choose to start next mission or to stay and play the current one without the next objectives.

The narrative in the simulation games is partly constructed by series of algorithms which generates the events and partly by user's decisions which affect the world. Good choices

lead to prosperity and harmony, bad to disasters and game overs (dethronement, bankruptcy, dismissal, the death of the entrusted people).

*Papers, please* is an example of an extraordinary simulation game. The player cast the role of an immigration inspector who wields the power of allowing the people to enter his motherland—the communist country Arstotzka. While the game may not be visually appealing and the main interaction—browsing the documents and stamping the passports (Fig. 7)—may sound boring it is the unique storytelling what makes the game successful and one-of-a-kind.



Figure 7 *Papers, Please* (2013) screenshot.

The anonymous protagonist finds himself between a rock and a hard place. On the one hand, absurd bureaucracy and paperwork, and on the other—ordinary people with their problems, and among them scammers and smugglers, which must be caught, but then again hand financial penalties for even slightest mistakes, on the fourth—the resistance movement urging to help them in the coup. On the fifth—the family at home, which needs to be financially supported to survive.

The player's choices lead to various events and endings. He may act as a diligent official blindly fulfilling the government's orders or do the work in accordance with his conscience letting some illegal immigrants pass the border or even conspire to overthrow the government. The game has high replayability as there are many plots, possible endings and collectable artefacts.

### 4.3. Location-based story

*Collapse* is an exceptional simulation based on real data that shows how quickly a highly infectious virus can spread, leading to the end of society. The project uses the location of the user and real nearby places like hospitals, pharmacies, public spaces, groceries and airports. The user is the patient zero, and his choices of where to seek help affect how fast the pandemic spreads. The infected people are symbolised by orange dots on map visualising the epidemic. In a few weeks, the world turns to chaos.

The ability to locate the user is a new advantage for the storytellers allowing them to create a more immersive experience. *Zombies, Run!* is both a game and a running application. The player acts as Runner 5 who helps the humanity's last remaining outpost. Through the headphones the user hears the assigned mission—it can be for example gathering supplies, rescuing survivors or defending their home. During the run, the player listens to various audio narrations moving the story forward and uncovering mysteries. From the collected items the player rebuilds his town. Besides that, the app has all the features of running app: it can record the distance, time, pace, and calories burned. The narration motivates the runner to jog more often to unfold the whole story and to run faster during the fast parts of the interval training by simulating the zombie chase.

*Breathe* by Kate Pullinger takes advantage of location technology in much subtler yet very immersive way. It is a one-hundred-screen-long ghost story that haunts the readers in their homes. The story adapts to the user's location, time and weather to create an experience that is personal and uncanny (Fig. 8).

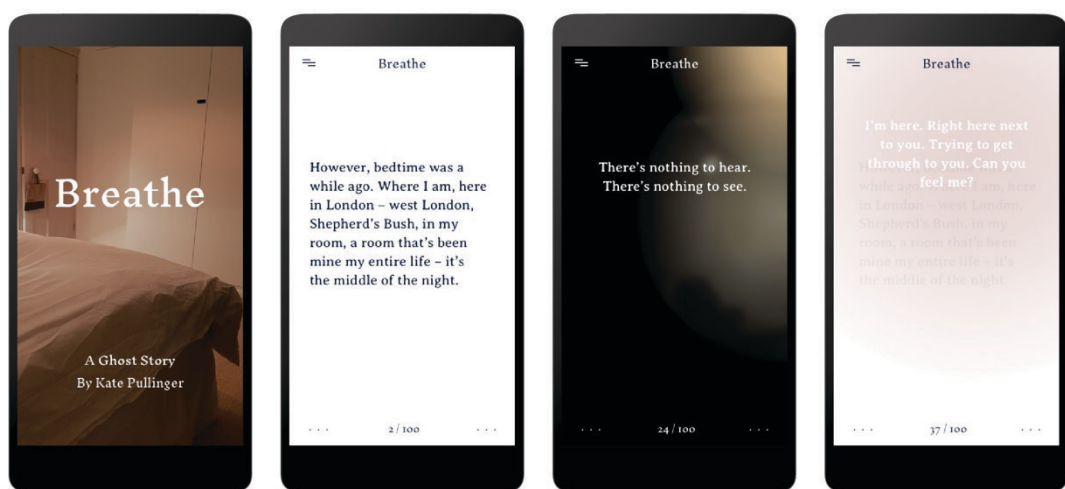


Figure 8 *Breathe* by Kate Pullinger (2018).

## **II. THE PRACTICAL PART**

The Practical Part regards the multimedia mobile app—*Vyraj*. It is a gamified electronic novel that takes advantage of some of the storytelling methods described in the Theoretical Part of this thesis. Section 1 describes the objectives of the project.

*Vyraj* started in 2011 with some early ideas of the story situated in the post-apocalyptic world where time is corrupted. The idea developed into a full-scale novel. Section 2 regards the story.

In the beginning, it was not certain which medium would be used to tell the story. The choice has fallen on an interactive multimedia mobile application which combines text, photography, digital collage and animation. Section 3 describes the most important inspirations for *Vyraj* which influenced the choice and the design while Section 4 regards graphic design, interaction design and sound design of the application.

For the thesis, about one-third of the project was realised. The last section describes the possible future development and opportunities.

## 5. OBJECTIVES OF THE PROJECT

*Vyraj* is above all a story which touches on many important issues that trouble developed societies such as the perception of time in the information age, marginalisation of older people, the decline of literary reading, technology abuse and information overload. However, it is not a moralistic nor technophobic tale. *Vyraj* outlines the problems, but it does not give easy answers.

Therefore, the main objective of the project is to tell the story in the best way by using the most appropriate means of expression which would enhance the experience and the message of the story.

The story is intended for people older than fourteen years. For the project, the upper age limit of the target group was lowered to fifty years.

The application is designed for iOS and Android devices.

## 6. STORY

The idea to create the story came after reading the anthropological work *Tyranny of the Moment: Fast and Slow Time in the Information Age* by Thomas Thylland Eriksen. The author argues that the time-saving technology—from filofax to email—surprisingly results in time being scarcer than ever (2001: viii–ix). Many people experience it today: an hour, a day, a month, a year seemed to be much shorter than a few years ago. *Vyraj* develops this theory and introduces sci-fi elements into it.

The story is told mainly in the first person in the present tense to deepen the immersion, to make the user experience the events of the story at the same time as Yrja—the narrator and protagonist.

### 6.1. Setting

In XXII century human culture was remarkably dominated by pictures. Moreover, the newly invented technology completely changed the communication as we know today. Written word and reading were utterly unpopular.

Because of the domination of technology time was corrupted and it contaminated the cities. The decay spread through all the Earth through wires. People were forced to escape from the cities and start a new life without the technology. 98 % of the population died—the corrupted time aged them in few hours. The catastrophe was called the Second Flood, firstly, because of the decimation of humanity and, secondly, because the corruption affected the Earth's magnetic field resulting in floods and rising water level.

The survivors who fled from one of the metropolises established new settlements. The story focuses on one of the hamlets called White Water. The village takes its name from the location in the delta of the river. Its people are also known as the river tribe. The beginnings were very tough, yet people managed to survive. Besides the fundamental problems of nourishment and shelter, people felt the loss of communication media. They forgot how to be creative, how to imagine and come up with stories.

Baj was a leader of one of the first generations of refugees. Overwhelmed by the dramatic situation he tried to kill himself by going near the contaminated high voltage pole. He did not die, and he came back changed. Under the pole Baj experienced the corrupted time; he saw the past, the present and the future as if they were one. He became a leader and thanks to his decisions he saved his folks.

Baj came up with Storya—the new story which became the sacred myth for all tribes. He wrote it and illustrated on the Holy Rock. The new religion and traditions slowly emerged from it. People worship Storya and repeat it every day not to forget their only story. Over the years everything that was not included in Storya becomes a taboo for the river tribe.

Storya was Baj's master plan to secure the future of his people. He struggled to resolve the most urgent matter—the lack of food and resources. His solution was to eliminate the individuals who could not work and therefore were redundant to the society—old people and children.

Baj used the contaminated city which lies on the other side of the sea and described it in Storya as Vyraj—the paradise from which people were expelled. The myth says that as a reward the old people can go back to the paradise after they went grey. To give testimony to his words, he was among the first ones who sailed to Vyraj.

Another goal of sending the elders to Vyraj was to inspect the city and the corruption. Baj hoped that one day the corruption would disappear. After years the corruption in Vyraj slightly weakened, and although the environment is still hazardous, the elders from White Water and other tribes can live here longer than they would on the continent. Nobody from the elders ever came back from Vyraj because the currents are powerful and flow to the island making it very hard to sail back.

Children issue was much more complicated. Baj came up with The Rite of First Greying where children are exposed to the small amount of corrupted time resulting in growing older a few years. The rite literally changes children to adults. It also acts as a vaccine against corruption. The Rite of First Greying takes place by the Tree—the same high voltage pole where Baj tried to end his life. It is located far from the White Water in the Forbidden Valley. It is prohibited to get close to this area except for the ritual. The wire of the Tree connects with Vyraj, so the land near the pole is partly influenced by corrupted time.

The Rite of First Greying might be conducted only on several days in the year when the Tree “shines”. The children who reach ten years are subjected to the ritual, which is dangerous as the corrupted time affects them. The children have to walk the path leading underneath the Tree. They are forbidden to stop or look back. During the ritual, the children will be granted the first strand of grey hair which marks the adultery. The greying will continue from the day on.

All the tribes believe in Storya and participate in the rituals except the Velles. The ancestors of this tribe were banished because they kept using electrical devices after the contamination



and were much more progressive than other puritan tribes. The Velles settled in the Forbidden Valley, with Vell—their main village where there is allowed to experiment and use the uncontaminated technology. They are also the wandering merchants. The other tribes buy goods from the Velles but do not speak with them as they consider them as unclean. Unlike other tribes, the Velles cannot read the sacred signs.

Over time the Velles observed the currents of the sea and improved their sailing skills; they learned how to sail back from Vyraj. It is only possible a few times per year when the Tree “shines” and the currents weaken. Since then they have been organising trips from which they bring tools, equipment and other uncontaminated materials to the continent. Over the years the Velles also observed the levels and types of contamination and learned how to move safely around the contaminated city. They also gained more resilience to corrupted time. They regularly sail to Vyraj to loot the city. It is their most kept secret. The Velles have to be very careful in Vyraj as showing themselves or any other contact with the inhabitants of Vyraj is strictly prohibited.

Vyraj is a partly flooded city located on an island. Time flows differently here. There are zones of endless loops, slowed down or speeded up spots and zones where time is unpredictable and crazy.

Although the lethal contamination some people managed to survive in the contaminated city. The Velles call them the Eternals. They look unimaginably old. Their bodies are deformed, and they no longer resemble human. However, their physical form is only the electronic afterimages of who they once were. Over the years they lost their bodies and became the energy. Living in the abandoned city for centuries, the Eternals are dying of boredom. Thus they see every newcomer as an opportunity to bring some freshness and fun to their sad existence.

After coming to Vyraj, Baj has shared the fate of the Eternals. He exists in the city and helps the newcomers reach the safe place—The Archive—an old library which is the last places where all the knowledge of humanity is gathered. When all the technology failed, all that is left from the knowledge is preserved on paper. Unfortunately, after many years the pages are crumbling into dust after turning so the books can only be read once making it impossible to bring them to the continent.

The plot starts eleven centuries after the Second Flood.

## 6.2. Plot

Yrja is a daughter of an artist and a sailor. The villagers are not very fond of her as she is always asking too many questions to which they have no answers. After reaching the age of ten, she has to pass The First Greying—a dangerous rite of passage. It is a big event—all tribes from the known world arrive with their children and gather near the Tree.

It is forbidden to stop or look back, but Yrja cannot help herself because at the very end of the rite she sees her beloved late grandmother Miroslava. She is saying something to Yrja, but the girl does not understand it; grandmother's words make no sense at that time. Yrja faints. Her parents rush to her and take her back to White Water.

Yrja recovers, but nothing seems normal anymore for her. She is experiencing time different than before; as if the past the present and the future are one. Because of the massive influence of the corrupted time, all her hair went grey. She also got older a few years.

The whisperer calls the council of elders. Due to the tradition, everyone with grey hair must leave the village and travel to Vyraj and so must Yrja.

Yrja recalls the events and people from her life: learning Storya and her tribe's traditions with her mother; sailing with her father; her beloved grandmother who recently left for Vyraj and her new friend Kirko whom she met a few weeks ago. He is a boy of the Velles, a talented mechanic and a handyman. His inventions and bold experiments with electricity arouse anxiety even in his folks.

On the next day, Yrja leaves White Water and sails to Vyraj. The paradise turns out to be an abandoned city; it is a scary but fascinating place. Yrja experiences various turbulences of corrupted time. She looks for her grandmother.

The Eternals kidnap Yrja. They reveal the truth about Vyraj and the corruption of time to Yrja. Yrja is scared of them, but in the end, they turn out to be kind. There is something strange about them. They entertain Yrja with technology, and she is amazed. However, the Eternals want to keep her for themselves. They plan to keep her with them as long as her body will dissolve and turn into pure energy—that way Yrja would stay forever with them.

Meanwhile Kirko with the Velles sail to Vyraj. He is surprised to see Yrja arriving at Vyraj. He follows her to keep an eye on her. Kirko breaks the rules of the Velles and reveals himself to Yrja to save her from the Eternals. He tells her about the lethal impact of corrupted time. They run away. Kirko warns her that if she stays in Vyraj, she will die, he suggests that he

will take her to the Velles and ask them to take her back to the continent and let her stay with them in Vell.

Unfortunately, on the way, they meet some obstacles and miss the last ship. They are trapped in Vyraj for the next few months. They are in great danger, but fortunately, Kirko knows Vyraj and the corruption very well so he can keep them alive. Yrja instinctively knows what to do as if she already knew the future. She insists on finding her grandmother.

Kirko leads her to Baj who tells them about the first White Water citizens, the creation of Storya; and leads them to the Archive. Yrja reunites with Miroslava. A group of people live in the library studying books and learning the stories by heart to preserve it. They want to go back to White Water and share the knowledge they got from books with their folks. However, it is impossible for them to come back.

Yrja understands that during the ritual she saw the possible future where the elders' dreams were fulfilled. Together with Kirko, they come up with the plan. Kirko experiments with the ancient technology and builds the machine which could transfer all of them back to the mainland. During the preparations, they stay in the Archive. Yrja teaches Kirko how to read. Eventually, they fell in love.

The machine is ready. Everybody gathers, and Kirko starts the process. It is a failure. The elders die, only Yrja and Kirko survive. Yrja is devastated. Kirko tries to comfort her. They wait for the next Velles' expedition and go back.

Yrja and Kirko notice that people gather near the Tree. They are sitting and listening to the elders. They both go there, and Yrja experiences the very same moment she saw during the ritual.

Everything is now clear to her. She realises that the elders have been living in Vyraj for so long they were close to sharing the fate of the Eternals. The transfer killed their bodies, but their energy was sent through the wire to the Tree. They can live here for some time because the contaminated area near the Tree supports their existence. The elders are content as they can share the knowledge they gained. They prefer to die among their folks than to live long in Vyraj.

With the comeback of the elders and the stories everything changes. The Velles for the first time sit beside the tribe of White Water; together they listen to the stories. The attitude towards the Velles gradually changes, and the tribes reconcile.

## 7. INSPIRATIONS

*Device 6*, *Phallaina* and *PRY* are mobile applications focusing on digital storytelling techniques and together with a manga *Nausicaä of the Valley of the Wind* are the most important inspirations for the project.

### 7.1. *Device 6*

*Device 6* by Simogo AB inevitably takes advantage of many features offered by smartphones. The game is a surreal thriller in which the primary medium is text though used in an atypical, intriguing way. The user starts by reading the first paragraphs of the story—scrolling down while moving through verses—but then the direction of the text often changes forcing the reader to rotate the device and scroll to the given direction to reveal the next parts of the story. Text becomes something more than just a meaning encrypted behind letters; it is a map, a line leading the “blind” reader through the two-dimensional, surreal world (Fig. 9). Some verses are reachable only after the user meets certain conditions; they open like doors to hidden passages leading to secret rooms.

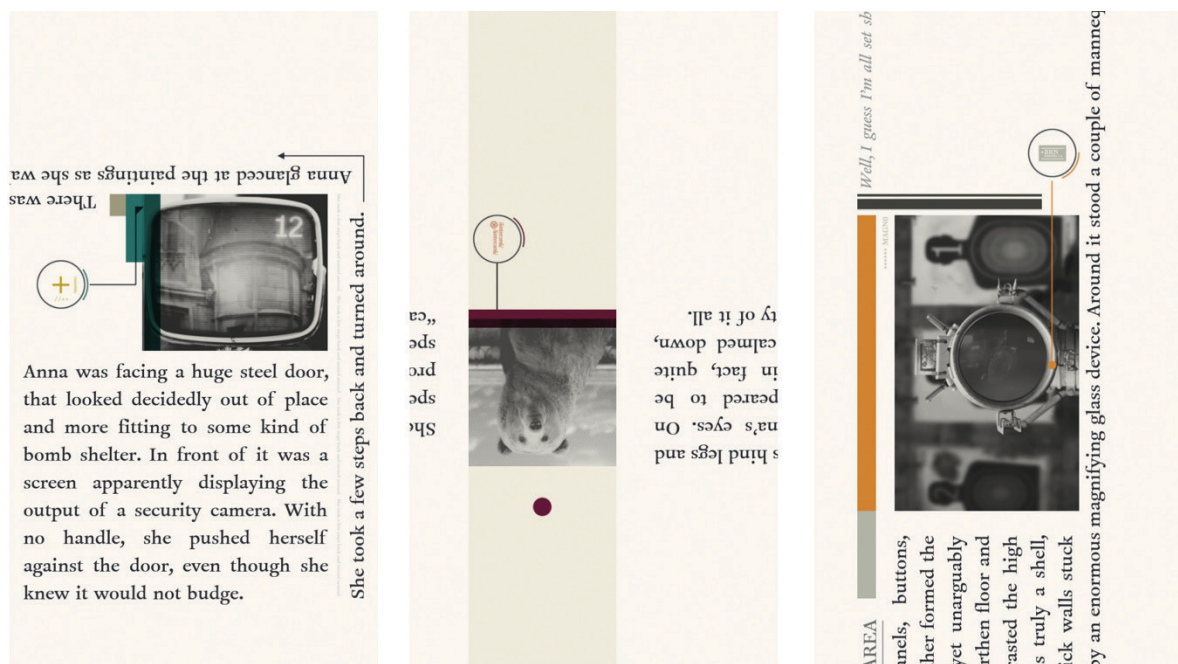


Figure 9 *Device 6* screenshots (Simogo AB, ©2016).

The main graphic element is beautiful typography. Minimalist yet sophisticated graphic elements: line, shapes and simple parallax animations accompany the text excellently. Creepy black and white photos along with dramatic music and sounds enhance the surreal experience. The gameplay is packed with riddles. The clues are hidden in all used media making

the gameplay a truly multimedia amusement. To reach the next chapter the user has to resolve the episode's central puzzle.

*Device 6* was inspirational because of its form—a combination of literature with games and subtle illustrations. *Vyraj* also adopted the interaction used in *Device 6*—scrolling through the text which changes the direction forcing the reader to rotate the device.

## 7.2. *Phallaina*

Marietta Ren—the author of *Phallaina*—took advantage of liberating comics from its original, paper medium and adapted it to the digital one. The outcome is an exceptional digital graphic novel—a comic book without panels. The display of a tablet or a mobile phone serves as an almost infinite comic page. Each chapter has a form of a very long graphic interwoven with captions or speech bubbles (Fig. 10). The graphic is scrollable, and it is the only method to unroll the story.



Figure 10 A passage from *Phallaina* (France Télévisions, ©2016).

The most significant inspiration for *Vyraj* was the performance of subtle yet appealing parallax animations which bring the unique compositions and beautiful art to life, and the perfectly timed soundtrack enhancing the story by building the haunting atmosphere.

## 7.3. *PRY*

Entirely new and unique multimedia storytelling experience is the main benefit of *PRY* developed by Tender Claws LLC. James—the main character—is a demolition expert who suffers from war trauma. At first glance, the game looks like an interactive video, but it is far more than that. *PRY* uses video, text, images, music and sounds mixed in unique, interactive gameplay (Fig. 11). The user has three options during each chapter; he can access three levels of James's—the main character—consciousness. By default, the user sees white texts on a black screen—these are James's thoughts—his eyes are closed. By using spreading gesture, the user literally opens the eyes so he can see what is happening in the real time of the story—e.g. James's everyday life. This part of the story is mostly a video. With the pinching gesture, the user can access James's subconscious where his past collides with his present.

In this level all the media interfere, the texts, images and videos are flickering very fast, almost impossible to read.



Figure 11 *PRY* screenshots (Tender Claws LLC, ©2015).

Every chapter is slightly different and in some cases offers another kind of interaction. For example, in Chapter 2 user has to move the finger through the lines written in Braille to hear James reading it out loud. During this, the short videos appear in the background. Chapter 6, on the other hand, is almost entirely textual—by pinching and spreading the verses of James’s thoughts are expanding. The user may reach their deepest level where lines of texts are visually torn apart and fragments of scenes kept in character’s subconscious reveal.

There are no puzzles to solve nor alternative storylines to discover. The goal of the game is actually to experience the world and the story through James’s eyes and mind.

*PRY* was inspirational because of its open form—with each chapter being visually different, using various digital storytelling and interaction techniques.

#### 7.4. *Nausicaä of the Valley of the Wind*

The last but not least inspiration regards more of the story than the design of *Vyraj*, and it is *Nausicaä of the Valley of the Wind*—a fantasy manga by Hayao Miyazaki. There are some similarities between the two stories. *Nausicaä* is set in post-apocalyptic Earth with a bioengineered ecological system. The protagonist is an exceptional, robust yet sensitive girl who becomes involved in a war between kingdoms and tries to prevent the environmental disaster that threatens humankind. The stories share the similar mood of the narration, both are epic tales, with complex worlds occupied by several social groups with conflicts of interest.

## 8. DESIGN

*Vyraj* is a combination of literature and game; a digital novel enclosed in a mobile application. In the story, the written word is the only remaining source of human knowledge and history. Thus, in the project, the text is the main medium to tell the story. It is accompanied by vector lines that form minimalistic illustrations and patterns as well as black and white digital collages.

### 8.1. Structure

The question of how to present the story was the most important one to answer. In the beginning, the app was thought to be similar to *Device 6*—using text as a visual map and a combination of puzzles with the hints to solve them distributed in the text and graphics (Fig. 12).

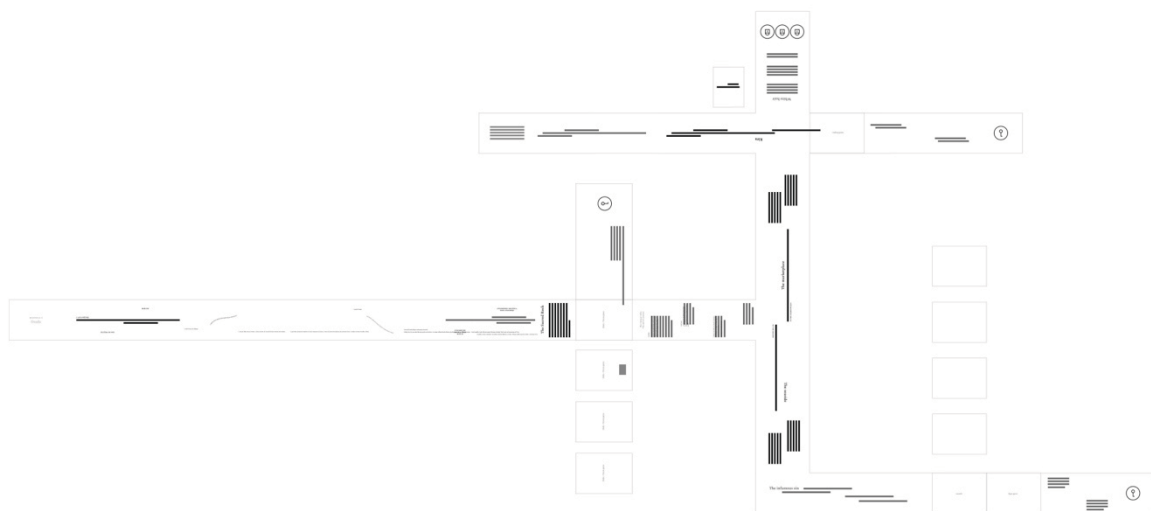


Figure 12 *Vyraj*—early sketches of the layout of Part Two.

However, the author wanted to work more with time, as it is an essential element in the story. The idea was to use the user's real time. At the specific hourly range, the different passages of text would be accessible in different parts of the textual map. For example, in the morning, when scrolling to the seaside location, the user would read about the fishermen; in the afternoon, about Yrja drawing in the sand; in the evening, he would witness a marriage ceremony. To end the game, the user would have to read all the texts to solve the final puzzle; thus, playing the game at different hours (Fig. 13).

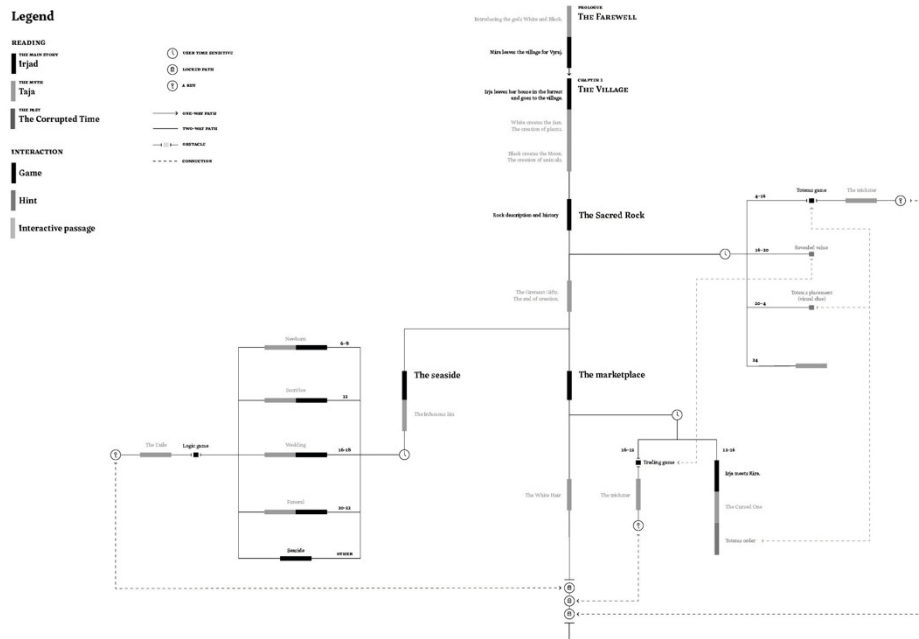


Figure 13 Vyraj—early plan of the structure of Part One.

This idea was later extended to the extreme when at every hour the passages of text would change. The story would be divided into three chapters, each chapter then divided into 12 subchapters, each one available for two hours a day (Fig. 14). For example, “The Seaside” subchapter would be available from 1 to 2 a.m. and from 1 to 2 p.m.

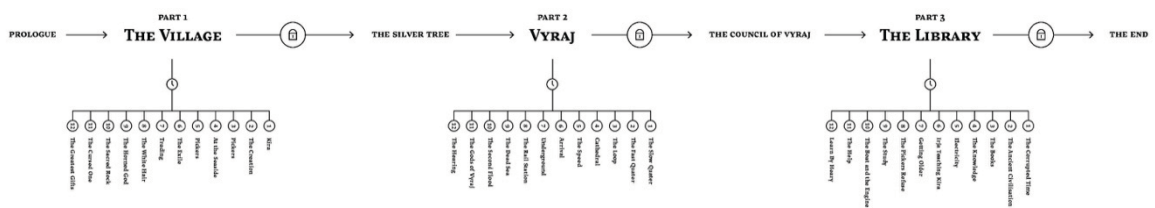


Figure 14 Vyraj—early plan of the structure based on user’s real time.

This structure seemed too extreme, so the author came back to the first idea and focused on how to make the puzzles more attractive. He got inspired by the other essential element in the story—the written text. He decided to make the puzzles entirely textual. The application would include different text-based games such as anagram, word ladder, cryptogram, word search and riddles. It seemed too complicated, and the application would have to explain how to play the games.



The best would be to find something which would work with both time and text and would be intuitive to play. The final solution was giving the user the ability to change the tense of the verbs. It reflects Yrja's perception of the time. The choices lead to discovering different branches of the plot (Fig. 15).

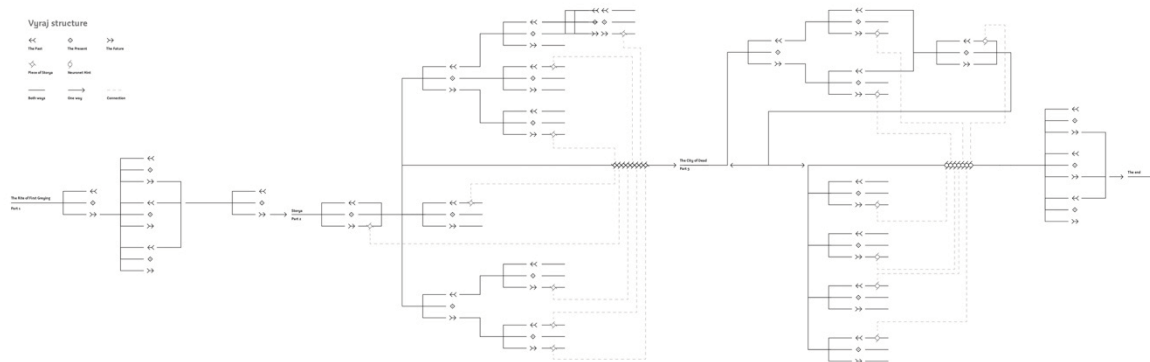


Figure 15 The final structure of *Vyraj*.

The structure of the plot was also changing. At first, the plot began with “The Rite of First Greying,” after which Yrja went straight to Vyraj. In “The City of Dead” the plot would develop in three parallel lines: Yrja's stay in Vyraj, a retrospective of her childhood in White Water and the discovering the truth about Vyraj's and humanity past. However, this composition was too complicated.

The other option was to go linear with the plot: start with Yrja's childhood, then the rite of passage, the journey to Vyraj and discovering the truth about the past. However, the part about living White Water seemed too dull to begin the story. Thus, the author changed the order: the story begins with the ritual, then White Water is introduced in retrospective, after which the part in Vyraj and the climax follow. In the application, the plot is divided into three parts: the introduction (“The Rite of First Greying”), and two chapters—“Storya” (White Water and Yrja's childhood) and “The City of Dead” (adventures in Vyraj and climax).

## 8.2. Typography

In the story, Baj after his enlightenment composed Storya and carved its text on the Holy Rock. He was a gifted visionary, and he simplified the notation creating the font in which each letter unifies its upper and lower case.

Inspired by this event the author designed a unique font for the project. Vyraj Ornamental represents Baj's typeface. The cases are joined in various ways, some of the characters were

mirrored before the merge reflecting the process of the evolution of letters. The most significant inspiration for the characters' construction was the Glagolitic script—the oldest known Slavic alphabet.

The Plain style was designed for better readability and contains only the capital letters with a few alternative glyphs. Both styles are used together—with Ornamental in yellow colour and Plain in black, which makes the typography both readable, decorative and intriguing (Fig. 16). In the project, Vyraj typeface appears mostly in titles and interactive elements.

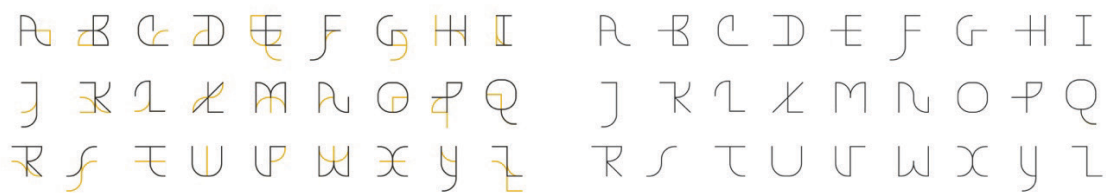


Figure 16 Vyraj Ornamental (on the left) and Vyraj Plain (on the right).

The Weitalic font family is used for the body text. This humanist sans serif typeface was designed by Wilhelm Eckert (2015); it has severe and angular strokes, but at the same time possesses a calligraphic look—an interplay of contrasts. Together with eye-catching details, therefore it goes well with Vyraj font face.

The layout of the text varies reflecting the events in the story. For example, the text describing Yrja walking along the cables is arranged into a long verse paralleled to the graphics representing the wires (Fig. 17). When the plot is branching so does the text with each sentence going in a different direction. The classic block of text is used in more static scenes. Some of the parts regarding the contaminated time use Rapid Serial Visual Presentation—a speed reading technology based on showing text as a sequential stream of words.

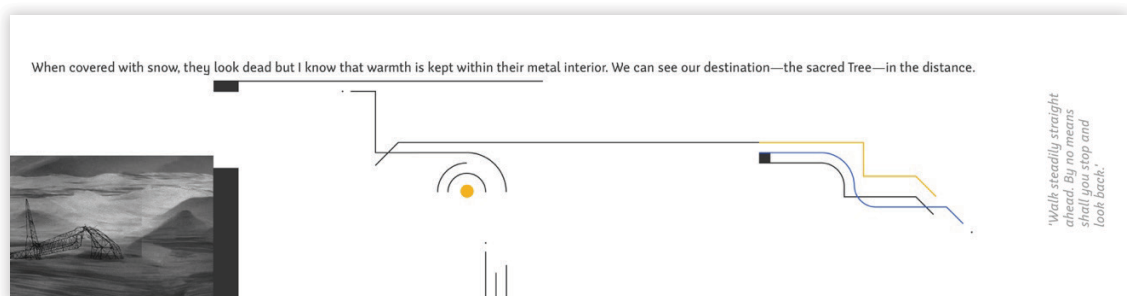


Figure 17 *Vyraj*—a fragment of “The Rite of First Greying.”

### 8.3. Graphics

The future society which had to abandon their cities developed a new culture with its customs and traditions. Visual culture is also an essential element of each society. The author speculated in which way it could develop. Since people lost everything, they had to start from the beginning using stick and sand, gravel and stone, charcoal and wall. Thus, the graphics are simplified to geometric shapes which can be easily drawn on sand and wall, engraved in stone. They also resemble things which people long for: a city with its architecture and structure, technology with processors, chips and wiring systems. Living in the harsh environment caused the need for lavish decoration.

With this in mind, the author found the perfect source of inspiration—the electrical wiring diagrams. They are highly technical, but there is also something magical in its symbols and linear geometric form. The lines form various elements: separately they are mystic symbols, icons or miniature illustrations; multiplied they create abstract patterns that resemble natural forms or vertical totem-like structures (Fig. 18). These subtle illustrations accompany the typography. The lines run along the verses symbolising the wires which can be found almost everywhere in the described world.

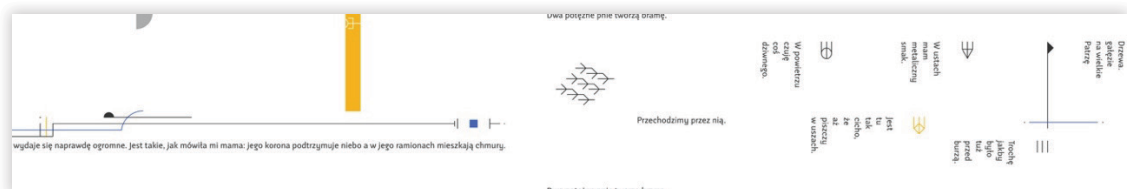


Figure 18 *Vyraj*—a fragment of “The Rite of First Greying.”

Storya deserves richer illustration—more complex structure that can depict the characters and events of the myth. Blue and yellow geometric shapes serve as colour backgrounds and complete the images (Fig. 19).

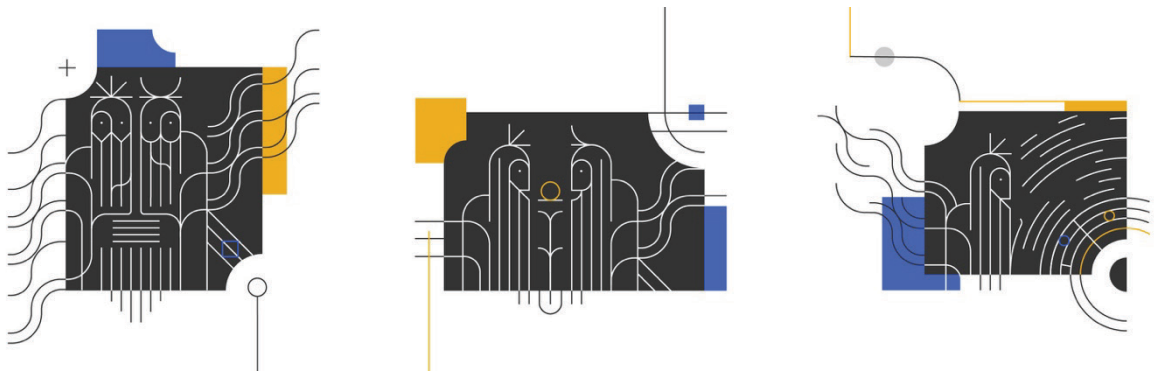


Figure 19 Storya illustrations.

However, typography and linear illustration were not enough to build the immersive and engaging visual style of *Vyraj*. Surely they are visually appealing, but the project demanded something less synthetic, more describing and familiar. The one that the user could easily identify himself with and that would help to imagine the depicted world.

Photography is inevitably a medium that can do that. To make it reflect the story with its unstable time the author edited them and mixed with other photos creating the unique digital collages.

The photos are seamlessly merged to suddenly divided without any smoothing, revealing the unnatural straight border and exposing the merging. Some of the elements stick out of the photo border into white space. The photos are stacked one on another creating an irregular pile—like a bunch of memories, stacked and glued together (Fig. 20). They are blended, yet they look ephemeral as if they were not permanently fixed.



Figure 20 360° digital collage from *Vyraj*.

The collages symbolise the way that Yrja sees the world, where the past the present and the future happens simultaneously. The life without the stories is “washed out of colours”, therefore the collages are only black and white which enhances the haunting and uneasy atmosphere. The digital collages are used for both full-screen, 360° and small illustrations. In some cases, they are also combined with linear graphics.

Each of three chapters has a cover illustration. The base of the pictures are portraits of Yrja which are the result of a cooperation with photographer Kinga Świątek and fashion designer Kristýna Coufalová. The photos are Świątek’s original interpretation of the story (Fig. 21) while the outfits are Coufalová’s vision of fashion in the described post-apocalyptic world—practical, recycled and modular (Fig. 22).



Figure 21 Cover illustrations for the chapters “The Rite of First Greying” and “Storya.”



Figure 22 Yrja’s outfits designed by Kristýna Coufalová, photographed by Kinga Świątek.

## 8.4. Interaction

Scrolling is the main type of interaction used in *Vyraj*. By swiping the user scrolls through the content. The mobile's auto-orientation is turned off so when the text turns the user has to rotate the device. The elements scroll with a different speed which adds the illusion of depth in two-dimensional scenes. Some of the elements additionally animate—for example, the illustrations of Storya.

The next type of interaction is changing the tense of certain verbs. *Vyraj* font is used to mark the interactive words. Pressing the verb reveals the possibilities; by dragging up or down the user makes his choice; after which the following sentences change revealing other parts of the story (Fig. 23). Sometimes they contain additional information; in other cases, they change the plot crucially—for example, Yrja dies when the sentence is in present or future tense, but in the past tense she survives. Thus, the user's goal is to set the verbs into the correct form to finish the game.



Figure 23 Tense-changing interaction example. From left to right: an incorrect sentence in the present tense, a moment of choice and the correct sentence with continuation.

The game is divided into three chapters. In each one, the user has a task to fulfil before he continues to the next part. The first chapter—"The Rite of First Greying"—is a tutorial which introduces the user to the gameplay. The goal of the second chapter—"Storya"—is to find eight parts of Storya that are scattered all over White Water. In the last chapter—*Vyraj*—the user has to solve a riddle by looking for tips and elements located in different parts of the city; to reach some of them, the user has to solve smaller puzzles.

The 360° digital collages serve as the crossroads leading to different part of the story. The user chooses the path by tapping the icon.

## 8.5. Music and Sound

The project has an original soundtrack composed on Eternal Music Generator a unique musical instrument created by Rafał Włodarek—a multimedia designer.

Eternal Music Generator (EMG) is an eight-string electromechanical musical instrument controlled by a computer. A small DC motor with a brush is attached above each string. The brushes strike the strings from a few to several thousand times per minute, which in combination with the frequency of the vibrating string gives the effect of a vibrating, multi-voice drone. Above the strings, servomotors move on the guides, whose arms can be lowered by pressing the string on the metal threshold and thus changing the pitch of the sound. At the same time, it is possible to play all eight voices; the sound goes to the audio interface and the computer via separate channels—each one can be modulated with effects, equaliser and control its volume.

The melody of the instrument reflects the story of *Vyraj* as it combines the two distant worlds: the world of traditional ethnic groups—the sound of stricken strings which reminds hurdy-gurdy or some unspecified folk instrument; and the future world—the vibrating multi-voice drone which sounds as if it was digitally generated.

Apart from the soundtrack, the sound of Yrja's watch is often used. When the story gets to the places with contaminated time the regular ticking sound appear and then changes to reflect the contamination—it speeds up, slows down, goes backwards or ticks unevenly depending on the type of corruption.

## 9. FUTURE POSSIBILITIES

The project is prepared for fundraising from cultural institutions and funds or crowdfunding websites. The financial resources are needed to finish the missing parts of the project; to pay the application developer, music composer, sound designer, photographer, translator and other involved people; and for marketing and promotion.

*Vyraj* is intended to be a paid application available in Google Play and App Store.

The story itself can also be explored in other media such as film, book or video game resulting in cross-media project.



## CONCLUSION

Interaction, Hypertext, Networking, Virtuality and Simulation are the features which together make digital media and digital storytelling unique. This thesis analysed the qualities separately and searched for the most interesting examples of digital storytelling.

Every new communication technology brings a new way of telling a story. Digital creatives settle their tales wherever they can: from text-based programs to 360° virtual realities. Some of them used the methods explored before in traditional media, others experiments resulting in innovative and unique experiences.

Storytelling in digital media is a vast and complex topic. Surely this thesis did not cover it all. For future research, it might be interesting to focus just on user-generated content on social media or to explore the interference of digital storytelling with the traditional media, for example writing an epistolary novel compounded from emails or text messages, print-publishing digital-intended contents such as a blog or fanfiction.

The theoretical part also served as the research for the diploma project. The findings helped the author in the creation of both the narrative and design. The story of *Vyraj* was developing for more than six years till it grew to its epic size. Enlosing it into mobile application was both challenging and satisfying. The author is looking forward to further working on the project. The crowning achievement of this thesis would be the premiere of *Vyraj* application and later the great user reviews and sales results.

## BIBLIOGRAPHY

- 3 MINUTES GAMES, ©2015, *Lifeline* [mobile application software]. Version: 1.10.1. 19 May 2016 [Accessed 28 July 2016]. Available from: <https://itunes.apple.com/vn/app/lifeline.../id982354972?mt=8>.
- AARVI, ANISHQ, SHRUTI, 2017, Late Night Thoughts. *HaikuJAM* [mobile application software]. Version: 2.4.0. 10 March 2017 [Accessed 18 March 2017]. Available from: <https://itunes.apple.com/us/app/haikujam-write-poetry-together/id727512858?mt=8>.
- afternoon, a story, 2016. *Wikipedia* [online]. 11 November 2016. [Accessed 19 March 2017]. Available from: [https://en.wikipedia.org/wiki/Afternoon,\\_a\\_story](https://en.wikipedia.org/wiki/Afternoon,_a_story).
- BOBBITT, David, 2011, Teaching McLuhan: Understanding Understanding Media. *Enculturation* [online]. 30 December 2011. [Accessed 31 July 2016]. Available from: <http://enculturation.net/teaching-mcluhan>.
- BOYD, Brian, 2009, *On the origin of stories: evolution, cognition, and fiction*. Cambridge: Belknap Press of Harvard University Press. ISBN 978-0-674-05711-1.
- CARR, Nicholas, 2010, *The shallows: what the Internet is doing to our brains* [e-book]. New York: W.W. Norton. ISBN 978-0-393-07936-4.
- COBLEY, Paul, 2014, *Narrative*. 2nd ed. London: Routledge. The new critical idiom. ISBN 978-0-415-83444-5.
- Colossal Cave Adventure, 2018. *Wikipedia* [online]. 20 March 2018. [Accessed 2 May 2018]. Available from: [https://en.wikipedia.org/wiki/Colossal\\_Cave\\_Adventure](https://en.wikipedia.org/wiki/Colossal_Cave_Adventure).
- COSTIKYAN, Greg, 2007, Games, Storytelling and Breaking the String. In: WARDRIP-FRUIIN, Noah and HARRIGAN, Pat, ed. *Second person: role-playing and story in games and playable media*. Cambridge, MA: MIT Press. 5-13. ISBN 978-0-262-08356-0.
- Czesław Śpiewa, 2016. *Wikipedia* [online]. 4 December 2016. [Accessed 18 March 2017]. Available from: [https://en.wikipedia.org/wiki/Czesław\\_Śpiewa](https://en.wikipedia.org/wiki/Czesław_Śpiewa).
- ČINČEROVÁ, Alena, 2010. *Kinoautomat* [online]. [Accessed 7 January 2018]. Available from: <http://www.kinoautomat.cz>.
- Digital media, 2016. *Wikipedia* [online]. 28 July 2016. [Accessed 28 July 2016]. Available from: [https://en.wikipedia.org/wiki/digital\\_media](https://en.wikipedia.org/wiki/digital_media).
- DUFRESNE, David, 2016, Interactive Cinema: Tantale and Late Shift. *CMF Trends* [online]. [Photography]. 6 December 2016. [Accessed 2 May 2018]. Available from: <https://trends.cmf-fmc.ca/blog/interactive-cinema-tantale-and-late-shift>.
- ECKERT, Wilhelm, 2015, Weitalic. *MyFonts* [online]. 27 February 2015. [Accessed 2 April 2018]. Available from <https://www.myfonts.com/fonts/wilhelm-eckert/weitalic>.
- ERIKSEN, Thomas Thylland, 2001, *Tyranny of the Moment: Fast and Slow Time in the Information Age*. London; Sterling, Virginia: Pluto Press. ISBN 0-7453-1775-8.
- Fantastic Beasts and Where to Find Them VR Experience, 2018. *Steam* [online]. [Image]. 23 January 2018. [Accessed 2 May 2018]. Available from: [https://store.steampowered.com/app/752730/Fantastic\\_Beasts\\_and\\_Where\\_to\\_Find\\_Them\\_VR\\_Experience/](https://store.steampowered.com/app/752730/Fantastic_Beasts_and_Where_to_Find_Them_VR_Experience/).
- FEDROVÁ, Stanislava and JEDLIČKOVÁ, Alice, 2011, *Intermediální poetika příběhu*. Praha: Ústav pro českou literaturu AV ČR. ISBN 978-80-85778-80-9.

- FRANCE TÉLÉVISIONS, ©2016, *Phallaina: La 1ère "bande défilée"* [mobile application software]. Version: 1.0. 28 January 2016 [Accessed 16 March 2017]. Available from: [https://appsto.re/cz/gQOG\\_.i](https://appsto.re/cz/gQOG_.i).
- FRUTIGER, Adrian, 1989, *Signs and Symbols: Their Design and Meaning*. New York: Van Nostrand Reinhold. ISBN 0-442-23918-1.
- GUERTIN, Carolyn, 2013, Handholding, Remixing, and the Instant Replay: New Narratives in a Postnarrative World. In: SIEMENS, Raymond George and SCHREIBMAN, Susan, *A companion to digital literary studies*. Chichester: Wiley-Blackwell. Blackwell companions to literature and culture. p. 233—249. ISBN 978-1-4051-4864-1.
- HERMAN, David, 2002, *Story logic: problems and possibilities of narrative*. Lincoln: University of Nebraska Press. Frontiers of narrative. ISBN 0-8032-7342-8.
- HUDSON, Laura, 2015, I've been texting with an astronaut. *Boing Boing* [online]. 7 May 2015. [Accessed 11 August 2016]. Available from: <http://boingboing.net/2015/05/07/lifeline-astronaut-game.html>.
- JAYESH, ROUNAK, LYDIA, 2017, College Confessions. *HaikuJAM* [mobile application software]. Version: 2.4.0. 10 March 2017 [Accessed 18 March 2017]. Available from: <https://itunes.apple.com/us/app/haiku-jam-write-poetry-together/id727512858?mt=8>.
- JERZ, Dennis G., 2010, Colossal Cave Adventure. *Jerzs Literacy Weblog* [online]. 10 September 2010. [Accessed 10 August 2016]. Available from: <http://jerz.setonhill.edu/intfic/colossal-cave-adventure>.
- JOHNSON, Steven, 2013, Why No One Clicked on the Great Hypertext Story. *WIRED* [online]. 16 April 2013. [Accessed 20 March 2017]. Available from: <https://www.wired.com/2013/04/hypertext>.
- LEVINSON, Paul, 2004, *Digital McLuhan: a guide to the information millennium*. New York: Routledge. ISBN 0-203-16434-2.
- LISTER, Martin et al., 2009, *New Media: A Critical Introduction*, London: Routledge. ISBN 0-415-43160-3.
- LONG, Tony, 2004, It's Just the 'internet' Now. *WIRED* [online]. 16 August 2004. [Accessed 30 July 2016]. Available from: <http://archive.wired.com/culture/lifestyle/news/2004/08/64596>.
- MCKEE, Robert, 1997, *Story: substance, structure, style and the principles of screenwriting*. New York: HarperCollins. ISBN 0-06-039168-5.
- McLUHAN, Marshall, 1994, *Understanding Media: The Extensions of Man*. Cambridge: The MIT Press. ISBN 9780262631594.
- NATIONAL FILM BOARD OF CANADA, ©2012, *Bear 71* [online]. 19 January 2012. [Accessed 2 April 2017]. Available from: <http://bear71.nfb.ca/#/bear71>.
- , ©2013, *A Journal of Insomnia* [online]. 18 April 2013. [Accessed 2 April 2017]. Available from: <http://insomnia.nfb.ca/#/insomnia>.
- ONET.PL, ©2001, *Multipoezja* [online]. 5 July 2001. [Accessed 19 March 2017]. Available from: <http://multipoezja.onet.pl/czat1.html>.
- PAGE, Ruth E. and THOMAS, Bronwen, 2011, *New narratives: stories and storytelling in the digital age*. Lincoln: University of Nebraska Press. Frontiers of narrative. ISBN 978-0-8032-1786-7.
- PALIWODA, Dawid, 2016, New Narratives in Virtual Reality. *Medium* [online]. [Accessed 11 March 2018]. Available from: <https://medium.com/w12studios/new-narratives-in-virtual-reality-4460f0314980>.

PANGBURN, DJ, 2013, A Journal of Insomnia Is a Surreal Interactive Documentary Experience. *Creators* [online]. 22 April 2013. [Accessed 2 April 2017]. Available from: [https://creators.vice.com/en\\_au/article/a-journ](https://creators.vice.com/en_au/article/a-journ).

Papers, Please, 2013. *Steam* [online]. [Image]. 8 August 2013. [Accessed 2 May 2018]. Available from: [https://store.steampowered.com/app/239030/Papers\\_Please/](https://store.steampowered.com/app/239030/Papers_Please/).

OSKOU+OSKOU, ©2013, *Interesting Layouts from House of Leaves* [online]. [Photography]. 10 April 2013. [Accessed 2 May 2018]. Available from: <http://blog.oskou-oskou.com/?p=6125>.

PULLINGER, Kate, 2018, *Breathe* [online]. [Image]. [Accessed 2 May 2018]. Available from: <http://www.katepullinger.com/breathe/>.

RIESER, Martin and ZAPP, Andrea, 2002, *New screen media: cinema/art/narrative*. London: British Film Institute. ISBN 0-85170-864-1.

ROSE, Frank, 2012, *The art of immersion: how the digital generation is remaking Hollywood, Madison Avenue, and the way we tell stories*. New York: W. W. Norton & Company. ISBN 978-0-393-34125-6

Rozpaky kuchaře Svatopluka, 2010. *Wikipedia* [online]. 4 November 2017. [Accessed 7 January 2018]. Available from: [https://cs.wikipedia.org/wiki/Rozpaky\\_kuchaře\\_Svatopluka](https://cs.wikipedia.org/wiki/Rozpaky_kuchaře_Svatopluka).

RYAN, Marie-Laure, 2001, *Narrative as virtual reality: immersion and interactivity in literature and electronic media*. Baltimore: Johns Hopkins University Press. ISBN 0-8018-6487-9.

—————, 2004, *Narrative across media: the languages of storytelling*. Lincoln: University of Nebraska Press. *Frontiers of narrative*. ISBN 0-8032-8993-6.

SIMOGO AB, ©2016, *Device 6* [mobile application software]. Version: 1.2. 9 March 2016 [Accessed 28 July 2016]. Available from: <https://itunes.apple.com/us/app/device-6/id680366065?mt=8>.

SMITH, Richard, 2013, What is Digital Media? *Centre for Digital Media* [online]. 15 October 2013. [Accessed 29 July 2016]. Available from: <https://thecdm.ca/news/faculty-news/2013/10/15/what-is-digital-media>.

STANTON, Jeffrey, 1997, *Experimental Multi-Screen Cinema* [online]. [Accessed 7 January 2018]. Available from: <https://www.westland.net/expo67/map-docs/cinema.htm>.

TENDER CLAWS LLC, ©2015, *PRY* [mobile application software]. Version: 2.0. 9 June 2016 [Accessed 28 July 2016]. Available from: <https://itunes.apple.com/us/app/pry/id846195114?mt=8>

The greatest inventions of all time, 2015. *Raconteur* [online]. 27 March 2015. [Accessed 28 July 2016]. Available from: <http://raconteur.net/culture/the-greatest-inventions-of-all-time>.

THOMAS, Bronwen, 2011, „Update Soon!” Harry Potter Fanfiction and Narrative as Participatory Process. In: PAGE, Ruth E. and THOMAS, Bronwen, *New narratives: stories and storytelling in the digital age*. Lincoln: University of Nebraska Press. *Frontiers of narrative*. p. 205—219. ISBN 978-0-8032-1786-7.

VECCHIOLI, Adriana, 2016, How Virtual Reality is Changing Storytelling Forever. *Medium* [online]. [Accessed 10 March 2018]. Available from: <https://medium.com/the-mission/how-virtual-reality-is-changing-storytelling-forever-3a9836c5300c>.

ZABŁOCKI, Michał, 2012, *Wesoły Kapelusz* [The Cheerful Hat]. Translated by Nester. *Lyrics Translate* [online]. 22 September 2012. [Accessed 17 March 2017]. Available from: <http://lyricstranslate.com/en/wesoły-kapelusz-cheerful-hat.html>.

## LIST OF FIGURES

Figure 1 A spreadsheet from <i>House of Leaves</i> (Oskoui+Oskoui, ©2013). .....	17
Figure 2 An excerpt of <i>Colossal Cave Adventure</i> (2018).....	18
Figure 3 <i>Lifeline</i> gameplay (3 Minutes Games, ©2015). .....	19
Figure 4 Presentation of Kinoautomat during Expo '67 in Montreal (Dufresne, 2016).....	22
Figure 5 A screenshot from <i>Bear 71</i> (National Film Board of Canada, ©2012). .....	24
Figure 6 A screenshot from <i>Fantastic Beasts and Where to Find Them VR Experience</i> (2018). .....	33
Figure 7 <i>Papers, Please</i> (2013) screenshot.....	34
Figure 8 <i>Breathe</i> by Kate Pullinger (2018).....	35
Figure 9 <i>Device 6</i> screenshots (Simogo AB, ©2016). .....	44
Figure 10 A passage from <i>Phallaina</i> (France Télévisions, ©2016). .....	45
Figure 11 <i>PRY</i> screenshots (Tender Claws LLC, ©2015).....	46
Figure 12 <i>Vyraj</i> —early sketches of the layout of Part Two. ....	47
Figure 13 <i>Vyraj</i> —early plan of the structure of Part One.....	48
Figure 14 <i>Vyraj</i> —early plan of the structure based on user’s real time. ....	48
Figure 15 The final structure of <i>Vyraj</i> . .....	49
Figure 16 <i>Vyraj</i> Ornamental (on the left) and <i>Vyraj</i> Plain (on the right).....	50
Figure 17 <i>Vyraj</i> —a fragment of “The Rite of First Greying.” .....	50
Figure 18 <i>Vyraj</i> —a fragment of “The Rite of First Greying.” .....	51
Figure 19 <i>Storya</i> illustrations.....	52
Figure 20 360° digital collage from <i>Vyraj</i> . .....	52
Figure 21 Cover illustrations for the chapters “The Rite of First Greying” and “ <i>Storya</i> .”.....	53
Figure 22 Yrja’s outfits designed by Kristýna Coufalová, photographed by Kinga Świątek.....	53
Figure 23 Tense-changing interaction example. From left to right: an incorrect sentence in the present tense, a moment of choice and the correct sentence with continuation. ....	54

## APPENDICES

[P I] Content of the enclosed CD-ROM

## **APPENDIX P I: CONTENT OF THE DATA CARTRIDGE CD**

The enclosed CD contains:

- This work in PDF and DOC formats (Adobe Acrobat and Microsoft Word)
- Image documentation of the project part