Adolescents and long form Fiction in the digital age

TL;DR

by

Bergthora Jonsdottir

BA ICELAND ACADEMY OF ARTS, 2011

A CRITICAL & PROCESS DOCUMENTATION
PAPER SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF DESIGN

Emily Carr University of Art + Design
2016

TAKK

Celeste Martin
Jessica Baratta
Lucy McGroarty
Mark Andrew Hamilton
Vivian Ziereisen

Davíð Ingi Jónsson
Jón Þórir Baldvinsson
Kristjana Kristinsdóttir

Amy Kheong

I could not have done
this without you ❧

Abstract

Hurried, fragmented, distracted reading associated with digital formats is becoming the norm—pushing aside reflective, deep reading associated with print. Students' reading and writing is increasingly moving to digital platforms associated with hyper-reading, whereas the school environment places emphasis on more focused attention and commitment to the text based on deep reading principles.

Students aged 13–16 as well as educators were involved in a series of activities including interviews, co-creation, and user-testing, looking into how print associated reading skills could be translated and facilitated in a digital format. Focusing on bringing the positive aspects of the digital format into play: reader customization, interactive activities and annotation, the proposed system situates itself within the classroom, building upon the *Guided reading* comprehension strategies.

This project is guided by the convergence of various notions and theories including: guided reading, the connection between flow and deep reading, the notions of intrinsic versus extrinsic motivation and the role of gamification. With those strategies in place, the project seeks to add to the spectrum of reading choices as well as to the conversation of extending deep reading into the digital realm.

Keywords
Literacy, digital, iPad, reading comprehension, adolescents.

Table of Contents

Glossary

Reading comprehension
A strategic process where the reader extracts and constructs meaning from text. Reading comprehension is the interplay between the reader, the text, the strategies used by the reader as well as the context of where the reading takes place. (Klapwijk, N. 2015)

Long form fiction
A substantially long piece of fictional writing or imaginative narration. Existing research states that some of the benefits of reading long form fiction include improved social perception and emotional intelligence, increased empathy, sharpness and kindness. (Kidd, D., & Castano, E. 2013).

Deep reading
As defined by N. Katherine Hayles, deep attention or deep reading is "characterized by concentrating on a single object for long periods [...], ignoring outside stimuli while so engaged, preferring a single information stream, and having a high tolerance for long focus times." (Hayles, K. 2007)

Hyper reading
Hayles defines the mode of hyper attention or hyper reading as "switching focus rapidly between different tasks, preferring multiple information streams, seeking a high level of stimulation, and having a low tolerance for boredom." (Hayles, K. 2007)

Rich media
The use of multiple levels of digital content, such as audio, video or other interactive elements.

Paratext
Additional information on an existing narrative. Paratext is used when referring to everything besides the main body of work, excluding the cover, table of contents and other similar components. In the context of this project, paratext is used as a term for other material or background knowledge, such as information about the author, where the story takes place, character profiles and so forth.

Intrinsic motivation
Behavior driven by internal rewards—the enjoyment of pursuing an activity without a specific end-goal, other than the activity itself. ("Intrinsic motivation" n.d.)

Extrinsic motivation

Behavior driven by external rewards or reinforcement. Extrinsic motivation arises from outside the individual, increasing the risk of placing too much value on a hypothetical future gain in the form of some kind of rewards or incentives, such as grades and praise. (“Extrinsic motivation” n.d.)

Gamification

The application of game mechanics and principles in a non-game context.

Flow

A psychological concept of a highly focused mental state, coined by Hungarian psychologist Mihaly Csikszentmihalyi. Flow is a state of complete concentration, being absorbed by the task or activity at hand in a way that blocks all other outside stimuli. According to Csikszentmihalyi, the activity of reading is one of the most internationally known flow activities, as it can immerse the reader completely, transforming the words on the page into imaginary lands for the reader to explore. (Csikszentmihalyi, M. 2008)

EPUB

EPUB (Electronic publications) distributes web content, including XHTML, CSS, SVG, and other resources in a single-file format. (“EPUB”, 2016) An EPUB can be either re-flowable or fixed layout format. The re-flowable format is highly conservative, and does not allow for use of rich media. It does however, allow the reader to optimize and customize the content, change the typeface and its size as well as background color. A fixed-layout EPUB can include embedded media, such as video, audio and animation. It can be laid out in a portrait or landscape mode, but stays static, as the name implies.

Introduction

Our mediascape has changed and continues to develop rapidly, transforming our reading habits, our media intake, the way we communicate with others and even the way we think. We are in the midst of a big change; one might even compare it to the shift of cognitive styles brought by Gutenberg's printing press (Hayles, 2011). We engage a lot more in shorter texts, read bite sized pieces and skim texts that might not require too much cognitive effort. We want as much information as possible, as quickly as possible. Some scholars argue that these changes in reading habits are weakening our skills for deep-reading—our ability to engage with text in a qualitative, critical, prolonged way (Carr, 2010). Or, as put by Sven Birkerts, (2006) author of *The Gutenberg elegies,* "Contemplative thought is endangered."

According to an experiment carried out at the University of Southern California's Brain and Creativity Institute, "the more distracted we become, the less able we are to experience the subtlest, most distinctively human forms of empathy, compassion, and other emotions" (Carr, N. 2011, p. 221), notions which are in fact proclaimed to be benefits of reading long form fiction. French novelist Marcel Proust described reading as "a kind of intellectual sanctuary where human beings have access to thousands of different realities they might never encounter or understand otherwise" (Wolf, M. 2008, p. 6).

Andrew Piper, author of *Book Was There: Reading in Electronic Times*, boldly claims that young readers are distracted ones; up to a point where they do not possess the concentration necessary to finish a whole book (Piper, 2012). And even though Piper might be exaggerating, his statement has some truth to it. It isn't all that surprising that a younger audience, so used to layered digital platforms and fractured attention, might find it challenging when it comes to applying themselves to long form fiction. In this form of reading, the text itself is not the instrument of meaning production; it is the reader

who constructs meaning and reflection. One might argue that it is the exact opposite of the hurried, distracted reading that seems to have become the new norm. In this new context with these new modes of reading, the novel asserts itself as a "vital antidote to the mentality that the Internet promotes" (Birkerts, 2010).

"TL;DR" reflects these changes in reading habits quite well. The Internet slang— abbreviation for "too long; didn't read"—is used to indicate that one didn't read the whole text. The Internet and the novel/long form fiction seem to be conducive to two opposite reading modes. It was with that in mind that this project came to life, as an exploration into introducing contemplative thought, a terrain of reflection, within a digital environment for 13–16-year-old students in a strategic way.

Focusing on the positive affordances of the digital format, this project included a series of studies and iterations on different platforms for digital reading. The final outcome of the project is a digital version of Mary Shelly's *Frankenstein* structured around "Guided reading" comprehension strategies. These strategies have been applied to different components of the book, encouraging reflection and monitoring of comprehension, in balance with deep reading of the text.

Context and Framing

James Sosnoski (1999) introduced the concept of "hyper-reading", which he defined as "reader-directed, screen-based, computer-assisted reading" (p. 162). In his study, "Hyper-readers and their reading engines", Sosnoski, an avid digital reader, discusses the value of what he refers to as "constructive hyper-reading"—the positive outcomes and possibilities of hyper-reading. Sosnoski regards the characteristics of hyper-reading, such as filtering, skimming, pecking and fragmenting as parts of an analytical tool set, seemingly as he feels he's capable of applying those tools in a constructive way himself. He does touch upon the fact that these characteristics can also mean a loss of meaning, depth, coherence and context, but remains confident that the mode of constructive hyper-reading is what is to come. (Sosnoski, J. 1999, p. 164).

To some extent, Sosnoski is right. It indeed seems that the mode of hyper-reading is prevailing. However, recent studies indicate that it's not as constructive as Sosnoski was hoping for. The filtering, skimming and pecking, that we now tend to count among the negatives of digital reading, may even be changing the very structures of our brains, making it more difficult to achieve close, deep reading. Hyper-reading seems to have made it more difficult for us to concentrate on things in a sustained way, urging us to give into distractions more readily—checking emails, browsing websites—and go through things in an increasingly distracted, hurried way. Opposite to hyper-reading is the "deep reading" or "close reading" traditionally associated with reading long form fiction in print. Getting absorbed by the text, deep reading and processing supports "mindful knowledge acquisition, inductive analysis, critical thinking, imagination and reflection" (Greenfield, P. 2009, p. 69-71).

Students' reading and writing is increasingly moving to digital platforms associated with hyper-reading, whereas the school environment places emphasis on more attention and commitment to the text based on deep reading principles. Author Katherine Hayles (2011) points out the disconnect

between reading modes in her paper *How we read: Close, hyper, machine:* "The two tracks, print and digital, run side by side, but messages from either track do not leap across to the other side." She then continues, "How do we convert the increased digital reading into increased reading ability and how [do we] make effective bridges between digital reading and the literacy traditionally associated with print" (p. 62). Which leads us to the question: How can we prepare students for the deep reading associated with print while harnessing the positive affordances of screen based reading?

Despite all the seemingly negative effects of hyper-reading, reading in a digital format presents us with possibilities beyond those of paper books. The positive affordances of screen based reading include input of rich media, and interactive activities, highlighting and note taking that can transform into accessible, even shareable collections, fast and easy search and word definitions, and perhaps most importantly, options for customization, reflecting different needs and preferences. Being able to change and adjust visual settings, such as font styles, sizes and colors, leading, margins, and background color, having the text read out to you, and transform speech to text—are all options that promote text accessibility and personalization of text in a way that paper books simply cannot do.

The project situates itself within a classroom environment, and aims to provide an addition to the spectrum of texts offered to the students. In this context, long form fiction became the natural genre of choice since according to the English Language Arts curriculum, provided by the British Columbia Ministry of Education, "significant works of literature", including novels, are introduced around grade 8. This means students around the age of 13 are expected to start developing the reading and comprehension skills for complex long form fiction reflecting a variety of times, places, and perspectives by exploring both "Canadian and world literature as a way of knowing, of developing personal values and of understanding". (Ministry of Education,

2008) This project focuses on two literary classics: Bram Stoker's Dracula for early experiments and Mary Shelley's Frankenstein for later iterations.

Kenneth Gordon Maplewood School's (KGMS) is a Vancouver based school for students with learning differences that operates under the premise that the key to educational success is approaching each student individually, based on their skills, needs and abilities—making them a particularly good partner for this project. ("Kenneth Gordon Maplewood School. n.d.) KGMS recognizes the need for a spectrum of choices when it comes to reading, offering multiple access routes to a text: a traditional paper copy, audio book and a graphic novel version of the same story. By comparison "traditional" schools will most likely make all students read the same paper version of the book. That lack of diversity might stem from "traditional" testing of subjects—using the same recipe for an intended outcome, to fulfill a certain curriculum.

Students aged 13–16 as well as educators at KGMS were involved in a series of activities including interviews, co-creation, and user-testing. While conducting those activities, it was important to avoid negative discourse and associations between the students and the research and, in particular, to avoid making them feel singled out as subjects in a study on the challenges posed by general changes in reading habits. The questions and language used focused on the interviewer wanting to learn from the participants—getting to know their reading habits and preferences, especially within a classroom environment.

How can literacy traditionally associated with print be translated into a digital format, harnessing the positive affordances of screen based reading?

Criteria and Rationale

- Creating a digital addition to the spectrum of long form fiction reading choices within the classroom.
- Facilitating deep reading/flow—motivating and empowering the reader.
- Fostering reading comprehension.
- Focus on intrinsic motivation rather than extrinsic motivation.
- Harness the positive affordances of the digital format (especially reader customization, interactive activities and annotation) while avoiding skimming or distractions such as hyperlinks.

Frame the experience in a way that is social in nature but avoids competitiveness. Reading of print books has declined, as people read more from a screen than ever before. Meanwhile, multiple studies show that reading skills—the ability to identify the main idea of a passage, draw inferences, predict etc., have declined among teenage students in recent years. According to Hayles (2011), "people read less print, and they read print less well." (p. 62). While students read more and more screen based material, they aren't necessarily encouraged to apply print based reading skills, associated with deep concentration and reflection, to the digital environment.

The importance of good reading skills has only been amplified by increased digital means of access (Biancarosa, G., Griffiths, G., 2012). Because of all the information at our fingertips, both print-based and in digital form, it might be more crucial now than ever, to possess the skills to navigate that wealth of information successfully (Goldman, S. 2012). It is important that we know how to go beyond the text, to engage with it in a critical, contemplative way. There is a real opportunity in attempting to bridge the gap between deep reading abilities associated with print and digital conventions.

As students are so adept at using digital technology, approaching their reading within a digital format might benefit both proficient and less proficient readers. Proficient readers could apply their comprehension strategies to a new format while the less proficient ones might be able to add to their skill set within a familiar environment. Research has even shown that students from lower socio-economic backgrounds that were equipped with e-readers for home use, gained significant vocabulary knowledge as well as improving their word-recognition skills "thus suggesting that e-reading technology could be useful for closing both procedural and conceptual skill gaps in literacy" (Biancarosa, G., Griffiths, G., 2012, p. 142). This view could even be applied to the theories of L. S. Vygotsky, which are widely recognized and used within education/pedagogy, as he states that the optimal zone for learning is the one where instruction and available skills meet. Available skills could in this case mean the digital skills of students.

This project focuses on bringing the positive aspects of the digital format—reader customization, interactive activities and annotation into play, intertwining them with strategies supporting deep reading. Those positive affordances are applied in particular to personalize the reading experience and provide customized support to the reader.

Theoretical Framework

The ubiquity of screens in our daily lives has "altered our traditional perception of text to encompass a richer form of media content, where image, sound, video and text intertwine." (Kenna, H. 2011, p. 211) Early iterations of ebooks saw a wave of implementation of this "rich media", following the belief that it might deepen and enrich the experience of text. However, as development progresses this notion seems to have been somewhat curbed, as excessive use of rich media has been found to "further strain our cognitive abilities, diminishing our learning and weakening our understanding" (Carr, N. 2010). In his book, *Book was there*, author Andrew Piper (2012) argues that adding layers of media is a departure from reading but not an enhancement of it: "listening to music, watching movies, pointing, and clicking—these have nothing to do with reading" (p. 48). Our attention might be seized by those enhancements, only to scatter it. In order to determine the kind of strategies that could be put in place to deepen comprehension and enrich the learning experience in digital formats, this project is guided by the convergence of various notions and theories including: guided reading, the connection between flow and deep reading, the notions of intrinsic versus extrinsic motivation and the role of gamification.

Guided reading

Learning to read is one thing, reading to learn is quite another—and requires mindful building of capacity for comprehension. According to Susan Goldman (2012), co-director of the Learning Science Research Institute at the University of Illinois, successful readers monitor their comprehension throughout the reading process and apply a number of strategies to their reading in order to make sense of the text. They use cues from the text as well as their existing knowledge to construct meaning, make and monitor predictions. In contrast, weak readers will rather rephrase, or restate texts rather than explain them.

In order to foster successful readers, Canadian and American elementary schools apply a set of strategies to help students derive meaning from texts. These strategies encompass an approach known as "guided reading" and are based on the work of Irene Fountas and Gay Su Pinnell. They include:

- Self monitoring
- Analyzing
- Sequencing
- Making connections
- Predicting
- Inferring/visualizing
- Evaluating and synthesizing.

These strategies are commonly used in the classroom when teaching readers to bridge the gap from learning to read to reading to learn. "They begin thinking about the text before reading, attend to the meaning while reading, and are invited to share their thinking after reading" (Fountas I., Pinnell, G., 2012 p. 268). Guided reading is intended for use with a small groups of students, where the teacher provides instruction and support before, and while reading. Once the text has been read, the group of students engages in a conversation, facilitated by the teacher. As students become increasingly skilled in using the guided reading strategies through class conversations and facilitation, the teacher gradually releases responsibility and support—to increase the student's independence as a reader. Students go from being carefully lead through the strategies to applying them to the reading themselves. (Ministry of Education, 2007) This project situates itself within that transitional space, where the student is familiar with appropriate strategies, and encouraged to use them throughout the narrative—to reflect by annotation while reading and by engaging in reflective activities between chapters of the book.

The guided reading strategies do not include multiple choice questions or fact-based questions since the focus is on contemplation, not transitive thinking or harvesting of facts for a specific right/wrong end goal (S. Birkerts, 2010). In the words of author Hans Magnus Enzenberger, as cited by Cavallo, G., Chartier, R., & Cochrane, L. G. (1999) "the reader is always right, and no one can take away the freedom to make whatever use of a text which suits him [...] this freedom also includes the right to [...] misunderstand them, to reshape them, to spin sentences out and embroider them with every possible association, to draw conclusions from the text, of which the text knows nothing" (p. 365). As students should be the constructors of meaning, they should be given space for reflection and adequate time to arrive at the best guess of a meaning. They should be encouraged to focus on reading as a constant process of reflection, encompassing "discourse, dialogue, disagreement and debate" (Ruddell & Unrau, 2004, p. 1500) where meanings are beyond the words, and are open and infinite. And as the technology driven society values creative problem-solving and design-thinking, the old way of teaching, mechanical memorizing and drilling for information should be set aside. Based on this approach, activities in this project aim to facilitate open-ended reflection. Applying the comprehension strategies of guided reading to activities and providing supporting material throughout the text encourages the kind of reflection and analysis of text that is associated with deep reading. In addition to that, the strategies focus on individual open reflection which goes along splendidly with the possibilities of personalized support in the form of visual settings the digital format offers.

Motivation source and gamification

Intrinsic motivation refers to behavior driven by internal rewards—the enjoyment of pursuing an activity without a specific end-goal, other than the activity itself. ("Intrinsic motivation" n.d.) Intrinsically motivated readers find themselves constantly challenged, they focus on the activity itself and are driven by curiosity and interest in the challenge. Research shows that intrinsic motivational goals "lead to acquisition and use of deep processing strategies for text" (Guthrie et al., 1998; Meece & Holt, 1993: Pintrich et al.,

1993). There is also a relation between intrinsic motivation and a sense of competence, the application of strategies when comprehension fails, as well as high achievement on comprehension related assignments (Guthrie et al., 1998).

On the other hand, extrinsic motivation refers to behavior driven by external reward or reinforcement, such as grades or praise. Unlike intrinsic motivation, extrinsic motivation arises from outside rather than inside the individual. ("Extrinsic motivation" n.d.) When focusing on extrinsic motivational factors, the reader risks placing too much value on a hypothetical future gain in the form of some kind of rewards or incentives. Extrinsic motivation has been introduced within book apps by what has been referred to as "gamification", adding elements and principles of game-design to the reading experience. A recent example is Study Cake, an Icelandic app indented to encourage kids to read more. The app rewards readers with "brain cells" for the amount of reading they do and multiple choice questions they answer. When a certain amount of brain cells has been reached, the reader gets rewarded with a movie night, ice cream or other similar things provided by parents. ("Study Cake", n.d.) That kind of encouragement is likely to promote hyper-reading at the cost of deep reading; with a specific end goal in sight, the reader is more likely to start hurrying through the text, to reach the end goal or rewards quicker.

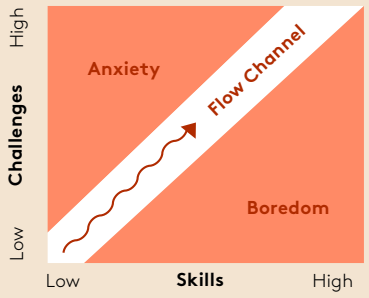
And yet, gamification, or extrinsic motivation is not necessarily always negative. As games may help us feel more rewarded for making our best effort, applying aspects of gamification in a minimal way might support the cycle of intrinsic motivation. According to Amy Jo Kim, author, game designer and researcher of online communities, we are able to draw parallels between gaming and online communities—in the form of collecting, earning, feedback, exchange and customization. (Smashing book2) While gamification utilizes elements and principles of game design to transform an experience into a game, an experience or platform can be also be game-based, integrating game mechanics in a less explicit way.

This project applies those more discreet aspects of gamification, in the form of reader customization, exchange of annotation, by providing encouraging feedback on activities once finished and with the possibility of reader's goal-setting regarding the number of pages read.

The concept of flow and deep reading

Hungarian psychologist Mihaly Csikszentmihalyi (1990) coined the term "flow," a psychological concept of a highly focused mental state. The flow state is what could be referred to as the optimal state of intrinsic motivation. It's a state of being "in the groove", where an individual engages in an activity for the activity's sake, rather than because of a specific end goal or reward (p. 67). Csikszentmihalyi (1990) also notes that reading is the "most often mentioned flow activity around the world" (p. 117), where you can achieve a state of involvement so deep while reading that all other stimuli are blocked—becoming so engrossed in the activity that you'll go back to it and do it just "for the sheer sake of doing it". (p. 4)

Fig. 1: "Flow channel."
Where challenges and skills are in balance.



The "Flow channel" *(fig. 1)* represents the state where the challenges of the activity and the skills of the individual engaging in it are balanced. If the challenge becomes too hard, the individual will become anxious. If it's too easy, the activity becomes boring. The flow channel thus represents what could be referred to as the "optimal experience" within this project. Where reader's skills and the challenges presented are in balance, keeping the reader within the flow channel while going through the story. To facilitate this, and avoid disrupting the flow channel, the activities within the book has been mapped out, from relatively simple to more complex ones, building the reader's skills and confidence. *(See Appendix 9)* In addition to that, the activities are positioned between chapters and kept optional, keeping distraction while reading the narrative to a minimum, in an attempt to further facilitate flow.

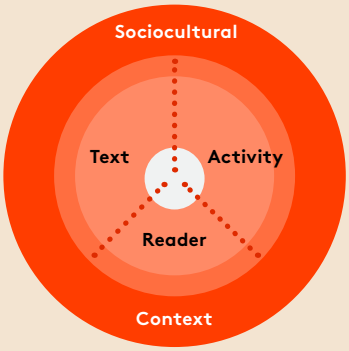
Scope and Limitations

Educational psychologist Michael Pressley (2008) claims that the two most important influences on reading comprehension are teacher's support and the reader's own motivation to read. And while this project addresses both to some extent, it doesn't really touch upon other sociocultural factors that influence reading and reading comprehension, (fig. 2) such as parent-child relationships and motivation in the home.

As there are a number of factors that influence reading and reading comprehension, this project acknowledges that, while hopefully beneficial and empowering to some students, the proposed platform might not suit all needs. Being able to test a fully working version would have been helpful in that context as well. While the user-testing conducted provided good feedback regarding accessibility, look and feel and the system structure, testing a fully working version would have provided deeper insight—such as mapping of activities and their effort, the benefits of visual settings intended to aid dyslexic students, the use of annotation and sharing of annotations among other things. Due to limitations in technical skills and lack of funding, that has not been possible. The project attempts to manifest the conceptual version as much as possible—creating an addition to the spectrum of reading and learning options. It is my hope that it finds a good fit within the dialogue of beneficial digital reading in an educational context.

Fig. 2: **"Reading comprehension."**

"Reading comprehension consists of three elements: the reader, the text and the activity of reading. This three-way interrelationship occurs within a larger sociocultural context that shapes and is shaped by the reader and that interacts with each of the elements iteratively throughout the process of reading" (RAND Reading study group, 2002)



Methodology

Methods of ethnographic and participatory research were applied to gain an extensive understanding of the user group and its characteristics, behavior, reading habits and ways of communicating. These methods focused on generating qualitative data and included semi-structured interviews with teachers and students, a co-creation workshop with students as well as user-testing with both students and educators.

Precedent review

Before diving into the primary research, a collection of precedents were inspected and analyzed. A few worth mentioning are:

New York Public Library's Biblion version of Frankenstein, part ebook, part interactive app and part museum exhibit, explores the combination of print scholarship and digital presentation. The app plays with the notion of rotating view, portrait mode displays essays and galleries, landscape mode displays primary texts. The wealth of visual material occasionally makes the app confusing and difficult to navigate. Particularly in the overview the difference between plain text and tappable text is not obvious. *(fig. 3 has been removed due to copyright restrictions. The information removed demonstrates the lack of typography hierarchy.)* Introduction and assistance navigating the app is available, hidden within the settings panel of the reading mode. Displaying those options right from the start would be helpful in navigating the app. All text is displayed in a scrollable window, half the size of the screen. *(fig. 4 has been removed due to copyright restrictions. The information removed displays the scrollable text window.)* The only customizing option available to the reader is one level of larger text, and as the boundaries of the reading window are invisible, it cuts the text awkwardly at times.

Device 6 by Swedish design company Simogo explores the relationship between narrative and games, mixing together a novella and puzzle, entwining the storytelling with geography. The game mechanics seem to take over the narrative, the reader has to rotate the iPad to read the story, (fig. 5) and solve visual and audio clues to get through to the next chapter. The challenges can be rather complex, with no options of assistance for when the reader gets stuck—resulting in possible anxiety and even defeat. Vancouver based company Loudcrow has produced a number of interactive

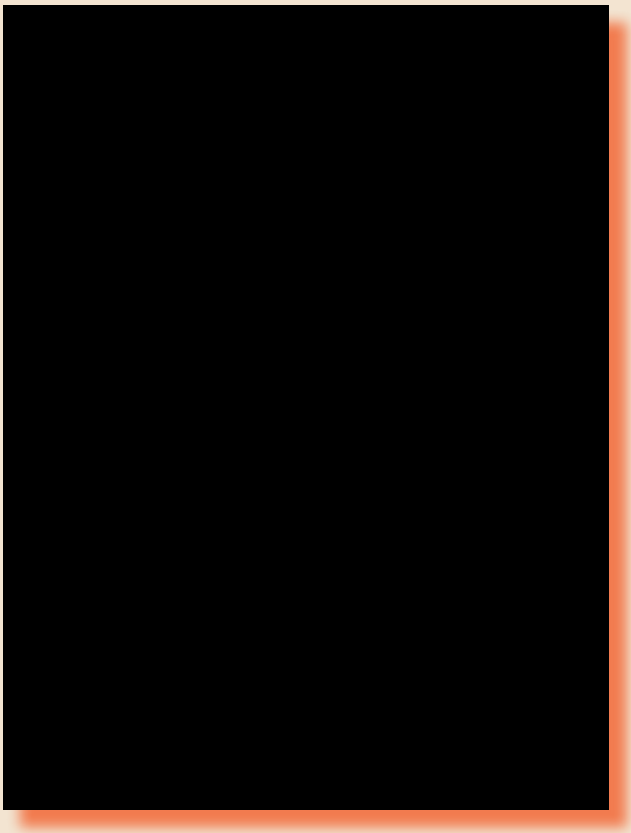


Fig. 3: **"Biblion's Frankenstein Home Screen"**
Removed due to copyright restrictions.
A screenshot from the app's portrait overview, highlighting the lack of typography hierarchy to guide the user through the interface.

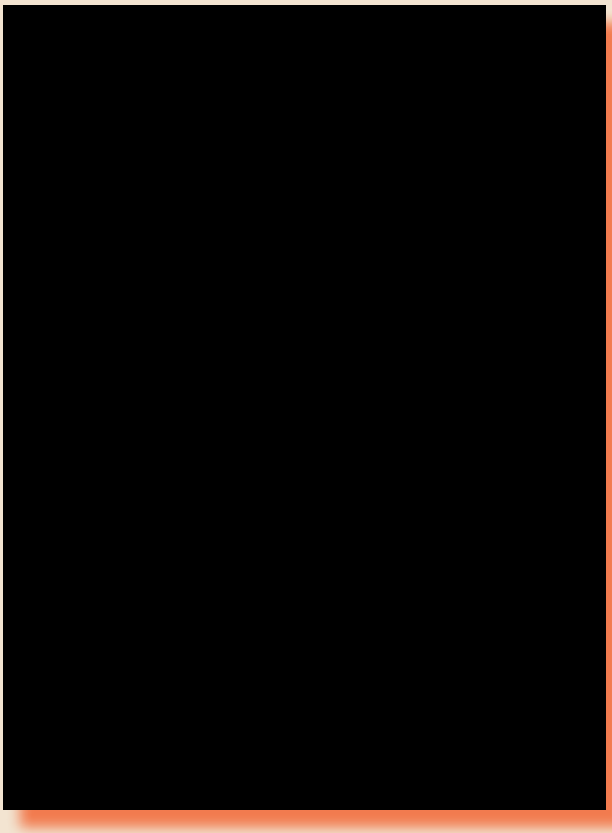
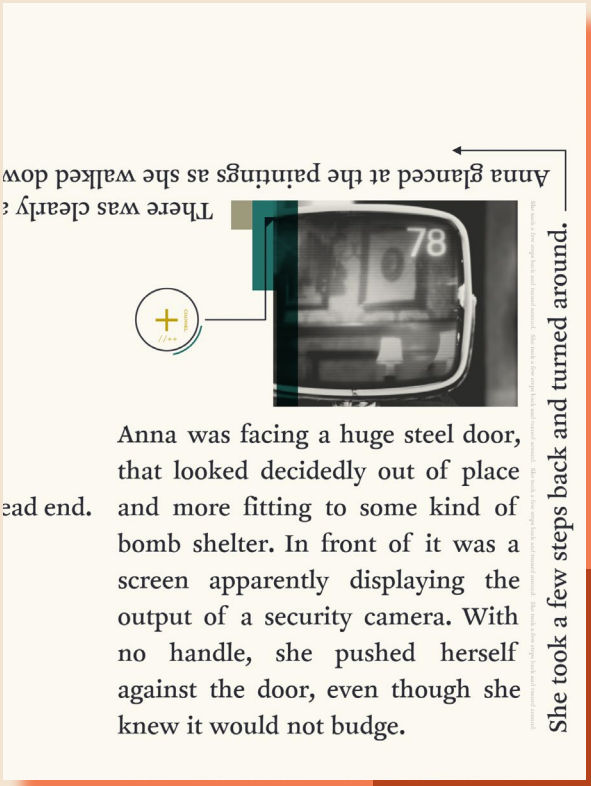


Fig. 4: **"Biblion's Frankenstein"**
Removed due to copyright restrictions.
Another screenshot, from reading in portrait mode. The screenshot shows an example of the cutting of text in the reading "window".



5

Fig. 5: **"Device 6" Used by permission of Simogo.**
An example of text treatment,
where the reader must rotate the iPad.

Fig. 6: **"The Tale of Peter Rabbit"**
Removed due to copyright restrictions.
An example spread from the e-book to display
interactive elements and animation inspired by
paper book mechanics.

6

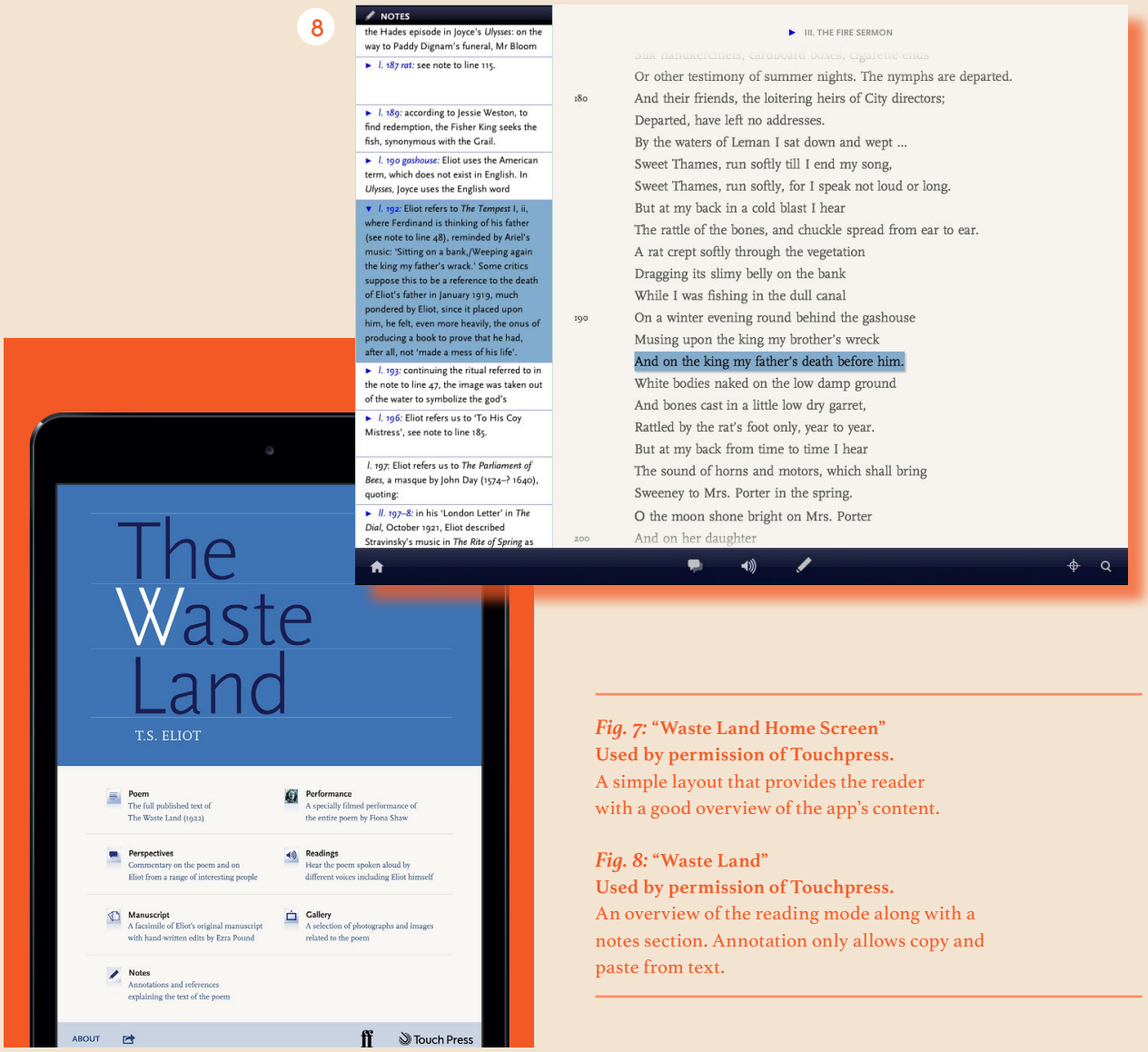


Fig. 7: **"Waste Land Home Screen"**
Used by permission of Touchpress.
A simple layout that provides the reader with a good overview of the app's content.

Fig. 8: **"Waste Land"**
Used by permission of Touchpress.
An overview of the reading mode along with a notes section. Annotation only allows copy and paste from text.

enhanced ebooks for children, including *Popout! The tale of Peter Rabbit*. The children's classic contains charming illustrations, music, sound effects, interactive elements and the option of having the story read out. All the interactive elements are heavily inspired by print books, as well as the page fold and page turn with an accompanying sound effect. *(fig. 6 has been removed due to copyright restrictions. The information removed included an example spread from the book.)* While the visual design is pleasant, the transition of the story from print to digital seems a bit awkward, as the interactive components and animation resemble the printed counterparts so extensively.

The *Waste land*, by Touchpress examines the transferral of another classic work of literature into a digital format, introducing T.S. Eliot's poem as an app. The app includes the original poem and a facsimile of Eliot's original manuscript, six readings of the poem, a picture gallery, as well as video commentary and analysis. *(fig. 7)* The paratext , along with different perspectives on the writing are the apps strongest asset. However, the reader's options for adjusting the reading and annotating it are limited. The main text of the poem is set in a default serif font with 2 type sizes to choose from, just as Biblion's Frankenstein. The reader has no options of high-lighting or note-taking within the annotation options, and is only allowed to copy and paste selected parts into a note section. *(fig. 8)*

Interviews

Interviews were carried out in a group setting, with 4–5 participants in each session, and were conducted at Kenneth Gordon Maplewood School. The first interview group consisted of English teachers of 13–16 year old students. *(See Appendix 1)* They were asked about and provided an elaborate description of how they introduce class readings to students; their discussion of the books and methods they employ was crucial for understanding this context and preparing for the next interview group: the students themselves. The interviews with students focused on gaining knowledge on their reading habits, use of digital

media, product preferences and so forth. *(See Appendix 2)* They provided an in-depth knowledge of the group's reading habits both within and outside the classroom and contributed to building character profiles. *(See Appendix 3)* Students mentioned a few different reasons for not feeling motivated to read. They talked about the significant cognitive effort reading required, reading not being visual or rewarding enough, and not offering the same instant gratification as computer games. Teachers mentioned the importance of visuals, and how the students are always looking for more pictures. They also emphasized the need to reduce the stigma around not understanding the text, and how important it is to offer various routes of access to a text, whether in print, digital form or audio.

Co-creation

A co-creation session was carried out with the group of students that was interviewed. *(See Appendix 4)* The session involved students ideating and illustrating their vision of an ideal eBook, what it would encompass and what it would look like. They were asked and encouraged to bring their own ideas, thoughts and expressions to the project by writing and drawing on tablet UX templates provided. The co-creation session didn't seem to add too much knowledge beyond what was gathered from the interviews. Presenting the students with too many choices and open ended questions might have been why the outcome wasn't as fruitful as hoped for.

Visual technical studies

Exploratory research in the form of quick exercises focusing on possibilities within enhancements of ebooks, as well as different platforms and prototyping tools was carried out alongside and following the interviews and co-creation session. Working with Bram Stoker's Dracula and Mary Shelley's Frankenstein, a series of ebook prototypes were produced. These exercises looked specifically at the affordances and the values those different platforms and tools offer, their potential for dynamic media use and their technical challenges, including coding.

All these exercises shared the common goal of understanding the limitations and the possibilities for communicating long form fiction in a digital format, and how different levels of multimedia would affect the kind of book proposed as the outcome.

The framework

Following the insights gained from the exploratory research, a prototype of the complete system was developed in several iterations following Jesse James Garret's (2011) principles, "Elements of user experience", where a conceptual framework is divided into the following five planes:

Surface
sensory design

Strategy
Product objectives
User needs

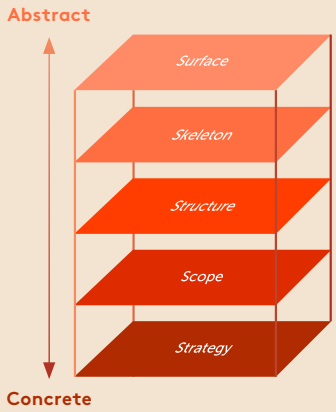
Skeleton
Interface design
Navigation design
Information design

Structure
Interaction design
Information architecture

Scope
Functional specifications
Content requirements

The framework *(fig. 9)* uses those five distinctive planes to build a cohesive experience for the user. The planes all inform and influence each other, building from the ground up, from abstract to more concrete. The strategy plane deals with the overall concept of the experience, whereas the surface plane digs into visual details such as typeface and color choices. Applying this framework to the user experience ensured that all aspects of it were taken into consideration, and helped determine the outcome of the final prototypes.

Fig. 9: "Elements of user experience". From concrete to abstract.



Open studio

The first prototype was presented at an Open studio event in December, 2015. The event was a casual one-on-one show and tell with faculty and fellow students, discussing the projects. The main conclusion from the discussion was that the introduction of a system had made the design rather conservative, as opposed to the earlier exploratory research. The discussion also revealed a few shortcomings within the information architecture of the prototype, regarding the use of the notes and highlights collection.

User testing

After revisions and improvements based on discussions from the open studio event, a second version of the system was user-tested by both students and teachers at KGMS in February, 2016. *(See Appendix 5)* The user-testing included four students (three of whom were new to the project) and two educators from KGMS. The user testing was a combination of "get it" testing and "key task" testing. "Get it" testing is showing participants the prototype to see if they understand the purpose, how it's organized and how it functions. "Key task" testing asks the participant to perform a specific task, to validate the success of the prototype's structure and functions. After being led through these activities, participants were asked to evaluate the prototype using "the system usability scale", a 10 item questionnaire with a scale of 1–5, used to classify the ease of use. ("System usability scale" n.d.) Participants were also presented with a sheet of paper with descriptive words related to the look and feel of the prototype, and asked to circle or underline the words they agreed with. Overall, the participants found the prototype accessible and useful, and expressed confidence using it. Another notable outcome was that all the student participants circled the word "fun" to describe the prototype, on the paper sheets provided, which hopefully indicates a good chance of intrinsic motivation. *(See Appendix 6)*

Integrating the findings from the user-testing, the third/final version of the prototype was presented at the graduation show at Emily Carr, in May 2016, as well as on www.bergthorajons.com. A short concept video, explaining the prototype can be viewed on *Vimeo.*

Outcomes—
Early Explorations

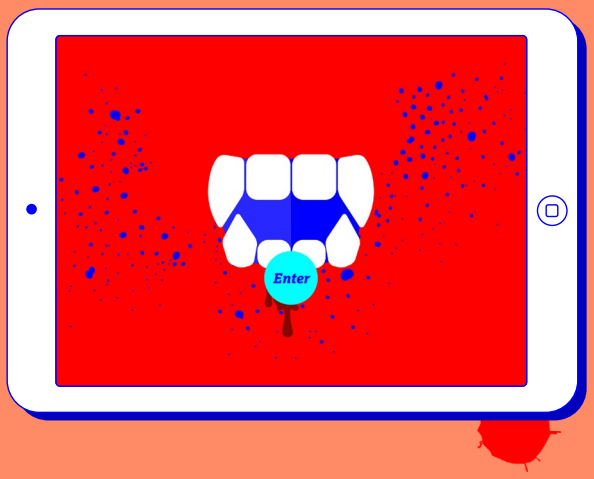
As discussed earlier, a series of quick technical experiments were carried out, focusing on possibilities within enhancements of ebooks, as well as different platforms and prototyping tools. They included:

Transitions and illustrative interaction

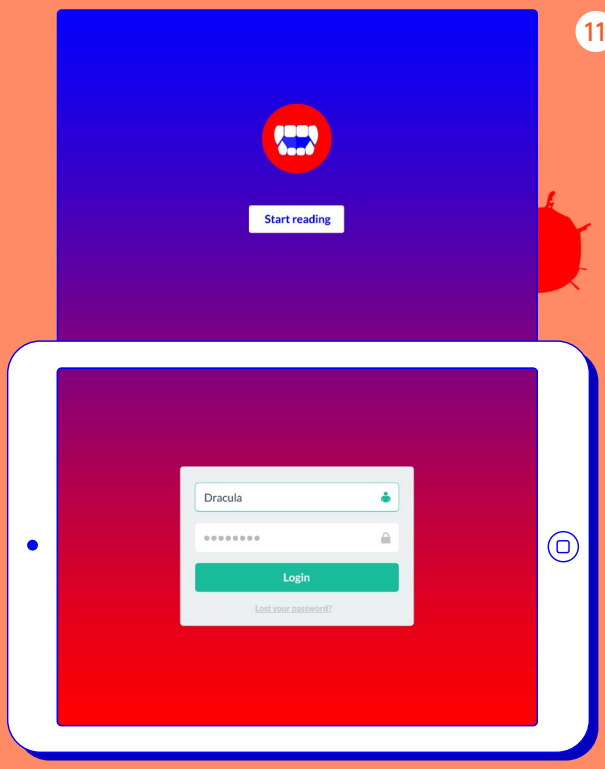
This experiment was developed using the javascript prototyping tool Framer to explore gestures, transitions and animations in the process of logging in, reading and accessing menus. Following a log-in, *(fig. 10–11)* the reader is able to show and hide the menu, which displays their profile and options of social collaboration. *(fig. 12)* When tapped, a blood splatter appears on the screen under the reader's finger. Three blood splatters appear in total, and allow the reader to move them around. *(fig. 13)* Subsequently, the page is scrollable, displaying the entire chapter.

Insights gathered from this experiment highlighted the importance of keeping the user flow simple, minimizing the steps to perform a specific action, both in terms of log-in and reading. The log-in included unneeded layers, and the blood splatters, even though entertaining, might distract the reader from the focal point—the narrative. Moreover, the scrolling through the chapter felt cumbersome. Even though the physicality of a book seems to appeal to many, a possible benefit of using a digital platform is its ability to focus on a single page at a time—concealing what might feel as an insurmountable number of pages left.

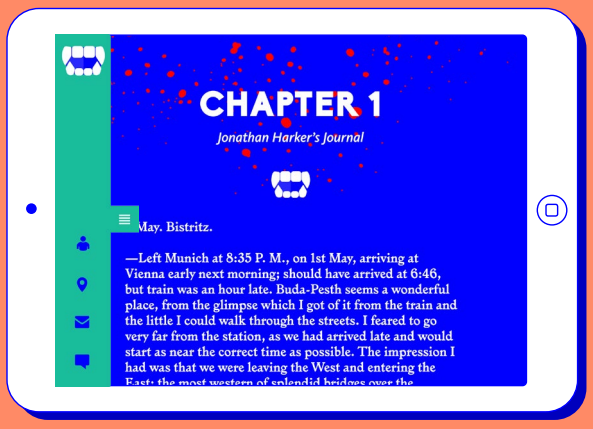
10



11



12



13

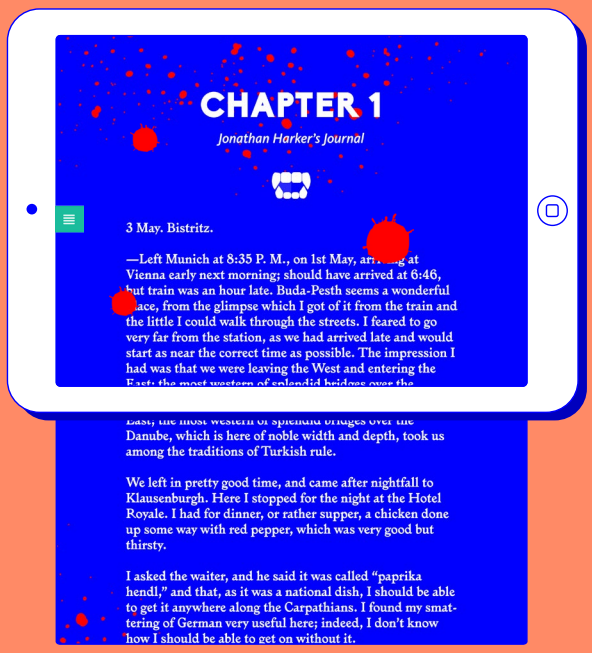


Fig. 10: **"Intro Screen"**
Illustrated intro screen with an "Enter" button.

Fig. 11: **"Login/Start reading"**
When "Login" is pressed, the screen slides down, showing a "Start reading" button.

Fig. 12: **"Menu"**
The menu appears when the icon is tapped, showing different options.

Fig. 13: **"Blood splatters"**
A blood splatter appears when the reader taps the screen. Three splatters appear in total, and can be moved around the screen.

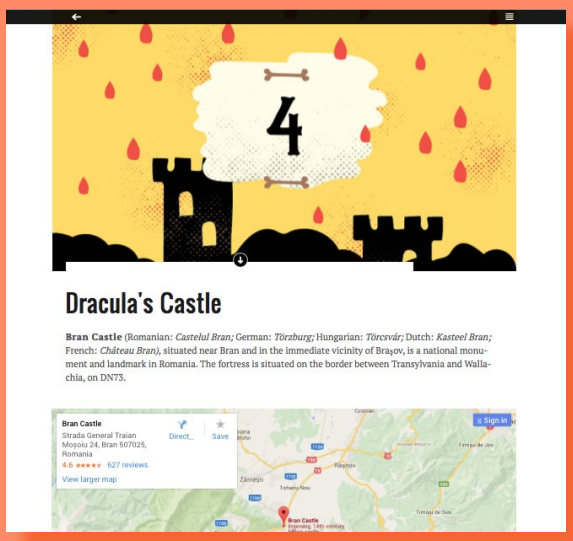
Re-flowable rich media content

This study used the Laker compendium of files with the open source Baker ebook framework, to produce a HTML5 based, re-flowable digital publication containing rich media. Using Bram Stoker's Dracula, a browser based version was produced, *(fig. 14)* including a map of the story's locations, *(fig. 15)* illustrations, interactive questions about the the story, *(fig. 16)* sound effects, music, videos and pull-out quotes. *(fig. 17)*

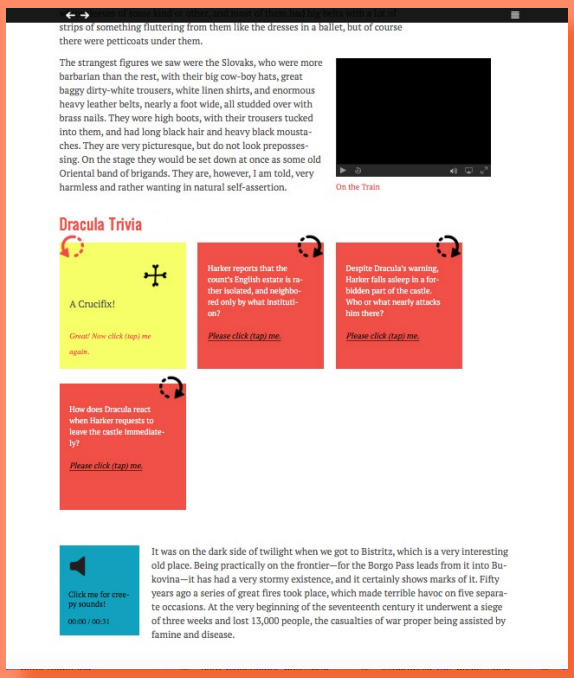
Adapting the pre-configured styles and modules with basic coding, the Laker platform, just as Framer, displays the story in a scrollable format. Exploring that format further supported the notion that having a paginated narrative would be more accessible for this project. The Laker platform appears to be better suited for editorial content rather than long form fiction with added rich media. However, the platform did point out the possible benefits of pull-out quotes within text, promoting hierarchy and legibility—breaking up the text and highlighting important parts of the story.

14

15



16



17

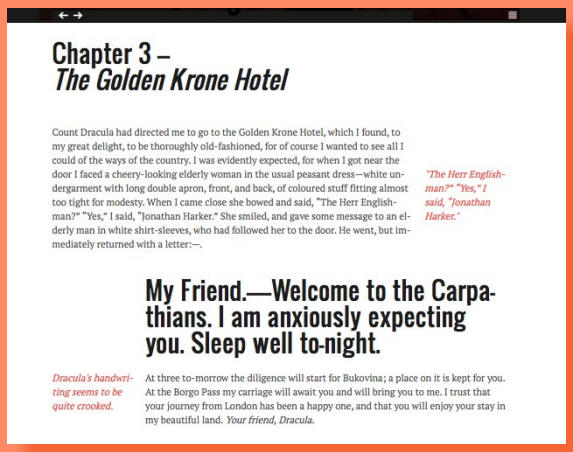


Fig. 14: "Chapter 1"
Chapter 1, basic layout.

Fig. 15: "Google maps"
Chapter 4 includes a map with the location of Dracula's castle.

Fig. 16: "Trivia, sounds and video"
Four different questions from the text. The reader clicks each card to reveal the answer. This chapter also includes a video of a train and sound effects.

Fig. 17: "Pull-out quotes"
An exploration with a different layout, with pull-out quotes to emphasize parts of the text.

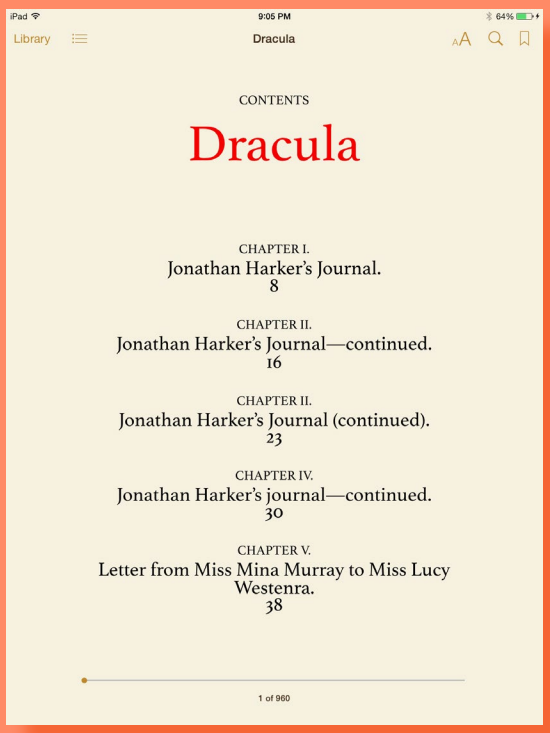
Re-flowable, customisable reading

This exploration sought to understand the possibilities and constraints of a re-flowable epub. Using Adobe inDesign and exporting it for epub was a good way to get a sense of different variables to take into consideration while producing a more traditional ebook. Working once again with Bram Stoker's Dracula, the entire book was produced for the iBooks platform, including a table of contents, *(fig. 18)* title page, *(fig. 19)* copyright page, and acknowledgements.

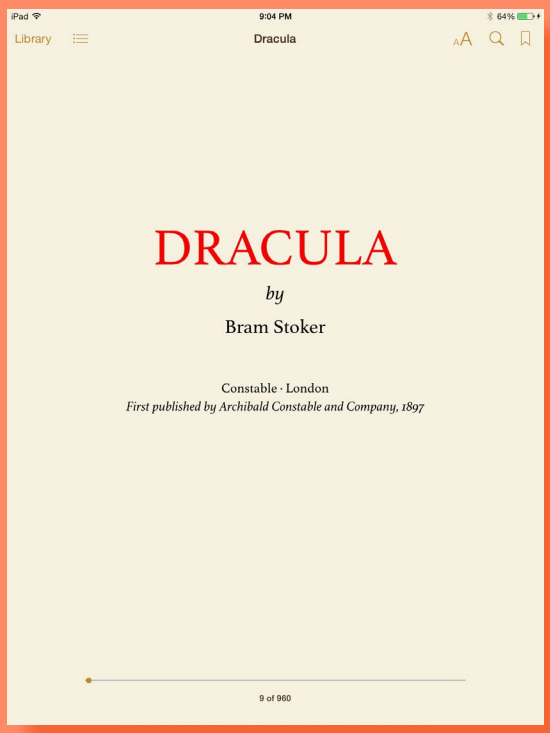
Typography and layout played a big role in this project, both in terms of legibility as well as technical production. All text had to be formatted using paragraph and character styles, highlighting the importance of good hierarchy—a system of proportion. The platform offers options of readers customization of the text, changing the typeface and background color, as well as the size of the type. *(fig. 20)*

This platform includes a number of components associated with the benefits of digital reading, regarding the reader customization, search within the text as well as annotating options. *(fig. 21)* However, the visual aesthetics seem a bit mundane, especially for the particular age-group this project addresses. *(fig. 22)*

18

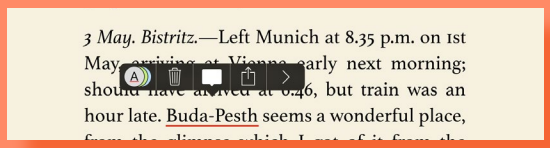


19



20

21



22

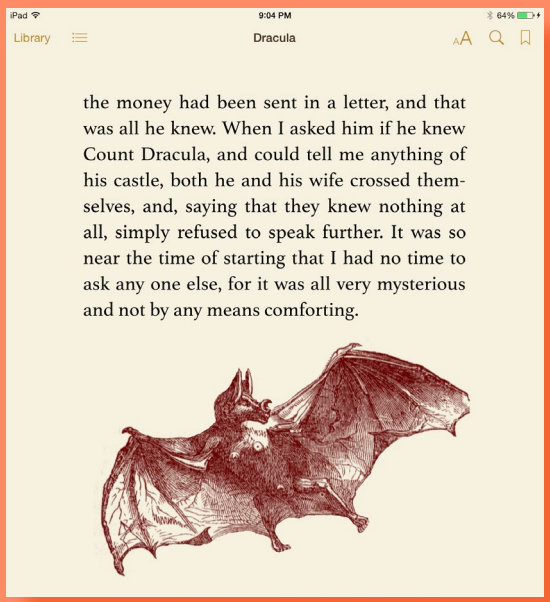


Fig. 18: **"Table of contents"**
The table of contents was placed right at the beginning of the book.

Fig. 19: **"Dracula title page"**
Title page margins were changed by working on the code (the CSS file), after exporting the inDesign document.

Fig. 20: **"Visual settings"**
Apple's iBooks app contains multiple options for reader configuration of typefaces, background and type size.

Fig. 21: **"Annotation options"**
Options of annotation appear when the text is tapped.

Fig. 22: **"Bat illustration"**
The book contains illustrations related to the text. This particular format doesn't support extensive rich media.

Fixed layout interactive reading

The fixed layout epub exploration looked into the possibilities of integrating rich media and interactivity into selected parts of Bram Stoker's Dracula. Interactive elements, rich illustrations, sound and video were all used extensively throughout the three screens produced—highlighting the seemingly endless possibilities of rich media integration. *(fig. 23–26)* Having understood the rich media possibilities also made me realize the risk of including everything. Adding layers and layers of rich media doesn't necessarily aid comprehension, but can just as easily take away from it, encouraging fragmented, distracted reading.

The study equally spotlighted the shortcomings of the format regarding customization, as the reader has no options for any modification and customization of the content, which then does not adapt to other devices, sizes or platforms in any way.

Fig. 23: **"Intro Screen"**
The intro contains animated wind and sound effects as the title appears.

Fig. 24: **"Cloudy with a chance of thunder"**
The clouds light up to suggest interactivity.

Fig. 25: **"Thunderclouds"**
Lightnings appear when the reader taps the clouds, accompanied by sound effects.

Fig. 26: **"Count Dracula"**
Spiders slide down the screen. Dracula's jacket ornament pops out to suggest interactivity. When tapped, bats come flying from behind him, accompanied by sound effects.

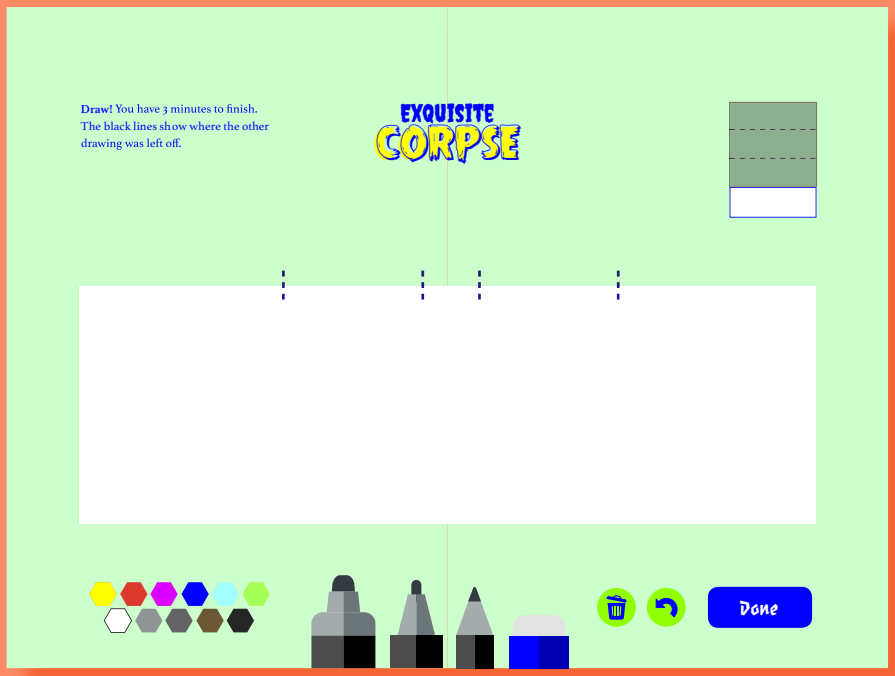
Social, interactive reflection

This study used video prototyping to build upon the idea of the reader as the producer of text. Creating an interactive space for interpretation and individual reflection, the draw and fold game known as Exquisite Corpse informed a drawing activity *(fig. 27)* based on the guided reading strategy of inferring or visualizing. In addition to that, the study sought to support social interaction by incorporating the possibility to share and browse completed drawings, as well as striving for a balance between visuals/ interaction and the narrative, to support deep reading.

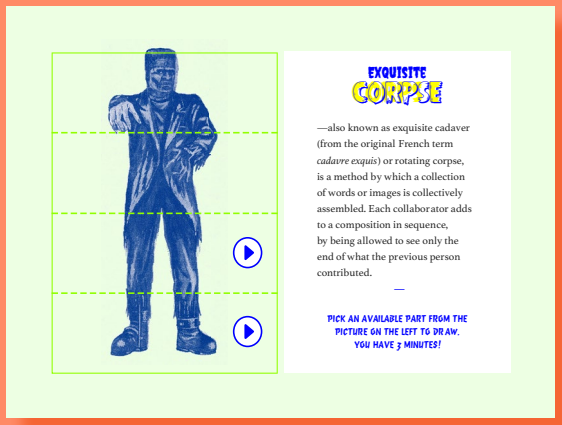
This study brought up numerous considerations, including the importance of wording around the activity, system navigation regarding re-visiting the activity, as well as the explicitness of visual language. The first draft titled the activity "Chapter 1—Timeout!". During a class review, the use of the word "timeout" was found to have a negative association, bringing up the importance of using encouraging language. As one of the goals was also to avoid the feeling of a formal classroom assessment, the language needs to support that. Another important consideration was making sure the visual language didn't overpower the reader's internal visualization. Iconic signs should for that reason perhaps be avoided in favour of more symbolic signs to facilitate the reader's building of own visual meaning. The first draft had an illustration of Frankenstein's monster *(fig. 28)* in the introduction of the activity. Following a review, that illustration was changed to a skeleton, *(fig. 29)* a visual aid without being as iconic as an illustration of the monster.

As this study occurred in tandem with the first prototype of the system, considerations around the structure and placement of activities to facilitate flow, and user accessibility emerged. These concerns were addressed in the final version of the prototype.

27



28



29

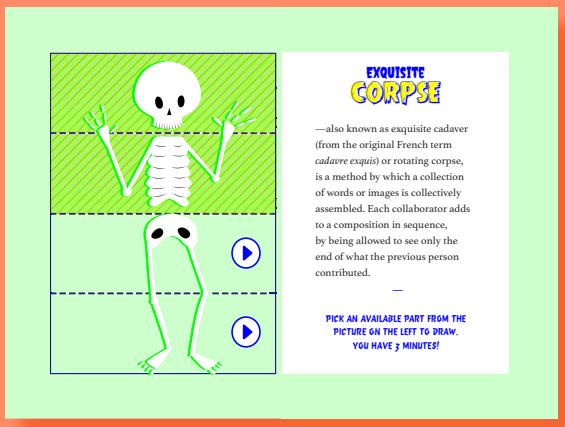


Fig. 27: **"Drawing the monster"**
The reader gets one of four parts (displayed in the top right corner) to draw and finish in 3 minutes.

Fig. 28: **"Monster #1"**
The first version of the monster.

Fig. 29: **"Monster #2"**
The second version of the monster, after revisions. The first version was found to be to descriptive, possibly affecting the reader's own visualisation.

Final Prototype— From Defining to Designing the Results

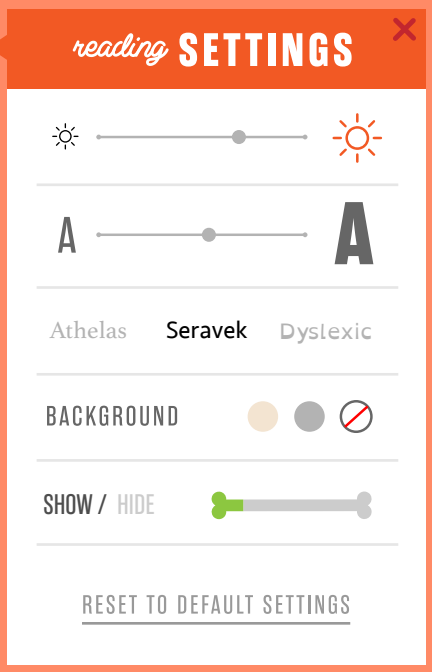
A well built interface, just like good design, is visually efficient—with a minimal set of functional and visual elements. (Cooper, A. Reimann, R. and Cronin, D. 2007) Visual menus and cues are therefore kept consistent and minimal throughout the platform *(fig. 30–36)*, with the primary focus on the narrative. The menu options are hidden while reading, in an attempt to eliminate distractions that might grab the reader's attention. The menu is accessed by tapping a button in the upper left corner. *(fig. 32)* When navigating through the system outside the narrative, a button in the upper right corner *(fig. 33)* bridges back to where the reader left off within the narrative. This ensures reading the story is always presented as the main activity, all supporting activities bridge back to the main text.

In the same way that the author's presence diminishes in a well written story while coming alive in the reader's mind, the typography becomes strongest when it allows the text to shine through. The text must attract the reader's attention, only to give up the attention while read, "making way for the ideas it represent". (Cavallo, G., Chartier, R., & Cochrane, L. G. 1999. p. 38) The default text appearance is kept clean, minimal and unobtrusive. Focusing on good contrast and line spacing, generous white space around the content to avoid dense blocks of text, the default number of characters per line is kept around 66 characters, as that is widely regarded as the ideal length for optimal legibility. (Bringhurst, R. 2004) The reader is given the agency to manipulate and customize the default state, as well as to highlight, add comments and drawings.

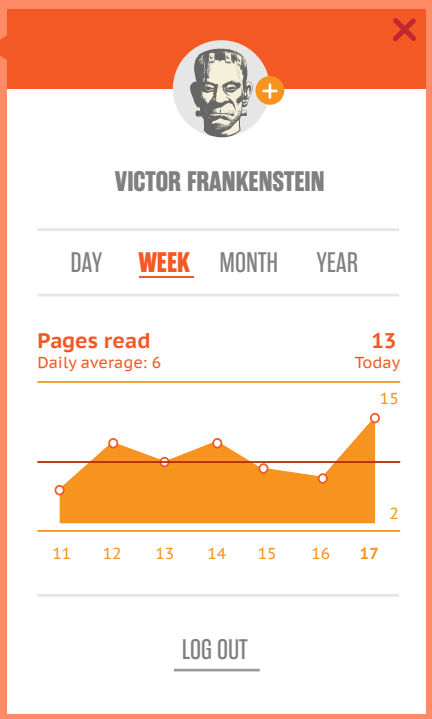
By opening the customization panel within the menu, *(fig. 31)* the reader is able to change the typeface and adjust the font size. Typeface options include the serif font Athelas, inspired by classic British literature, ("Athelas", n.d.)

30

31

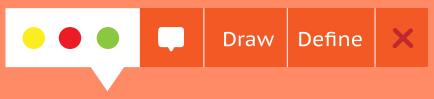


37



32 33 34

35



36

Fig. 30: **"Typography treatment"**
As the narrative is kept simple, playful typography is used for chapter names and a few other elements.

Fig. 31: **"Reading settings"**
The panel of options for the reader to customize the reading. Choosing typeface, type size, background color, brightness and whether or not to display the progress bar.

Fig. 32: **"Menu button"**
The menu button is always visible in the upper left corner. Tapping the button reveals the menu options.

Fig. 33: **"Reading button"**
To emphasize the primacy of the text, the reading button is visible in the upper right corner, in all parts of the platform besides the narrative itself. Tapping the button takes the reader back to where reading was left off.

Fig. 34: **"Button"**
An example of a general button.

Fig. 35 **"Image menu"**
An example of a menu with options.

Fig. 36: **"Annotation menu"**
The annotation options the reader is presented with when a part of text is tapped. Options of highlights in different colors, drawing and word definitions. None of the options present external link, as that might distract the reader.

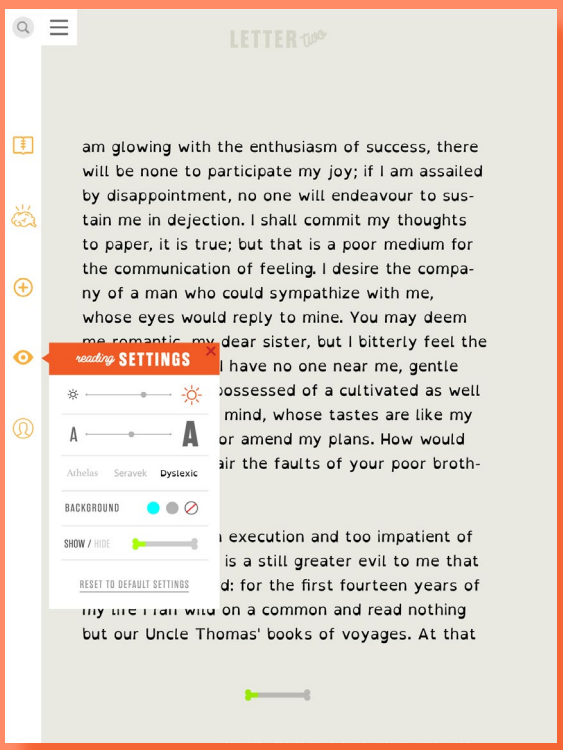
Fig. 37: **"Profile"**
The profile is within the menu. The reader can change the avatar and set goals regarding the number of pages read.

the sans-serif font Seravek, an unobtrusive typeface focusing on functionality—both included in Apple's iBooks app, ("Seravek in the wild" n.d.) as well as Open Dyslexic, a font intended to increase readability with dyslexic students. *(fig. 38)* Background color options are implemented for the same reason, as experts suggest reading from cream or pastel colored background *(fig. 39)* can mitigate difficulties experienced when reading. ("Eyes and dyslexia" n.d.) Apart from integrating accessibility and playing off the positive affordances of the digital format, giving the reader an agency to customize the reading supports the reader's motivation, fosters the feeling of ownership and a more meaningful identification with the platform. (Cavallo, G., et al. 1999)

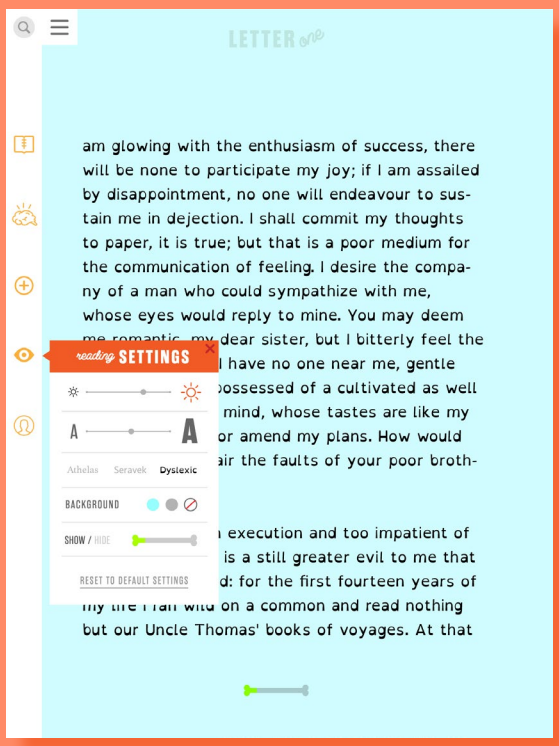
The reader goes through the narrative in a linear manner, swiping through pages on the screen—a gesture familiar to those with previous knowledge of reading on an iPad. Coach marks or visual cues further assist the readers that might not be as familiar with the device, guiding them through the initial steps. Coach marks appear automatically on initial log-in, and assist the reader navigating the book, pointing out different menu elements and functions. While explaining certain elements, other areas of the screen are dimmed, to facilitate concentration. *(fig. 40)* The coach marks serve to provide an overview and an understanding of the overall system's structure. The language used within the coach marks is casual and playful, encouraging the reader to explore and try different parts of the platform, while offering clear cues about where each element leads to. (Horton, S., & Quesenbery, W. 2014)

The *Guided reading* strategies have been divided into three different categories based on their functions within the book. Predicting, evaluating, summarizing, visualizing and sequencing are used as the foundation for reflective activities between chapters. The strategies of self-monitoring and analyzing inform annotating options and the strategy of making connections is presented in the form of paratext.

38



39



40

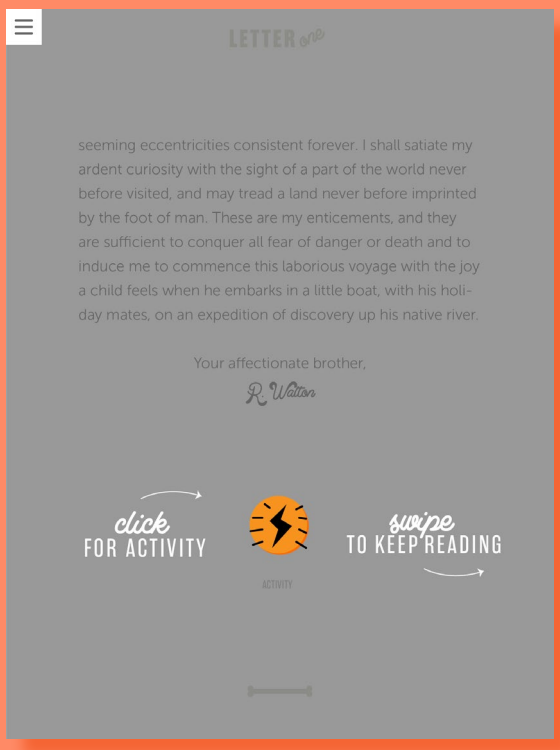


Fig. 38: **"Open Dyslexic"**
A font intended to increase readability with dyslexic students is included in the typeface options.

Fig. 39: **"Background color"**
A pastel blue color is included in the options as experts suggest reading on pastel colored background can mitigate difficulties experienced when reading.

Fig. 40: **"Coach marks"**
An example of visual assistance as the reader goes through the platform for the first time.

Once the end of a chapter is reached, the reader chooses whether to keep reading or engage in an optional activity. The activities focus on reflection and interpretation of content—mostly in writing, occasionally by drawing. Some of the activities are communal, where the student will complete a drawing with other students, predict or evaluate the content by voting. *(fig. 41)* The language used within the activities instruction and feedback is friendly and encouraging, and the visual language is more colorful and playful, aiming to support a more inquisitive, open-ended mindset while engaging in the reflection. Back-end access to the book allows the teachers, the experts in this context, to adapt the questions and customize the activity prompts. In that way, the teachers can work with the system, they are given the agency of reformulating content and provided with an adaptable platform.

The reflective activities are placed between chapters *(fig. 42)* to avoid interrupting the reading flow. Placing them periodically between chapters instead of having them randomly pop up within the narrative will hopefully foster a stronger sense of structure within the platform, and by that, facilitate concentration. For the same purpose, as well as to facilitate the reader's intrinsic motivation, levels of input and effort have been mapped out for the range of activities to introduce them in a gradual manner—from the easier ones to more complex ones. Introducing them gradually attempts to keep the reader within the flow channel, where challenges and skills are balanced, supporting the reader in gaining confidence and competence while progressing through the story. *(See appendices 7–8)*

Annotations support the reader in processing and working through the text. In this system, they can be shared and compiled in a user-generated collection of notes, highlights and definitions. To annotate, the reader presses and holds a finger on a part of the text to reveal the markup options. *(fig. 43)* The reader has options of note-taking, both in words and drawings to support a multi modal approach to processing. Visualizing of text is one

41

42

43

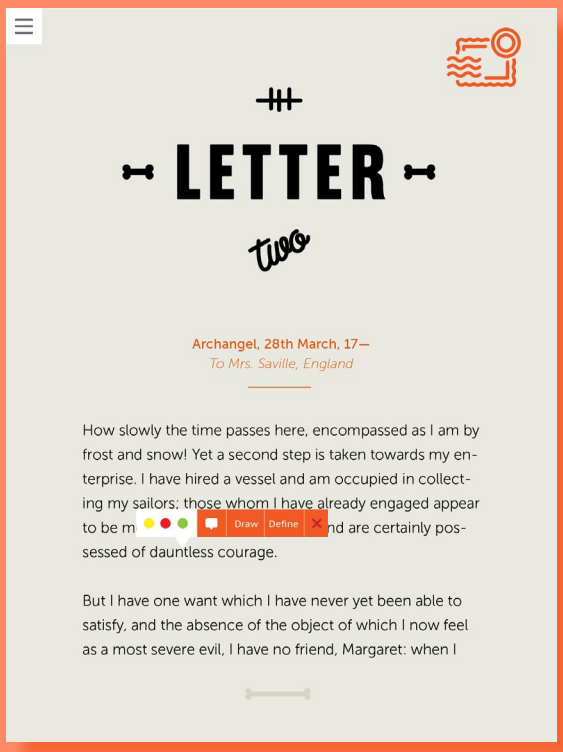


Fig. 41: **"Voting activity"**
An example of an activity between chapters.

Fig. 42: **"Letter two"**
The start of a new chapter contains richer visual language than the text itself.

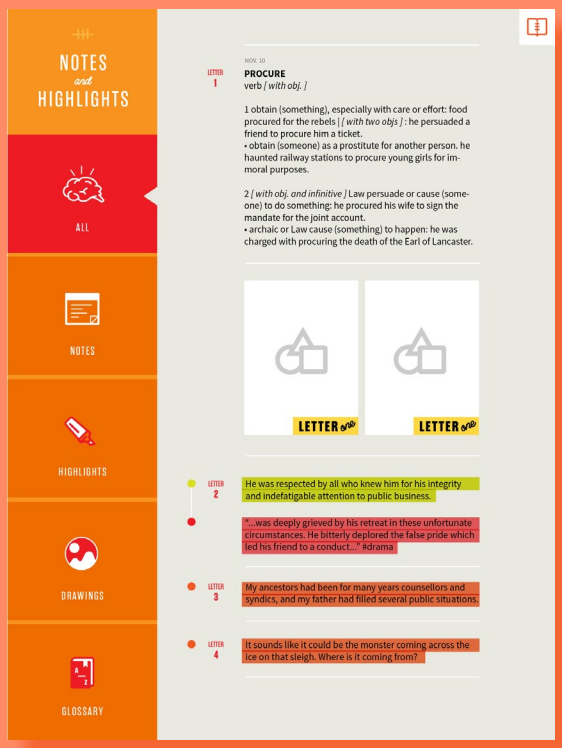
Fig. 43: **"Annotating"**
Annotating options appear when the reader presses and holds a finger on a part of a text.

of the strategies of *Guided reading,* and so the dual note taking mode encourages readers to apply that strategy to their reading. Different highlight colors are suggested for different purposes: for parts of the narrative the reader doesn't understand, parts of importance and so forth. In addition, the reader can look up word definitions and save them into a collection. *(fig. 44)* Interviews with teachers indicated that a lot of time and effort goes into word definitions as a good sense of vocabulary is essential to reading comprehension. Therefore, using the positive affordance of the digital format of being able to quickly look up word definitions within the narrative should hopefully help both comprehension as well as maintain reading flow. The collection of highlights, notes, drawings and definitions is accessed through the main menu or by swiping right with two fingers. The reader can choose to share parts of the collection or keep it private.

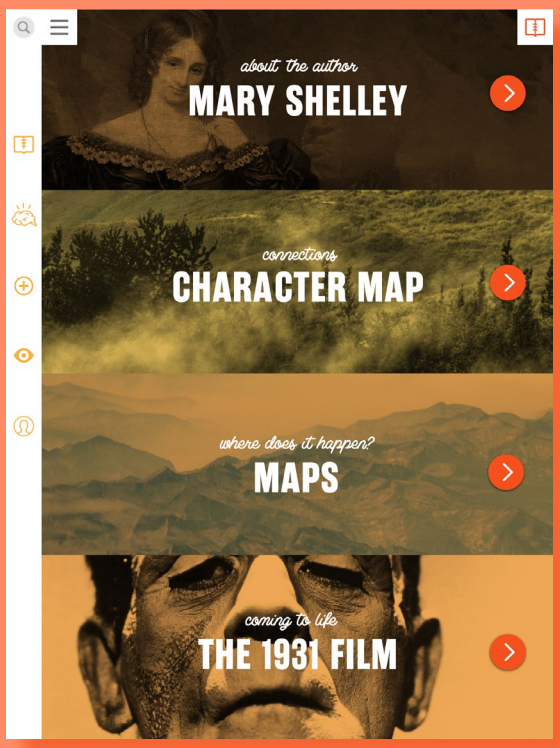
Tying in with the strategy of making connections and activating background knowledge, four additional sections of paratext *(fig. 45)* are available through the main menu. By tapping on a section, the reader is presented with more in-depth knowledge of the story, the author, the characters within the story and a map of geographical locations within the narrative.

The bottom menu option contains the reader's profile, *(fig. 37)* with statistics on pages read. Inspired by game-based mechanics, an option for input of goals for pages read per day is available to the reader as well as the option to change the avatar picture. The top menu option brings the reader to the table of contents, *(fig. 46)* an overview of both chapters and activities, with the option to jump to specific locations within the book as well as revisit finished activities. As before, a button in the upper right corner bridges back to the narrative—the focal point of the platform.

44



45



46

Fig. 44: **"Annotation collection"**
The reader can choose to save highlights, notes, drawings and word definitions into a collection.

Fig. 45: **"Paratext"**
Four different sections of paratext are available to the reader, to provide more in-depth knowledge of the story.

Fig. 46: **"Table of contents"**
The table of contents contains an overview of the letters and chapters as well as activities finished. Tapping on the play icon takes the reader to the chapter, tapping on the lightning icon takes the reader to an activity once it has been finished.

Analysis and Reflection

A clear purpose is the starting point for any successful design. Apart from that, the success of a platform such as the one proposed by this project depends on a series of factors that all play a vital role—including system structure, usability, accessibility and design.

System consistency

Good interface design takes into account various ways of access, as the users will follow different paths using different strategies. *(See appendices 9–10)* As this project situates itself in the space where students are becoming more independent in their reading, and the teacher's guidance gradually diminishes, it is important to provide adequate assistance for students to get familiar with the system and navigate it on their own. Using coach marks on initial log-in, the reader is guided through the functions and navigation of the app. This guidance supports good way-finding—assisting the readers to orient themselves within the system and have a sense of overview will hopefully help build their confidence in using and exploring the system.

The cues for orientation and navigation are kept consistent, and the number of navigation levels at minimum. Ebook experiments such as Biblion's Frankenstein, discussed earlier, explores ways of accessing and displaying content in an interesting way, but for a project criteria including deep reading and comprehension, it seems a bit too complex, complicating the navigation and orientation—making it hard to situate oneself within the system. As the time the reader takes to make a decision increases with the number of alternatives, an experiment such as Biblion's Frankenstein can result in more unpredictable user behavior and lower information retention—possibly affecting comprehension. The system structure, navigation and visual cues should therefore be kept as consistent and simple as possible for a prototype such as the one proposed here. That includes: consistent patterns for buttons that lead to next steps logically, avoiding visual clutter, a simple color palette, visual hierarchy that highlights important elements and so forth.

The primacy of text

As the main goal is to facilitate deep reading and reflection, the system's structure should support the reader's focus on the narrative. The layout of the narrative is therefore kept simple, hiding the menu and thus other components, to avoid distractions from the reading. When navigating through other parts of the platform—reading paratext, browsing through the collection of annotations or engaging in an activity, a visual cue provides the reader a bridge back to the narrative, focusing on the primacy of the text above everything else.

The activities have been placed between chapters for the same reasons, to sustain reading and avoid distractions within the narrative. An early iteration of the prototype approached the guided activities between chapters by timing them, in an attempt to redirect the student back into reading. After careful consideration, that notion was abandoned, as reflection shouldn't be hurried and intentionally distracted. That would defeat the purpose of this project and its criteria, the facilitation of deep reading and reflection of text. Even though it's important to promote the primacy of the text, the reader should not be forced back into the narrative—since if there is enough time and motivation for reflection, readers are more likely to construct multi-leveled understanding of a text (Kintsch, W. 2004).

Another early approach looked at differentiating the activities from the narrative by making the reader rotate the device when switching between the two different modes. However, as the reflective activities are intended to happen in tandem with the narrative, physically separating the two might be cumbersome as well as distracting to the reader.

One of the challenging aspects of developing this platform had to do with responding to the audience's preference for rich visual material, making sure it wouldn't take away from the primacy of the text. Placement is important in this context, as other parts of the platform might be more appropriate for rich visual material than the narrative. The activities, paratext and chapter beginnings are therefore kept more colorful and illustrated as the audience does respond well to visual material. Based on findings from early visual explorations, it is also important to consider the explicitness of the visual language. Excessive, content specific illustrations might be detrimental to the reader's visualizing of the story and the open-endedness of visualizing activities, so more abstract illutstrations might work better.

As the open-endedness of reflection is a significant factor within the project, it is important that elements are put into place to support the reader in that particular construction of meaning. So far, the support relies heavily on the description and presentation of the activities between chapters. As the activities are built upon the guided reading strategies that already focus heavily on open-ended reflection, they are framed as the reader's own evaluation, opinions and so forth. The language used to introduce and describe the activities is important in this context, to support open and infinite meaning-making, and ensure the reader that there are no right or wrong answers. Including some kind of message or a visual interpretation of encouragement once the activity has been finished might also support in this context.

Collaboration, not competition

To support helpful and encouraging language of activity prompts, the platform suggests back-end access for teachers, to modify and advance the framing of the reflection activities. Further examination of back-end access possibilities is needed, and how those possibilities could be useful for bridging the app and the classroom activities. That could include discussion of different activity results, the kind of imagery the students have produced

and so forth—in a way that highlights the variety of reflections. This type of social collaboration has been proven to be beneficial to the reading process and comprehension. Discussion and inclusion, the feeling of being a part of a bigger meaning-making process, increases the richness of interpretation. (Ruddell, R., & Unrau, N. 2004)

Collaboration is the key-word. As the teachers interviewed expressed, the implementation of competitive gaming components might engage some students but they could also cause anxiety in others. For those reasons, as well as to facilitate the intrinsic motivation the system intends to support, the focus should be less on gamification and more on game-inspired learning. Tying in with the positive affordances of the digital format, game-inspired learning includes a user profile, an overview and goal-setting of pages to be read, customizing options and the playful framing of activities. This system avoids the more concrete elements of gamification such as badges and rewards, as they might lead to hurried and distracted skimming of text.

Other positive affordances of screen based reading that have been integrated into the platform include interactive activities, annotation options and most importantly, options for customization—reflecting different user needs and preferences. However, other options that promote text accessibility such as input of audio or speech to text have not been addressed to date.

Prototyping capabilities

All the aforementioned considerations materialized while addressing the the platform's goals and criteria. It is difficult to predict all the ways readers might use and navigate the book—they become co-designers of the system by putting it into use. Initial results from user-testing with both students and teachers were however promising, with all participants expressing willingness and confidence in using the proposed system. The overall

assessment was genuinely positive, and all students expressed contentment with the platform.

However, as the prototype tested served mostly for demonstrative purposes, looking at the user interface rather than a functioning user experience, further research and implementation would be needed to fully grasp the impact and possible benefits this system proposes. That includes engagement with activities, as they are optional and could therefore be bypassed. It would also be interesting to examine to what extent students use the annotating options, as that could inform how to structure the back-end access for teachers to determine the level of access to students' collections. Testing a more functional prototype would also help to evaluate the user flow and engagement with the narrative, as well as levels of distraction of other layers of navigation. The paratext and activities could be more likely to promote hyper-reading, which is why a visual cue has been placed to link back to the reading mode at all times. It is difficult to tell if that visual cue is sufficient or if a different approach to the integration and access to paratext is needed.

The activities would need to be further inspected as well. As the book contains four letters and 24 chapters, there is a risk that the reader's interest in the activities might decrease through chapters, if they feel the activities are repetitive. Being able to test a fully functioning prototype might inform how to present such a high number of activities in a way that maintains interest, keeping the reader within the flow channel.

Future development

The most successful user experiences are accessible and responsive in ways

that suit our needs and preferences. As this system proposes an addition to a spectrum of reading choices, future development of this project would aim to accommodate different user needs. That includes audio and speech—having the narrative read out as well as speech-to-text features to support activities and annotation. As students who participated in user-testing expressed desire for an option to leave notes and drawings on the margins of pages while reading, that could also be explored in future development.

Following implementation, the system could then very well be realized with different works of literature and in different languages. A new version would have to be produced for each title, as the proposed platform contains paratext and activities based on the content. As stated before, the proposed system situates itself within the classroom, as an addition the spectrum of reading choices, adding to the conversation of extending deep reading into the digital realm. Beyond this context, another future direction could be developing the system for independent reading outside a classroom.

Even though further research is needed to assess the potential effectiveness of the guidelines this system proposes, it suggests the focus should be on intrinsic motivation and that it should be game-inspired rather than gamified, while harnessing the benefits of the digital format. With those strategies in place, extending deep, reflective reading into a digital realm might just be attainable.

References

Biancarosa, G., Griffiths, G., (2012). *Technology tools to support reading in the digital age.* Future Child. Fall;22(2): 139-60

Birkerts, S. (2006). *The Gutenberg elegies.* London: Faber & Faber

Bringhurst, R. (2004). *The elements of typographic style.* Point Roberts, WA: Hartley & Marks

Carr, N. (2010). *The shallows: What the Internet is doing to our brains.* New York: W.W. Norton

Cattaneo, A., Lennartz, S., & Friedman, V. (2009). *The Smashing Book.* Lübeck, Germany: Smashing Media

Cavallo, G., Chartier, R., & Cochrane, L. G. (1999). *A history of reading in the West*. Amherst: University of Massachusetts Press

Conklin, J. (1987). *Hypertext: An Introduction and Survey.* Computer. 17–41

Cooper, A. Reimann, R. and Cronin, D. (2007). *About Face 3. The Essentials of Interaction Design.* Indianapolis: Wiley Publishing inc

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York: Harper & Row

Extrinsic motivation. (n.d.) Retrieved February 18, 2016, from http://psychology.about.com/od/eindex/f/extrinsic-motivation.htm

Eyes and dyslexia. (n.d.) Retrieved February 29, 2016 from http://www.bdadyslexia.org.uk/dyslexic/eyes-and-dyslexia

Fountas & Pinnell Leveled Book Website. (n.d.). Retrieved December 7, 2015, from http://www.fountasandpinnellleveledbooks.com/

Garrett, J. (2010) *The Elements of User Experience: User-Centered Design for the Web and Beyond.* San Fransisco: New riders

Goldman, S. (2012). *Adolescent Literacy: Learning and Understanding Content.* The Future of Children, Volume 22, Number 2, Fall 2012, 89-116

Greenfield, P. (2009). *Technology and Informal Education: What Is Taught, What Is Learned.* Science mag. Vol. 323. 69–71

Guthrie, J., Wigfield, A., Metsala, J., and Cox, K. (1998). *Motivational and Cognitive Predictors of Text Comprehension and Reading Amount.* Theoretical Models and Processes of Reading—5th Edition. 929–953

Hayles, K. (2011). *How We Read: Close, Hyper, Machine.* ADE Bulletin 150. 62–79

Hayles, K. (2007) *Hyper and Deep Attention: The Generational Divide in Cognitive Modes*. Profession 2007. 187-199

Horton, S., & Quesenbery, W. (2014). *A web for everyone: Designing accessible user experiences.* New York: Rosenfeld Media

Intrinsic motivation. (n.d.) Retrieved February 18, 2016, from http://psychology.about.com/od/motivation/f/intrinsic-motivation.htm

Kenna, H. (2011). *Touching the text of T.S. Eliot's 'The Waste Land': a critical discussion of interactive design and screen typography for an iPad e-book*. Book 2.0 1:2, pp. 207-238.

Kintsch, W. (2004). *The Construction–Integration Model of Text Comprehension and its Implications for Instruction.* Theoretical Models and Processes of Reading—5th Edition. 1461–1521

Kenneth Gordon Maplewood School. (n.d). Retrieved January 18, 2016, from http://kgms.ca

Klapwijk, N. (2015). *"EMC² = comprehension: A reading strategy instruction framework for all teachers"* South African Journal of Education, 35(1), [994]

Loud Crow Interactive Inc. (2013) Popout! The tale of Peter Rabbit (Version 1.7). [iPad application] Available from https://itunes.apple.com/us/app/popout!-tale-peter-rabbit/id397864713?mt=8

Ministry of Education. (2008). *English language arts 8 to 12 : integrated resource package 2007.* Retrieved from https://www.bced.gov.bc.ca/irp/pdfs/english_language_arts/2007ela_812.pdf

Ministry of Education. (2007). *English language arts kindergarten to grade 7: integrated resource package 2006.* Retrieved from https://www.bced.gov.bc.ca/irp/pdfs/english_language_arts/2006ela_k7.pdf

Open Dyslexic. (2013) Retrieved February 19, 2016, from http://opendyslexic.org/2013/03/14/kobo-mini-and-glo/

Pearson, Roehler, Dole, & Duffy (1990). *Developing expertise in reading comprehension. What should be taught? How should it be taught?* Illinois: University of Illinois

Piper, A. (2012). *Book was there: Reading in electronic times.* Chicago: University of Chicago Press

RAND Reading study group (2002). *Reading for Understanding—Toward an R&D Programin Reading Comprehension.* Retrieved from http://www.rand.org/content/dam/rand/pubs/monograph_reports/2005/MR1465.pdf

Ruddell & Unrau, (2004). *Reading as a Meaning-Construction Process.* Theoretical Models and Processes of Reading —5th Edition. 1270–1328.

Seravek in the wild. (n.d.). Retrieved March 14, 2016, from https://www.typewolf.com/site-of-the-day/fonts/seravek

Simogo. (2016). Device 6. (Version 1.2). [iPad application]. Available from https://itunes.apple.com/us/app/device-6/id680366065?mt=8

Sosnoski, J. (1999). *Hyper Readers and their Reading Engines.* In Passions, Pedagogies and 21st Century Technologies (Ed.), 161–177. Utah: Utah State University Press

Study cake. (n.d.). Retrieved February 13, 2016, from http://studycake.com

System Usability Scale. (n.d). Retrieved February 4, 2016, from http://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html

The New York Library Astor, Lenox, and Tilden Foundations. (2013). NYPL Biblion: Frankenstein (Version 1.1.1) [iPad application]. Available from https://itunes.apple.com/us/app/nypl-biblion-frankenstein/id521833980?mt=8

Thüring, M., Hannemann, J., and Haake, J. (1995). *Hypermedia and cognition: designing for comprehension*. Communications of the ACM, Volume 38, issue 8

Touchpress Limited. (2015). The Waste Land. (Version 1.1.3) [iPad application]. Available from https://itunes.apple.com/us/app/the-waste-land/id427434046?mt=8

Type Together—Athelas. (n.d.) Retrieved March 4, 2016, from http://www.type-together.com/Athelas

Wolf, M., & Stoodley, C. (2007). Proust and the squid: The *story and science of the reading brain*. New York: Harper Collins

Bibliography

Andrejevic, M. (2013). *Introduction: Infoglut and clutter-cutting. In Infoglut: How too much information is changing the way we think and know.* New York: Routledge

Author unknown. (n.d.) *Allir lesa*. Retrieved March 23, 2015, from http://allirlesa.is

Author unknown. (2014, November 17) *Lásu í fimm sólarhringa.* Mbl.is. Retrieved from http://www.mbl.is/frettir/innlent/2014/11/17/lasu_i_fimm_solarhringa/

Author unknown. (2014, November 24) P*róf sem aðlagast einstaklingunum.* Mbl.is. Retrieved from http://www.mbl.is/frettir/innlent/2014/11/24/prof_sem_adlagast_einstaklingunum/

Author unknown. (n.d.). *UX Toolbox. Building better web for citizens.* Retrieved November 29, 2014, from http://www2.gov.bc.ca/gov/DownloadAsset?assetId=E9130EAB54274F408D551ABE8D6254BC&filename=design_research.pdf

Bjarnar, J. (2013, December 3). *Herfileg niðurstaða úr nýrri PISA-könnun.* Vísir. Retrieved from http://www.visir.is/herfileg-nidurstada-ur-nyrri-pisa-konnun/article/2013131209769

Bowling, A. (1997). *Research methods in health: Investigating health and health services.* Buckingham: Open University Press

Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK

Cohen D, Crabtree B. *Qualitative Research Guidelines Project*. July 2006. Retrieved April 1, 2015 from http://www.qualres.org/

Collins, H. (2010). *Creative research: the theory and practice of research for the creative industries.* Lausanne: AVA Academia

Cristobal, A. (2014) *Deep design for deep books*. Retrieved October 29, 2014, from http://www.adamcristobal.com/interpolated-editorial-design/

Decoda. *The importance of literacy. (*2014, June 23). Retrieved from http://decoda.ca/wp-content/uploads/OnePager23_06_2014_Fact Sheet_Importance_of_Literacy.pdf

Demers, D. (2007). *History and future of mass media: An integrated perspective.* Cresskill, NJ: Hampton Press Inc

Deterding, S., Dixon, D., Khaled, R. & Nacke, L. (2011). *From game design elements to gamefulness: defining "gamification".* In Proceedings of the 15th International Academic MindTrek Conference: Envision ing Future Media Environments (MindTrek '11). ACM, New York, NY, USA, 9-15. Retrieved March 15, 2015 from þhttp://gamification-research.org/2012/04/defining-gamification/#sthash.kGTdDlox.dpuf

Dredger, K., Horst, P., Martin, J., & Williams, M. (n.d.). *In other words... Harnessing the participatory nature of adolescents today:* New Literacies and Young Adult Literature. Retrieved November 2, 2014, from Academia

Gardner, H., & Davis, K. (2014). *The app generation: How today's youth navigate identity, intimacy, and imagination in a digital world.* New Haven: Yale University Press

Kamil, M. (2003) *Adolescents and literacy: Reading for the 21st century.* Retrieved November 14, 2014, from Carnegie.org

Kenna, H. (2011). *'Touching the text of T.S. Eliot's 'The Waste Land': a critical discussion of interactive design and screen typography for an iPad e-book'*, Book 2.0 1:2, pp. 207-238.

Knapp, J. (2013) *How To Conduct Your Own Google Ventures Design Sprint.* Retrieved February 18, 2015, from http://www.fastcodesign.com/1672887/how-to-conduct-your-own-google-design-sprint

Koskinen, I., Zimmerman, J., Binder, T., Redström, J., & Wensveen, S. (2011). *Design research through practice from the lab, field, and showroom.* Waltham, MA: Morgan Kaufmann

Martin, B., & Hanington, B. (2012). *Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions* (Digital ed.). Beverly, MA: Rockport

Maxwell, J. & Armen, H. *Dreams Reoccurring: The Craft of the Book in the Age of the Web.* (2014). JEB: The Journal of Electronic Pub lishing, 17(1). Retrieved February 4, 2015, from http://quod.lib.umich.edu/j/jep/3336451.0017.125?view=text;rgn=main

Merga, M. (2014). *What would make them read more?* Insights from Western Australian adolescents. Asia Pacific Journal of Education. Retrieved November 2, 2014, from author by e-mail

Merga, M. (2014). Are Teenagers Really Keen Digital Readers? Adolescent Engagement in Ebook Reading and the Relevance of Paper books Today. English in Australia. Retrieved February 18, 2015, from author by e-mail

Merga, M. (2014). *Western Australian adolescents' reasons for infrequent engagement in recreational book reading.* Literacy Learning: The middle years. Retrieved February 18, 2015, from author by e-mail

Merga, M. (2014). *Peer Group and Friend Influences on the Social Acceptability of Adolescent Book Reading.* Literacy Learning: The middle years. Retrieved February 18, 2015, from author by e-mail

OECD (n.d.) *Pisa 2012 results.* Retrieved October 29, 2014, from http://www.oecd.org/pisa/keyfindings/pisa-2012-results.htm

OECD (2014) *Are boys and girls equally prepared for life?* Retrieved October 29, 2014, from http://www.oecd.org/pisa/pisaproducts/PIF-2014-gender-international-version.pdf

Ontario Ministry of Education. *Me read? No way! A practical guide to improving boys' literacy skills,* by the Ontario Ministry of Education. (2004). Ontario: Queen's printer for Ontario

Park, S., & Burford, S. Pollitt, D., & Weseloh, G. (2014). *Understanding the iPad and iPad iBook as a classroom interventions.* Retrieved November 10, 2014, from Academia

Ramirez, D., & Squire, K. (2014). *Gamification and learning.* In "Gameful world: Approaches, issues, applications". Cambridge, Massachusetts: MIT Press

Rannís (The Icelandic Centre for Research) (n.d.) *Funding and international.* Retrieved November 18, 2014, from http://en.rannis.is/funding/

Ryan, G. & Bernard, H. (2003). *Techniques to Identify Themes.* Field Methods, Vol. 15, No. 1. Sage Publications

Sanders, E., & Stappers, P. (2012). *Convivial design toolbox: Generative research for the front end of design*. Amsterdam: BIS

Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world.* New York: McGraw-Hill

Turkle, S. (2012). *Alone together: Why we expect more from technology and less from each other*. New York: Basic Books

Appendices

Teacher Interviews

June 8–12, 2015
5 participants in semi-structured interviews at
Kenneth Gordon Maplewood School

Time

45 minutes

Goal

Get good ground knowledge on the audience and how they are introduced to long form fiction within the classroom, before interviewing them.

1. Introduction

I introduce myself to the participant. A little information about me and my background, as well as providing information regarding the project, the research and what I hope to achieve.

2. Interview

"Warm up" questions:

- Name
- Occupation (what kind of teacher, what age, for how long) etc.

Example questions:

- How do you introduce long form fiction to students? Why?
- How do you approach the subject? Why?
- Is there any emphasis on the author as well as the writing? How?
- Are there any standard methods you are advised to follow?
- What do you think about visual support? Why?
- How easy do you find it to engage students in their readings?
- What do you think of their reading habits?
- What are the major challenges?
- What do you think about reading on digital devices?
- What do you think might spark their interest to read?
- Do you place any emphasis on reading outside the classroom?
- Do you track the students reading in any way? How?

If time allows, participants could be shown selected precedents, and asked to provide their opinion on contents, functions and aesthetics.

Selected Quotes

"In terms of the actual reading, they get a copy of the book, a copy of the graphic novel, a copy of the audio book, that ended up working really, really well. So some of the kids that struggle with reading just listen to the audio book and then they were able to engage in the discussions."

"They are always looking for more pictures."

"The look of the book definitely matters. They still like the more cartoony looking kind of books, not so much the more sort of adult fiction. It looks reader friendly—less scary looking."

"A lot of them want to be pushing boundaries at school, learning new things. They want things that are real, edgy, new to them."

"We read it a lot of different ways, they get bored quickly."

"It's difficult to engage them in the reading"

"We spend a lot of time looking at new words, identifying words that they maybe didn't know before."

"If I had them reading this themselves, ideally I'd have an ebook with pop-ups periodically that would say, what do you think is gonna happen next? Sort of like they can't actually access the text until they answer that question."

"It's hard to work on comprehension because you're so worried about pulling the words off the page. Helping them get across that barrier makes a huge, huge difference."

"The benefit of having just a chunk of the text digitally, it doesn't feel as big, it fences it off and says, we're only worried about this right now, rather then sitting there with the 300 page book and feeling overwhelmed by it. So I found it useful for chunking things up too."

"It can spur them on, or drag them down. It can go from something fun to being a chore, this awful thing where I'm constantly screwing up and failing. Especially here, we're trying to mitigate that as much as possible. Not having them engage in heavy duty competitiveness academically."

"If you're in a competitive sport and you have someone next to you to spur you on, that's great, if I'm in a competitive sport that I have no desire to be in, then having someone that's constantly pushing, that just makes me feel terrible. Getting punched at the bus stop is different than being at the boxing match."

"Almost every kid comes to school with an iPhone, iPod, iPad or anything like that. So getting them off of those is almost impossible. Having something where they could interact by using those might be really helpful."

"If this was a regular school, it would be like AAAnd here's the book! There would not really be any amendments, that would just be on an individual basis with agreement with the teacher, here we just throw everything out there and just let it all be natural, and NO STIGMA with it. We have students with different skills so taking something saying OK this is the way she does it, this is the way you should do it, that's completely unfair. So giving them multiple options, the access of the text being the requirement, and then having them do it their own way"

Student Interviews

June 8–12, 2015
4 participants in semi-structured interviews at
Kenneth Gordon Maplewood School

Time

45 minutes

Goal

Gain knowledge on the audience's reading habits, frequency of reading as well as their use of technology.

1. Introduction

I introduce myself to the participant. A little information about me and my background, as well as providing information regarding the project, the research and what I hope to achieve. I will be bringing some of my own books to show the participants.

2. Interview

"Warm up" questions:

- Name / Age
- Summer plans?
- What kind of activities do you do?

Example questions:

- What kind of books do you like to read?
- Which books are you reading at the moment?
- What do you think of the books you have to read at school? Why?
- What do you like about them?
- What don't you like about them?

Frequency:

- Do you read anything outside of school? If so—what kind of books?
- How much time do you think you spend reading per week?
- Do you track your reading in any way?
- Do you share that with other students or your friends? Why?
- What do you think about book-clubs? Why?

Technology

- What kind of devices do you use?
- If you had to choose a device for reading, what would you choose and why?
- What do you think of tablets?
- What kind of technology do you use?
- Do you read ebooks? What do you think about ebooks?
- What kind of stuff do you read online?
- Do you use any apps? What kind of apps? Apps that read out to you?
- Do you use anything to help you read?

Selected Quotes

"I don't like reading."

"I don't like stopping to have to ask questions."

"I would like to do the summary afterwards."

"I just don't enjoy reading, it's just not fun."

"There's no like action, you're just looking at it. I need to be doing something at the same time."

"I normally don't choose to spend money on books on iPad even though they could be transportable or something, cause sometimes when you download a book it goes wrong and you can't really re-install it or anything."

"I'm a terrible drawer but it's still fun."

"It depends on what kind of game it is. If it's like a game where you have to sit beside each other, it might be OK or if it's online kind of battle that's also fun to. It just depends on the class opinion. There could be like, both choices."

"It would be cool to connect with other players, like classmates."

"I like getting to know more about the back story."

"Some sort of a video game or like an activity that had to do with it, that wasn't like a teacher activity, like a kid activity that we actually like, no offence."

Primary Persona

“I just don’t really enjoy reading, it’s just not that fun…”

Name
James

Age
14

Friendly

Lively

Clever

James is a 14 year old student from Vancouver. He’s not a big fan of school, let alone homework. He doesn’t really read books at all outside of school, simply because he feels other things are more important. One of his biggest interests is playing games. He’s got access to a computer at home, a tablet and a smart phone. He’s bought multiple apps and games, and even a few ebooks. He’s used to rich and rewarding experiences, that he can interact with. He wants to feel like he’s pushing boundaries at school and learning new things.

Experience Goals

Feel smart and accomplished.

Feel that navigating through it is of reasonable difficulty.

Engage in “kid activities”, something that the teacher is not conducting directly.

Have the option of connecting with other players/classmates.

Read at own pace.

End Goals

Be less bored with getting through mandatory texts.

Get to know more about the back story.

Learn useful things.

Feel like completing the task is useful.

Skills

Highly digitally literate.

Likes to listen to audio books from time to time.

Plays a lot of computer games.

Doesn’t consider himself a good drawer but still likes to draw things.

Secondary Persona

"We read it a lot of different ways, they get bored quickly."

Name
Robin

Age
35

Creative

Flexible

Open-minded

Robin has been teaching English for a few years. She knows students have different needs and tries her best to accommodate that. She hopes providing students with multiple options helps them reach their potential. She doesn't assign a lot of reading assignments as homework, but focuses on reading within the classroom. She uses extra material to support the readings, such as movies and music, and encourages the students to visualise their readings and even draw them out from time to time. She tries to keep the reading as social as possible but not competitive. She feels using digital devices in assistive ways has great potential within the classroom.

Experience Goals

Feel like the students make progress, and their comprehension advances throughout the book.

Get students immersed in the story and excited about it.

Encompass as many students as possible.

Get students to reflect on what's happening in the story while reading it.

Help students find their own way of accessing texts.

Help students discover avenues that get them interested.

End Goals

Empower students, make the process feel attainable.

Get students interested and engaged in their readings.

Foster students' critical thinking and problem solving strategies.

Give the students multiple options —the access of the text is the requirement.

Reduce the stigma of different access points. (Audio book, graphic novel, paper copy etc.)

Make use of their digital skills by interacting with the students through digital devices.

Add to the benefits of assistive technology.

Widen strategies to hit every student's strength.

Co-creation Workshop

June 8–12, 2015
4 participants in a semi-structured workshop at
Kenneth Gordon Maplewood School

Time

45 minutes

Goal

Gain knowledge on the audience's preferences. How would they shape their long form digital reading experiences, if given the opportunity?

1. Introduction

A little information about me and my background, as well as providing information regarding the project, the research and what I hope to achieve. I will be bringing some of my own books to show the participants.

2. Warm-up exercise

Students will be asked to come up with 20 different uses for a brick. All will be written down on a brown paper on the wall. Group activity.

Approximately 10 minutes.

3. Brainstorming

Starting broad, then narrowing down. Group+solo activity. All will be written down on a brown paper, students are also encouraged to write/draw for themselves.

Approximately 20 minutes.

Prompts

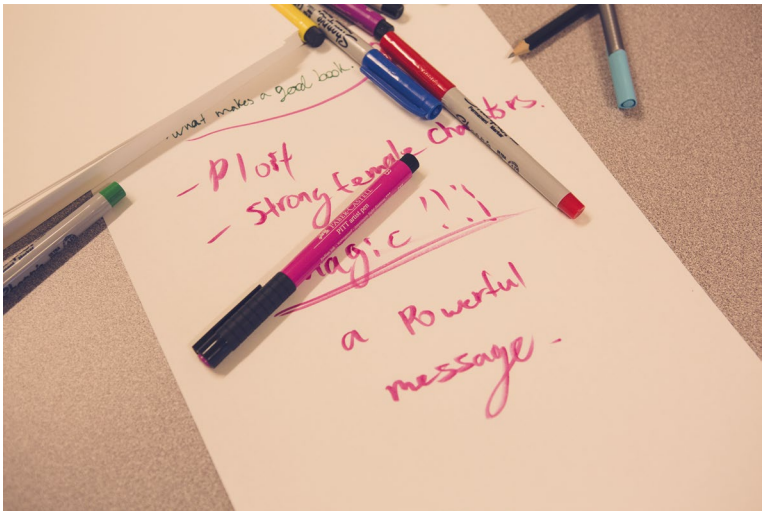
- Do you read anything outside of school? If so—what kind of books?
- How would you make a book?
- How would you describe the "best book ever"?
- What would you like the experience of reading a book to be like?
- How would you shape that in a digital form? As an ebook or a game? Anything else?
- What would make it fun?
- What would make you want to read it?
- What would keep your focus?

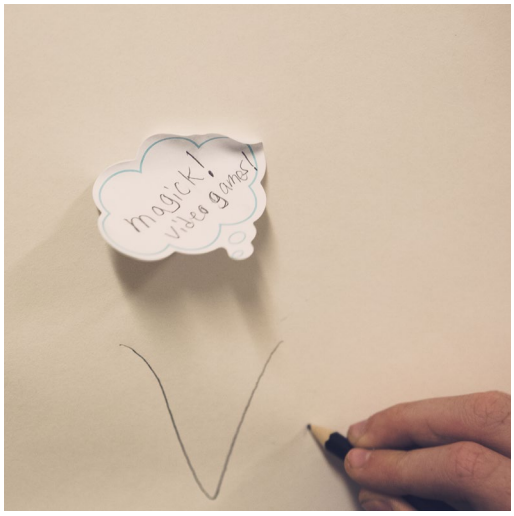
4. Visualizing

Students will be presented with materials based on their previous tasks. iPad wireframes and templates, stickers, paper and markers. Students can choose if they work in groups are individually, after being given instructions.

Approximately 20 minutes.


Fantasy is
hidevi l


- Plot
- Strong female
magic !!!
a Powerful
message.


magick!
video games!

User-testing

February 18th, 2016
6 participants at Kenneth Gordon Maplewood School
4 students and 2 teachers. 30 minutes per participant.

A combination of "Get it" testing and "Key task" testing. "Get it" testing: Showing them the app and see if the get it—do they understand the purpose, the value proposition, how it's organized, how it works and so on. "Key task" testing: Asking the user to do something, then watching how well they do.

Hi, my name is Bergþóra, and I'm going to be walking you through this session today.

Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

You probably already know a bit about why you were asked here, but let me go over it again briefly. I'm asking people to try using a book app I'm working on so I can see whether it works as it should. The session should take about 30 minutes. The app is not finished yet, so what you'll be looking at is a mock up or a rough prototype. So some things will not work exactly like they would in a final version. I'll explain that better as we go along. You are also free to ask questions.

The first thing I want to make clear right away is that I'm testing the app, not you. You can't do anything wrong here. So don't worry about making mistakes. There are no wrong answers or comments.

As you use the app, I'm going to ask you as much as possible to try to think out loud: to say what you're looking at, what you're trying to do, and what you're thinking. This will be a big help. (That would be something like: I'm opening the app, I'm logging in, I'm looking at the menu. I'm choosing a chapter to read… And so on)

Also, please don't worry that you're going to hurt my feelings. I'm doing this to improve the app, so I need to hear your honest reactions.

If you have any questions as I go along, just ask them. I may not be able to answer them right away, since I'm interested in how people do when they don't have someone sitting next to them to help. But if you still have any questions when we're done I'll try to answer them then. And if you need to take a break at any point, just let me know.

You may have noticed the audio recorder. I'm going to be recording what happens on the screen and our conversation. The recording will only be used to help me figure out how to improve the app, and it won't be seen or heard by anyone except me, and my supervisor. It helps me, because I don't have to take as many notes.

I want to start off by asking you just a few questions. Ready to go?

Students:

- Which class are you in?
- Are you reading any books for class?
- For how long every day in class?
- Do you have any favorite books?
- When do you use your computers/tablet or phone the most?
- What do you use it for?
- Do you read any books on a tablet?
- What do you like about that, dislike about that?

So let's look at the book app:
Look at it and tell me what you make of it. What is it, what you think you can do, what you think it's for. Anything confusing?

Teachers:

- Which class do you teach?
- Do you spend a lot of classtime on reading and reading activities?
- Do you use the "Guided reading" strategies a lot?
- And if so, how?
- Do you have examples?
- What are the challenges of those strategies?
- What are successful ones and why?
- What works?
- Do you see any opportunities?
- Do students use computers, tablets or phones a lot within the classroom?
- How do they use them for reading?

So let's look at the book app:
Look at it and tell me what you make of it. What is it, what you think you can do, what you think it's for. Anything confusing?

User-testing Tools

"The System Usability Scale (SUS) provides a "quick and dirty", reliable tool for measuring the usability. It consists of a 10 item questionnaire with five response options for respondents; from Strongly agree to Strongly disagree. Originally created by John Brooke in 1986, it allows you to evaluate a wide variety of products and services, including hardware, software, mobile devices, websites and applications."
("System Usability Scale (SUS)", n.d.)

Strongly disagree — Strongly agree

		1	2	3	4	5
1	I think that I would like to use this system frequently.				xxxx	xx
2	I found the system unnecessarily complex.		xxxxx	x		
3	I thought the system was easy to use.			x	xxxx	x
4	I think that I would need the support of a technical person to be able to use this system.	xx	x	x	x	
5	I found the various functions in this system were well integrated.		x		xxxx	x
6	I thought there was too much inconsistency in this system.	xx	xx	xx		
7	I would imagine that most people would learn to use this system very quickly.			xx	xx	xx
8	I found the system very cumbersome to use.		xxxx	xx		
9	I felt very confident using the system.			x	xxxxx	
10	I needed to learn a lot of things before I could get going with this system.	x	xx	xxx		

User-testing Tools

Participants were asked to fill out a survey on usability
and circle words on a sheet of paper they felt described the prototype.

Accessible	Desirable	Gets in the way	Patronizing	Stressful
Appealing	Easy to use	Hard to use	Personal	Time-consuming
Attractive	Efficient	High quality	Predictable	Time-saving
Busy	Empowering	Inconsistent	Relevant	Too technical
Collaborative	Exciting	Intimidating	Reliable	Trustworthy
Complex	Familiar	Inviting	Rigid	Uncontrollable
Comprehensive	Fast	Motivating	Simplistic	Unconventional
Confusing	Flexible	Not valuable	Slow	Unpredictable
Connected	Fresh	Organized	Sophisticated	Usable
Consistent	Frustrating	Overbearing	Stimulating	Useful
Customizable	Fun	Overwhelming	Straight Forward	Valuable

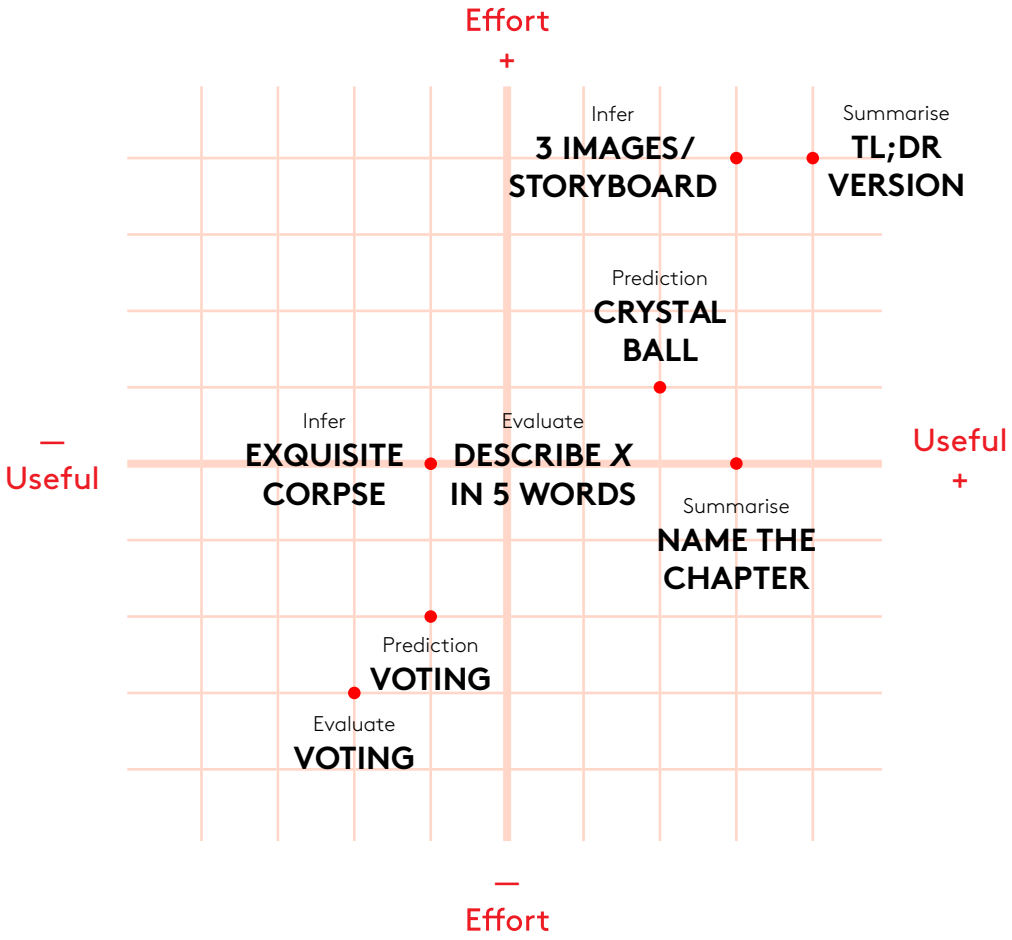
Comprehension Strategies

Comprehension strategies	Helpful prompts
Self-monitoring • Checks personal strategy use • Changes strategy use	• Did that part of the book make sense to you? • What Questions are you asking yourself about...? • Did you get an answer to your questions when you read on?
Analyzing • Find facts • Finds a main idea (if stated) • Finds supporting details • Recognizes problem/solution	• What else do you need to know? • What else does it say about...? • Can you show me where it says that? • What did you not know about...? • Did it tell you about the main idea or the most important idea? • Where does it say that?
Sequencing • Understands sequence of directions • Retells in sequence (events, facts, arguments, details)	• Tell me what happened. • What came first? In what order did it happen? • How did it end? • Is the order important here? • How does the author show us the order?
Making connections • Connects ideas to self, others, other texts, and knowledge about the world • Compares and contrasts facts, events or ideas	• Have you heard of (seen/read about) something like this? • Has this happened to you or somebody you know? • Does this remind you of something? • Is this the same? Is this different? • What can you compare it with? • What does the author compare it with?

Comprehension strategies	Helpful prompts
Predicting • Makes predictions about characters and plot(fiction) • Makes predictions about what information will come next (non-fictional) • Confirms or changes predictions	• What might happen next? • What do you think the next part (or chapter) will be about? • Did you expect that to happen? • What did you think she/he will do (or say, or think) next? • Did you change your mind about what was going to happen? What do you think now?
Inferring • Reads between the lines • Visualizes what is happening in the text • Infers solution to the problem • Understands cause and effect	• Why did that happen? • The author doesn't tell us... what do you think? Why do you think that? • Can you picture that in your mind? • What's the problem here? How do you think it will be solved? • What (or who) caused that? • Why do you think...?
Evaluating • Understands the difference between fiction and non-fiction and between opinion and fact • Gives personal opinions about events, facts and ideas • Evaluates the author's craft and bias	• Is this book fact or fiction? • Is this true or is this opinion? • What does the author think about? • What's your opinion about...? • Did the author do a good job of...? • What did you like best/least?
Synthesizing • Summarizes to provide a brief account • Finds the main idea (if not stated) • Connects facts, events, and ideas into a cohesive whole • Integrates information with prior knowledge to create new understanding	• What are the main things you found out about...? • What's the book about? • What is the author's message? • What did the title tell us? • What's the most important thing you learned? • In just a few words, can you tell me what this chapter is about?

Effort / Usefulness

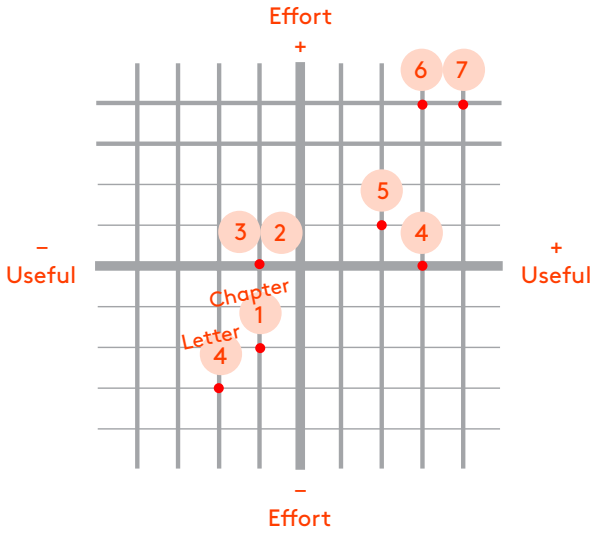
In an attempt to keep the reader within the flow channel, the activities between chapters have been mapped out, from relatively simple to more complex ones, along with their potential usefulness.



Activity Examples

The book starts with 4 relatively short letters, followed by 24 chapters. The first three chapter breaks are therefore used to introduce the reader to the platform, the paratext as well as annotation options, encouraging the reader to explore. The first reflection activity is then introduced between letter 4 and chapter 1.

Effort and usefulness levels
Chapter activity placement



LETTER 4
Summary

In the fourth letter, the ship stalls between huge sheets of ice, and Walton and his men spot a sledge guided by a gigantic creature about half a mile away. The next morning, they encounter another sledge stranded on an ice floe. All but one of the dogs drawing the sledge is dead, and the man on the sledge—not the man seen the night before—is emaciated, weak, and starving. Despite his condition, the man refuses to board the ship until Walton tells him that it is heading north. The stranger spends two days recovering, nursed by the crew, before he can speak. The crew is burning with curiosity, but Walton, aware of the man's still-fragile state, prevents his men from burdening the stranger with questions. As time passes, Walton and the stranger become friends, and the stranger eventually consents to tell Walton his story. At the end of the fourth letter, Walton states that the visitor will commence his narrative the next day; Walton's framing narrative ends and the stranger's begins.

ACTIVITY: Evaluate—voting

Who do you think was on the sled?

CHAPTER 1
Summary

The stranger, who the reader soon learns is Victor Frankenstein, begins his narration. He starts with his family background, birth, and early childhood, telling Walton about his father, Alphonse, and his mother, Caroline. Alphonse became Caroline's protector when her father, Alphonse's longtime friend Beaufort, died in poverty. They married two years later, and Victor was born soon after.

Frankenstein then describes how his childhood companion, Elizabeth Lavenza, entered his family. At this point in the narrative, the original (1818) and revised (1831) versions of Frankenstein diverge. In the original version, Elizabeth is Victor's cousin, the daughter of Alphonse's sister; when Victor is four years old, Elizabeth's mother dies and Elizabeth is adopted into the Frankenstein family. In the revised version, Elizabeth is discovered by Caroline, on a trip to Italy, when Victor is about five years old. While visiting a poor Italian family, Caroline notices a beautiful blonde girl among the dark-haired Italian children; upon discovering that Elizabeth is the orphaned daughter of a Milanese nobleman and a German woman and that the Italian family can barely afford to feed her, Caroline adopts Elizabeth and brings her back to Geneva. Victor's mother decides at the moment of the adoption that Elizabeth and Victor should someday marry.

ACTIVITY: Evaluate—voting
Who do you think was on the sled?

CHAPTER 2
Summary

Elizabeth and Victor grow up together as best friends. Victor's friendship with Henry Clerval, a schoolmate and only child, flourishes as well, and he spends his childhood happily surrounded by this close domestic circle. As a teenager, Victor becomes increasingly fascinated by the mysteries of the natural world. He chances upon a book by Cornelius Agrippa, a sixteenth-century scholar of the occult sciences, and becomes interested in natural philosophy. He studies the outdated findings of the alchemists Agrippa, Paracelsus, and Albertus Magnus with enthusiasm. He witnesses the destructive power of nature when, during a raging storm, lightning destroys a tree near his house. A modern natural philosopher accompanying the Frankenstein family explains to Victor the workings of electricity, making the ideas of the alchemists seem outdated and worthless. (In the 1818 version, a demonstration of electricity by his father convinces Victor of the alchemists' mistakenness.)

ACTIVITY: Evaluate—description
Describe Elizabeth in 5 words.

CHAPTER 3
Summary

The stranger, who the reader soon learns is Victor Frankenstein, begins his narration. He starts with his family background, birth, and early childhood, telling Walton about his father, Alphonse, and his mother, Caroline. Alphonse became Caroline's protector when her father, Alphonse's longtime friend Beaufort, died in poverty. They married two years later, and Victor was born soon after.

Frankenstein then describes how his childhood companion, Elizabeth Lavenza, entered his family. At this point in the narrative, the original (1818) and revised (1831) versions of Frankenstein diverge. In the original version, Elizabeth is Victor's cousin, the daughter of Alphonse's sister; when Victor is four years old, Elizabeth's mother dies and Elizabeth is adopted into the Frankenstein family. In the revised version, Elizabeth is discovered by Caroline, on a trip to Italy, when Victor is about five years old. While visiting a poor Italian family, Caroline notices a beautiful blonde girl among the dark-haired Italian children; upon discovering that Elizabeth is the orphaned daughter of a Milanese nobleman and a German woman and that the Italian family can barely afford to feed her, Caroline adopts Elizabeth and brings her back to Geneva. Victor's mother decides at the moment of the adoption that Elizabeth and Victor should someday marry.

ACTIVITY: Infer—drawing

Exquisite Corpse. What do you think the professor looks like?

CHAPTER 4
Summary

Victor attacks his studies with enthusiasm and, ignoring his social life and his family far away in Geneva, makes rapid progress. Fascinated by the mystery of the creation of life, he begins to study how the human body is built (anatomy) and how it falls apart (death and decay). After several years of tireless work, he masters all that his professors have to teach him, and he goes one step further: discovering the secret of life.

Privately, hidden away in his apartment where no one can see him work, he decides to begin the construction of an animate creature, envisioning the creation of a new race of wonderful beings. Zealously devoting himself to this labor, he neglects everything else—family, friends, studies, and social life—and grows increasingly pale, lonely, and obsessed.

ACTIVITY: Summary—writing

Name the chapter.

CHAPTER 5
Summary

One stormy night, after months of labor, Victor completes his creation. But when he brings it to life, its awful appearance horrifies him. He rushes to the next room and tries to sleep, but he is troubled by nightmares about Elizabeth and his mother's corpse. He wakes to discover the monster looming over his bed with a grotesque smile and rushes out of the house. He spends the night pacing in his courtyard. The next morning, he goes walking in the town of Ingolstadt, frantically avoiding a return to his now-haunted apartment.

As he walks by the town inn, Victor comes across his friend Henry Clerval, who has just arrived to begin studying at the university. Delighted to see Henry—a breath of fresh air and a reminder of his family after so many months of isolation and ill health—he brings him back to his apartment. Victor enters first and is relieved to find no sign of the monster. But, weakened by months of work and shock at the horrific being he has created, he immediately falls ill with a nervous fever that lasts several months. Henry nurses him back to health and, when Victor has recovered, gives him a letter from Elizabeth that had arrived during his illness.

ACTIVITY: Predict—crystal ball

Who do you think Elizabet's letter contains?

CHAPTER 6
Summary

Elizabeth's letter expresses her concern about Victor's illness and entreats him to write to his family in Geneva as soon as he can. She also tells him that Justine Moritz, a girl who used to live with the Frankenstein family, has returned to their house following her mother's death.

After Victor has recovered, he introduces Henry, who is studying Oriental languages, to the professors at the university. The task is painful, however, since the sight of any chemical instrument worsens Victor's symptoms; even speaking to his professors torments him. He decides to return to Geneva and awaits a letter from his father specifying the date of his departure. Meanwhile, he and Henry take a walking tour through the country, uplifting their spirits with the beauties of nature.

ACTIVITY: Infer—storyboard

Describe the chapter by illustrating a storyboard of three pictures.

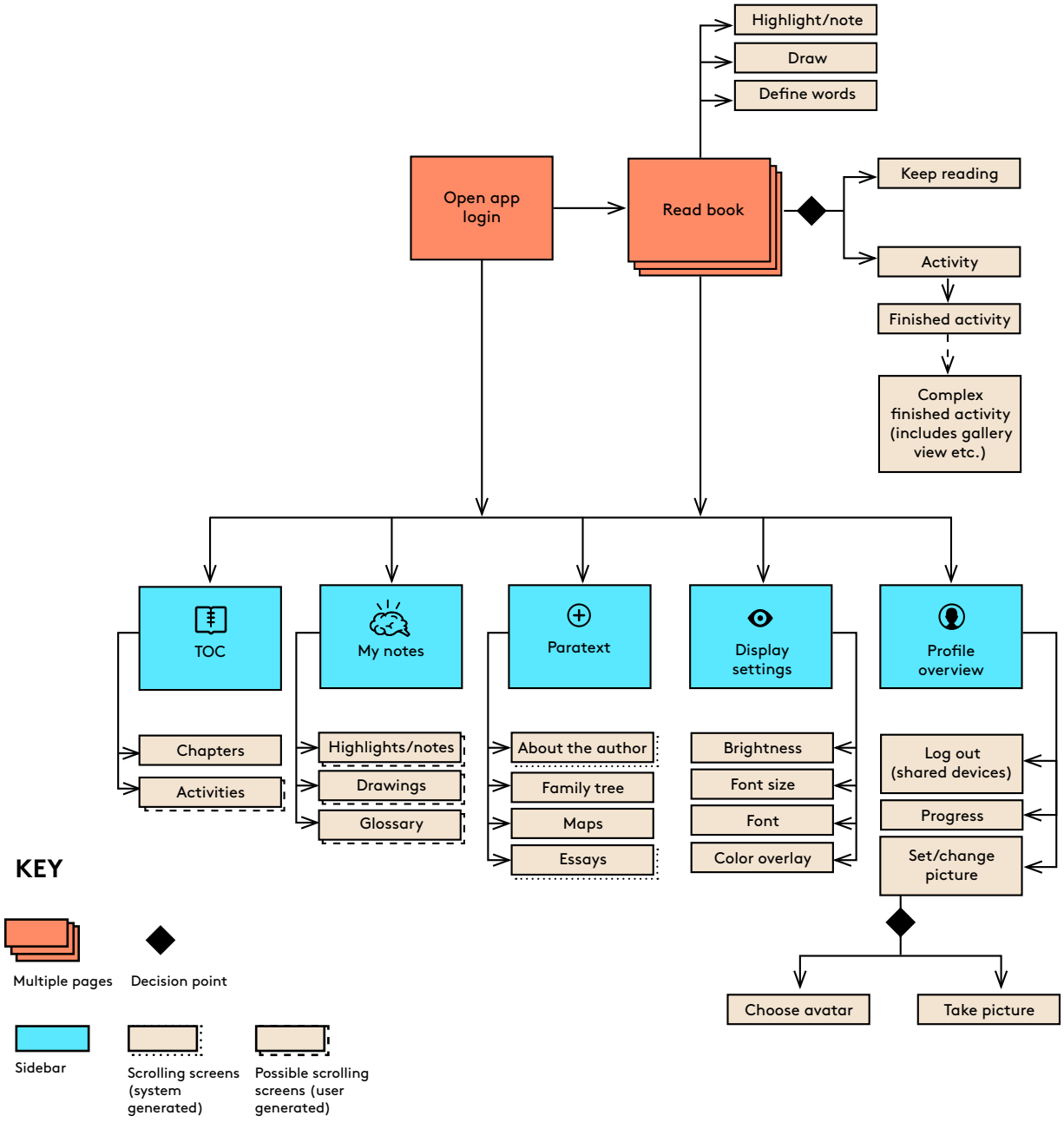
CHAPTER 7
Summary

On their return to the university, Victor finds a letter from his father telling him that Victor's youngest brother, William, has been murdered. Saddened, shocked, and apprehensive, Victor departs immediately for Geneva. By the time he arrives, night has fallen and the gates of Geneva have been shut, so he spends the evening walking in the woods around the outskirts of the town. As he walks near the spot where his brother's body was found, he spies the monster lurking and becomes convinced that his creation is responsible for killing William. The next day, however, when he returns home, Victor learns that Justine has been accused of the murder. After the discovery of the body, a servant had found in Justine's pocket a picture of Caroline Frankenstein last seen in William's possession. Victor proclaims Justine's innocence, but the evidence against her seems irrefutable, and Victor refuses to explain himself for fear that he will be labeled insane.

ACTIVITY: Summarize—TL;DR version

Summarize the chapter in three sentences.

Information Architecture



User Flow

An example of what a simple user flow might look like when reading the book for the first time.