The Impact of Scrollytelling on the Reading Experience of Long-Form Journalism

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ABSTRACT

Scrollytelling is the most common form of long-form journalism and has become a popular communication device because of its ability to capture an audience's attention. This could make scrollytelling a suitable format for younger audiences, whose attitudes towards news differ from older generations; it is more individualistic and is driven by progress and entertainment. This paper investigates the effect scrollytelling has on journalistic content according to a younger audience. This was done by letting participants consume an article in both a normal static format, i.e., non-scrollytelling, and a scrollytelling format, and then provide insights through a questionnaire and interview. The results showed a significant difference in perceived engagement favoring the scrollytelling format and clear indications of which features scrollytelling can produce and how desirable these are. It also showed the strength of scrollytelling in its ability to invoke an emotional response.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in interaction design**; *User interface design*; • **Applied computing** → **Document management and text processing**.

KEYWORDS

Scrollytelling, Long-form Journalism, Visual Storytelling

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1 INTRODUCTION

The last decades' rapid emergence of new Internet-enabled devices and digital platforms have transformed the media usage behavior and led to the diminished popularity of text-based formats, forever changing the traditional journalistic pillars of legacy media [13, 19]. Long-form journalism — one of journalism's basic functions - was believed to become one of the first to perish as the industry was struggling to adjust to the new digital age. However, it managed to take advantage of the new technical potentials for content presentation, and now many claim that it could be a journalistic and economic chance for the future [19].

In 2010, Segel and Heer [14] noted the storytelling potential of data visualization in online journalists' narratives when combining visualizations, interactive graphics, and transitions with storytelling. Two years later, *The New York Times* published the article *"Snow Fall: The Avalanche at Tunnel Creek"* [1] which used this new approach to digital storytelling and combined it with the act of scrolling to unfold the story, and thus, one of the first cases of *Scrollytelling* was born.

Today *Snow Fall* is considered a pioneer of the genre [15, 17] and since then, scrollytelling has become a popular communication device because of its natural and rich experience that can capture an audience's attention and guide readers' understanding of complex concepts and data comprehension [9, 16].

This is especially relevant for younger audiences, i.e., those under the age of 35, whose core attitudes towards what they look for in news differ from older generations. They are driven by progress and enjoyment, and the role of news is primarily individualistic rather than for society as a whole [4]. Therefore, long-form journalism in form of scrollytelling could be a way of consuming journalistic content that fits their values.

The objective of this paper is to investigate the effect of scrollytelling on younger audiences' perceptions and experiences of long-form journalism.

2 THEORY

2.1 Visual storytelling

The elements of storytelling are usually built upon a central character along with a conflict, a motive, a viral approach, and emotional

narration [15], but they can also present a sequence of facts and observations united by a theme or argument [14].

Visualizations in form of diagrams and charts have been used to support storytelling for a long time. During the last decade, interactive graphics have been included in visualization attempts, especially by journalists [14]. Visualizations can be in different forms of media, such as images, photos, videos, infographics, include text, as well as be interactive [14, 15]. This enables the author to create stories that also rely on the reader [14].

The structure of visual storytelling can be linear, nonlinear, or a combination of the two. The linear structure enables the reader to process the story through a continuous sequence defined by the author, while the nonlinear does not have a predefined ordering which requires a higher degree of effort by the reader to interact with the story. The hybrid, the linear-nonlinear type, enables the author to create stories with a predetermined path while still allowing a variety of options for the reader to explore [15].

Visualizations can have a positive influence on cognitive processing [15]. Studies have shown that the perceptual qualities of visualizations have a strong effect on directing attention. For example, grouping via spatial proximity, containment, or connection and having deviations among visual features such as color, size, or orientation, can attract attention and change how one perceives the content [14]. However, these multimodal elements can also lead to overtaxing and have negative effects [15].

2.2 Long-form journalism

Long-form journalistic stories are typically seen as complex and rich in text and details [12, 15] and can be defined as "non-fictional, narrative journalism based on detailed research" [15, p. 402]. Online journalism is constantly changing and giving rise to new kinds of digital storytelling by providing new approaches to presenting complex issues with the help of multimedia elements. The choice of said elements, along with the composition and narrative structure, is "crucial for the success and acceptance of a long-form story in online journalism" [15, p. 401]. Long-form can be seen as a countermovement to the current trend of "quick, bite-size news" and has "affected the whole field of online journalism" [12, p. 568].

The format of digital long-form journalism allows the readers to explore engaging narratives in an immersive and innovative way. The topics vary greatly, but it is common for popular long-forms to tell stories that are not rooted in current events and instead thoroughly cover global topics such as war, climate change, politics [12], global health, economics, and election results [14]. Compared to normal "breaking news", long-form requires length and deeper reflection about a topic and is characterized by in-depth analyses and engagement from the reader. The production cycle is also more extensive, requiring more money and on average six people to create a story [12].

2.3 Scrollytelling

Scrollytelling is the most recognized digital long-form, but not the only one. Two other types, web documentaries and selective multimedia stories, have also been classified based on their structure and effects. All three share the same internet-specific features such as selectivity, interactivity, linking, multimedia, and participation. What differentiates scrollytelling from the other two is, unsurprisingly, the scrolling mechanism [19].

The term "scrollytelling" is a combination of storytelling and scrolling (meaning the vertical movement of displayed content) and was heavily influenced by *Snow Fall* published by *The New York Times* [19] in December 2012. The story was published on a separate web page and told the story of a violent avalanche that occurred in February 2012 in the Cascade Range in Washington State. It consisted of six chapters and used "video and audio elements, interactive graphics, interviews, looping videos, and many more digital tools" [12, p. 567], all of which added in-depth background information. In 2013 the piece won the Pulitzer Prize for Feature Writing and is considered an important contribution to the development of online journalism because of its "immersive and comprehensive nature and use of multimedia possibilities" [12, p. 567].

It is worth mentioning that scrollytelling is not just used for digital long-form, there are other use cases such as brand storytelling, product pages, online stores, and creative portfolios [5]. In digital long-form, scrollytelling stories often have a unique editorial design, are presented on a stand-alone web page (linked to the news company homepage and branded with its logo), and use parallax-scrolling effects [19]. The articles often start with a full-screen image or video [15] and through scrolling (almost always vertically), the content of the page dynamically updates [9], allowing the user to move forward to the next element [15] while unfolding an expressive and immersive story [9]. This clear and interactive communication provides the readers with a rich and engaging experience [9].

The move towards scrollytelling articles took place at *The New York Times* [17], who noted that the majority of their readers did not engage with interactive content such as steppers, tabs, and sliders, they simply "wanted to scroll". This led to the recommendation of basing triggers of animations and transitions on the user's scrolling [18]. There are different variants of the scrolling interaction: it can work as steps while navigating a story, present stories smoothly, or function as a trigger to guide the reader's attention (e.g., highlighting specific content). Other kinds of interactions, such as clicking, are typically not supported since they can cause a feeling of interruption [9].

However, the choice of the scrolling mechanism is not widely agreed on. Another technique proposed is stepping though the article, due to several potential issues that come with the misuse of scrolling. This is known as *"scrolljacking"* and refers to where scrolling input disrupts the navigation flow and confuses and frustrates the user and thus becomes a usability issue [7].

2.4 Layouts and features of scrollytelling

Scrollytelling does not have a singular format, it can take many different forms. McKenna et al. [10, p. 379] have identified what they call *visual narrative flow* which they define as the "congruence between flow-factors, i.e., 1) the way a reader navigates the story, 2) the visual components of the story, and 3) the type of visual feedback the reader receives". Along with different *navigation inputs* (meaning how the reader interacts with the page to progress through the story, and with scrolling being one type of input), there

are other factors of importance [10] — *Level of control*, *Navigation progress*, *Story layout*, *Role of visualization*, *Story progression*, and *Navigation feedback*.

Level of control: How much control the reader has over motion and animated transitions of story components. It can be *discrete* (triggers motion playback), *continuous* (plays through key frames), or a *hybrid* (supports aspects of both) (Figure 1).

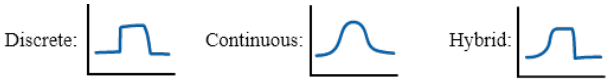

Figure 1: Level of Control [based on 10].

Navigation progress: How the reader perceives their progress within the story. Some utilize the scroll bar but otherwise, common representations are dots, numbers/text, and visualizations (Figure 2).

Figure 2: Navigation Progress [based on 10].

Story layout: The type of layout model. Common layouts are a document or a slideshow, but hybrids of these also exist (Figure 3).

Figure 3: Story Layout [based on 10].

Role of visualization: Explains which way visualizations are used in the story and how they interact with the text. The role of conveying the story can be equal between them, visualizations can be used as figures to support the text or they can be the driving force with annotating text (Figure 4).

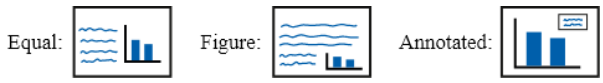

Figure 4: Role of Visualization [based on 10].

Story progression: The possible paths the user can take in the story. The most common one is the linear path, of which there also is a variation, the linear skip where the readers can jump both backward and forwards. A more complex structure is a tree/graph path that includes cycles (Figure 5).

Navigation feedback: How transitions and animations of text and components respond to user input. These can be in the form of, for example, movement and fading in and out, and affect different parts of the interface, such as the text, visualizations, and the progress widget (Figure 6).

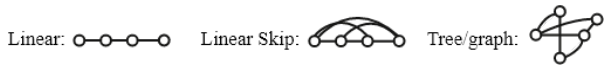

Figure 5: Story Progression [based on 10].

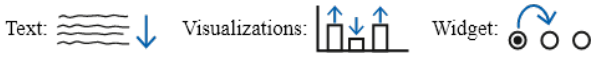

Figure 6: Navigation Feedback [based on 10].

3 METHOD

To study the effects of scrollytelling in long-form journalism, a user test combined with a survey was conducted, followed by an interview and an online survey with demographic questions. Each participant read through a journalistic story two times, once in a scrollytelling format and once in a non-scrollytelling format. After each read-through, they completed an online survey about perceived engagement and the desirability of the current format. Surveys were chosen because it is an appropriate method for measuring attitudes, feedback about user experiences, and getting an overview of a population [8], which in this case was those under the age of 35.

Interviews were chosen since it is a good qualitative data gathering technique that can gather deeper and more insightful perspectives and thoughts [8]. Interviews, however, are time-consuming which leads to fewer participants. Hence, the study utilized the within-group design which requires the participants to consume the story in both formats. Even if there is no specific task the participants perform in this study, the learning effect can still impact the results. Therefore, a Latin Square Design was adopted, meaning the order of the formats was alternated between the participants [8].

Three pilot tests were conducted to refine the study setup. The study was conducted in Swedish during spring 2022.

3.1 Survey

The survey questions were split into two sections. The first included nine questions based on a questionnaire developed by McKenna et al. [10] containing 14 questions measuring reader-perceived engagement across different attributes such as aesthetics, attention, and cognitive disruptions. An additional two usability questions based on the System Usability Scale (SUS) [2] from the Pilot Study of McKenna et al. [10] were added to complement aspects that were absent in the other nine questions. All 11 questions were in form of statements to which the participants could answer on a 5-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree).

The 11 statements were:

(1) Reading through the story was fun.
(2) The reading experience interested me in the story.
(3) My reading experience was rewarding.
(4) I found this story confusing to read through.
(5) The reading experience encouraged me to finish reading the story.
(6) The reading experience was different from a typical online reading experience.

(7) Reading through this story was mentally taxing.
(8) This reading experience appealed to my visual senses.
(9) I felt frustrated, annoyed, or discouraged while reading through this story.
(10) I felt that I was in control of navigating the pace of the story.
(11) I thought there was too much inconsistency in this navigation approach.

The second part of the questionnaire consisted of one question based on the Microsoft Desirability Toolkit, which is a method for evaluating intangible emotional responses such as desirability and fun [11]. The total list of 118 product reaction words was reduced to 25 to decrease respondent fatigue, and the final set consisted of an equal amount of positive and negative words, as well as one more neutral. Out of these 25 words, the participants were asked to choose five which they felt best described their thoughts and opinions about the navigation approach (scrollytelling and non-scrollytelling). The 25 words are shown in Table 1.

To remove any influence and biases that could affect the results, the order of the statements and words were randomized for each participant.

Table 1: Microsoft Desirability Toolkit Words

Positive	Negative	Neutral
Easy to use	Annoying	Complex
Efficient	Boring	
Time-Saving	Busy	
Appealing	Hard to Use	
Understandable	Overwhelming	
Entertaining	Stressful	
Engaging	Disruptive	
Helpful	Distracting	
Stimulating	Ineffective	
Satisfying	Frustrating	
Simplistic	Gets in the way	
Useful	Time-consuming	

The demographic questions covered the following aspects: age, gender, current employment status, highest level of qualification, familiarity with scrollytelling before this study, familiarity and interest of the story topic before this study, how often they consumed journalistic content on the web, and in which way and why they consumed news.

3.2 Interviews

The interview was semi-structured since that offers the possibility to ask follow-up questions to explore answers further and gain additional insights [3]. The following set of open-ended questions was asked to all participants, in the same order. All participants were encouraged to reason and explain why they felt and answered in a specific way.

(1) In your opinion, does scrollytelling have a significant impact on the story reading experience or not?
(2) What do you like about the scrollytelling format in journalistic content?
(3) What do you dislike about the scrollytelling format in journalistic content?
(4) Do you have a preference between reading these kinds of articles in scrollytelling format or the normal static format?
(5) Can you think of any types of news articles or situations where scrollytelling could benefit the reading experience?
(6) Can you think of any types of news articles situations where scrollytelling does not benefit the reading experience?

3.3 Articles

The story "Corona-kraschen" ("The Corona Crash")[1] published by SVT Nyheter [6] and written in Swedish was selected due to a number of reasons — its length, the article utilizes a common scrollytelling layout (continuous level of control, scroll-bar as navigation progress, document story layout, annotated visualizations, linear story progression, and animated visualizations as navigation feedback), and the article could be translated into a non-scrollytelling static format while still keeping its journalistic integrity, meaning it looked like other static data journalistic articles published by SVT Nyheter.

The non-scrollytelling version[2] of the article was created by taking screenshots of the texts and diagrams and reassembling them where the text is alternated with diagrams in a static format.

4 RESULT

4.1 Demographics of participants

12 people participated in the study, 6 women and 6 men. The age varied between 21 and 26, 7 were students, 4 were employed and 1 person was unemployed. 10 peoples' highest completed level of education was high school, whereas 2 people had completed a 3-year university degree. 9 people were familiar with the concept of scrollytelling before participating in the study, whereas 3 were not. Everyone but 2 people reported that they were familiar with the topic of the article (Figure 7). About half reported that they were interested in the topic (Figure 8), but no one said they were very interested.

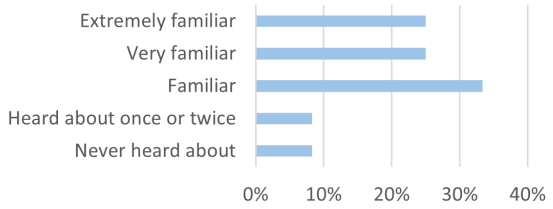

Figure 7: Familiarity among the participants regarding the concept of scrollytelling.

The frequency of news consumption varied between a few times a year, to several times a day, see Figure 9 but no one reported that they did not consume any news. The most frequent channels were news sites/apps and through social media, followed by TV (Figure 10).

[1] https://www.svt.se/datajournalistik/coronakraschen/
[2] https://tinyurl.com/coronacrashstatic

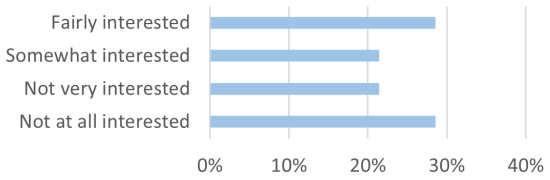

Figure 8: Interest among the participants regarding the concept of scrollytelling.

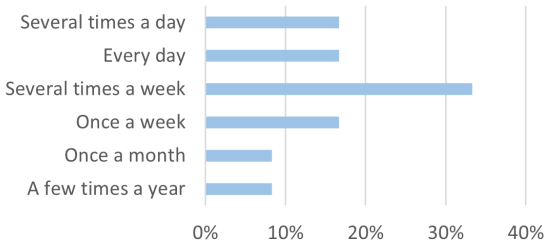

Figure 9: Bar chart showing how often the participants consume news.

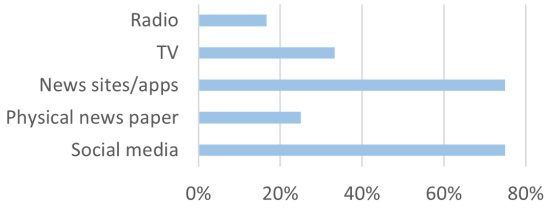

Figure 10: Bar chart showing which channels the participants use when consuming news.

The reasons for consuming news also varied, with the most common one being because they "Like to keep up with current events" and the least one being because "It is important for society"(Figure 11). 3 people provided their own reasons, "It shows up in my Facebook feed", "[It's] often unavoidable", and "Passively, when I come across it".

4.2 Reader-perceived engagement

The distribution of the participants' level of agreement with the statements about reader-perceived engagement regarding scrollytelling and non-scrollytelling version can be seen in Figure 12. Each response were coded from 1 to 5, with 1 representing "Strongly disagree" and 5 representing "Strongly agree". Because of the small sample size (n = 12) and the nature of the statements, it is difficult to test for normal distribution. Therefore a non-parametric test was chosen for analyzing the significance of difference between the agreements with the statements for the formats. The two-tailed

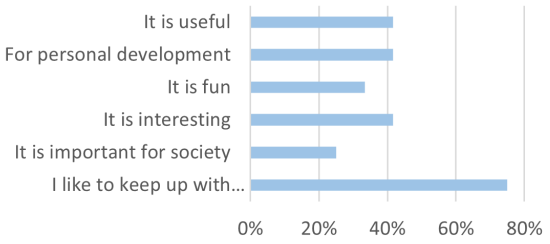

Figure 11: Bar chart showing the participants' reasons for consuming news.

Wilcoxon Signed-Rank Test and its W-value was used for the evaluation, with a significance level of p = 0.05, which showed a significant difference for 9 of the 11 statements, see Table 2.

Out of the 9 statements, 6 had a positive tone, 2 had a negative tone and 1 was more neutral. The significant difference was in favor for the scrollytelling format, which received higher values in the positive statements, and lower in the negative. The scrollytelling format also received higher values for the neutral statement. The two statements that showed no significant difference were statement 4 and statement 9, which had a negative tone.

Table 2: Wilcoxon Signed-Rank Test on agreement with statements

	Statement	*Tone*	*W*
1	It was fun	+	0
2	It made me interested	+	0
3	It was rewarding	+	0
4	Confusing to read	-	*
5	Encouraged me to finish	+	0
6	Different reading experience	/	0
7	It was mentally taxing	-	0
8	Visually appealing	+	0
9	I felt frustrated	-	*
10	I controlled the pace	+	0
11	Too much inconsistency	-	0

*Too small sample size due to tied values.

4.3 Desirable features

The chosen words from the desirability word kit varied for both formats, with 18/25 words selected for scrollytelling (Figure 13) and 14/25 for non-scrollytelling (Figure 14). The amount of negative and positive words were fairly even, with 7/18 for scrollytelling (Figure 13) and 6/14 for non-scrollytelling (Figure 14).

Many words overlapped between both formats (Figure 15), but when taking the frequency of the words into account, there is a clearer difference between the formats. Starting with the shared words, the ones that stand out are "Efficient" (67% for static vs 17% for scrollytelling), "Helpful" (8% vs 50%), "Simplistic" (92% vs 25%), "Understandable" (67% vs 33%), and "Useful" (42% vs 8%),

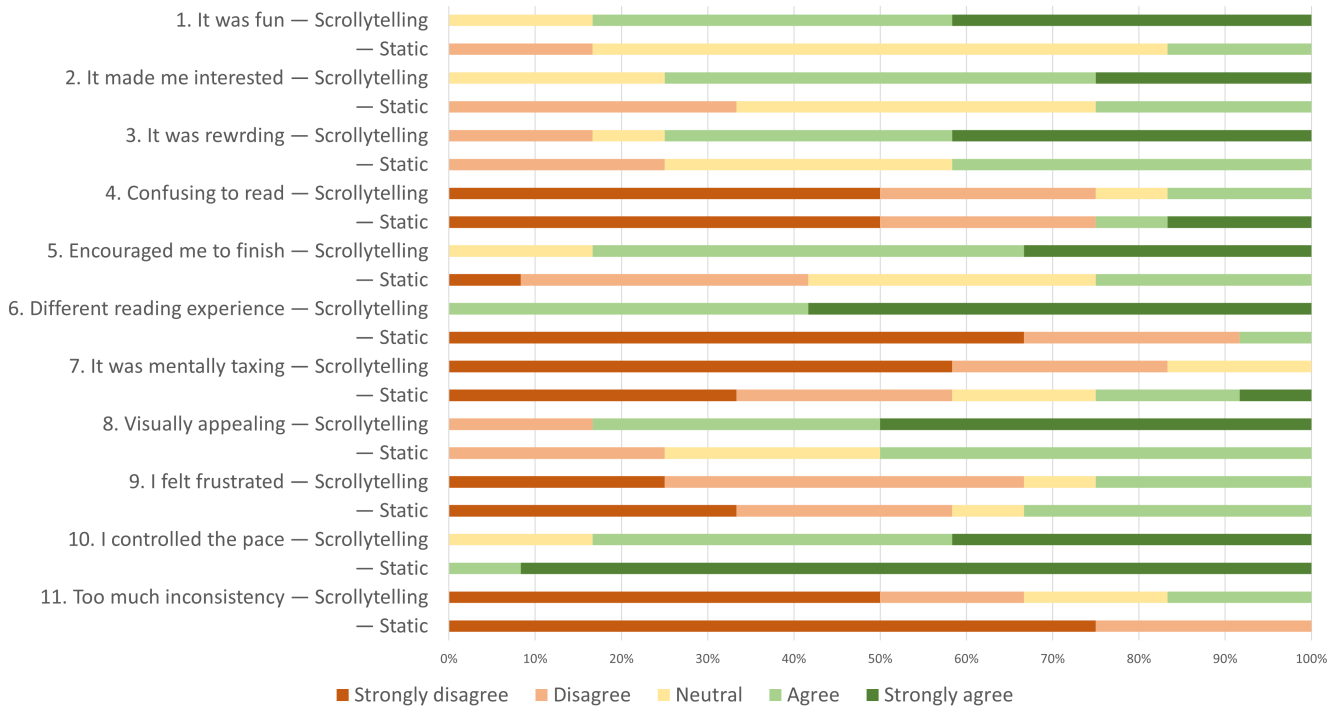

Figure 12: Distributions of levels of agreement with statements for scrollytelling version and static version.

which all are positive and 4/5 favours the static format. As for the unique words with high frequency, "Boring" was chosen by 50% of respondents for the static version, making it the format's most disliked feature. For the scrollytelling format, "Entertaining" was chosen 33%, "Stimulating" 42%, and "Engaging" 67%, which made the last word the most chosen one, and subsequently, scrollytelling's most desirable feature.

One of the shared words, "Easy to use", was frequent for both formats. For the scrollytelling format it was chosen by 50% of respondents, and for the static format by 92%, which in turn, made that word the static format's most desirable feature.

4.4 Scrollytelling's impact on the reading experience

All participants agreed that scrollytelling had an impact on the reading experience, and a majority thought it to be a positive one. 75% of the respondents expressed the following themes of positive effects.

Increased understanding of content: It was easier to understand how the figures, numbers, and text were connected as a result of the visual transitions that showed the change in "real time".

Decreased need of recollection: There was less need of recollection of previous text to understand the figures since the text had a role of annotating the figures.

Less time-consuming and easier to read: Because there was less need of trying to analyse and understand the content, it was easier to read, and one could go more quickly through the article. Since everything was placed in just one "area", the eyes did not have to dart around to consume everything, which can cause disruptions.

Fun and engaging: The scrollytelling format gave the article a more playful feeling which made it much more fun to read. It was also more engaging, the way one navigated the story and how it moved, had a pulling effect that drew people into the story and created more interest. One person made the comparison to PowerPoint and Prezi (two digital presentation software), saying "PowerPoint works great, it's clear and easy, but Prezi is a bit cooler, it's a bit like you are actually moving along with it, you are pulled through the story".

Increased focus: Because of the decreased need of recollection and the more engaging and stimulating experience, it was easier to keep focus throughout the story.

However, as mentioned earlier, not everyone reported a positive impact on the reading experience, 3 people expressed an overall negative experience. The comments from these could be grouped in to the following themes.

Distracting and annoying: The text was placed on top the figures. People had to scroll up and down to try to find a placement where they could see the entire figure, which made some forget what they had read previously. One person expressed that this format made everything "busy" and "messy" because there was too much going on at a too small space.

Uncertainty: Continuing on the issue with the text on top of the figures, because it was unclear where the "borders" for the animation set-offs were, the figure would change to the previous or next figure without any warning when trying to find a better

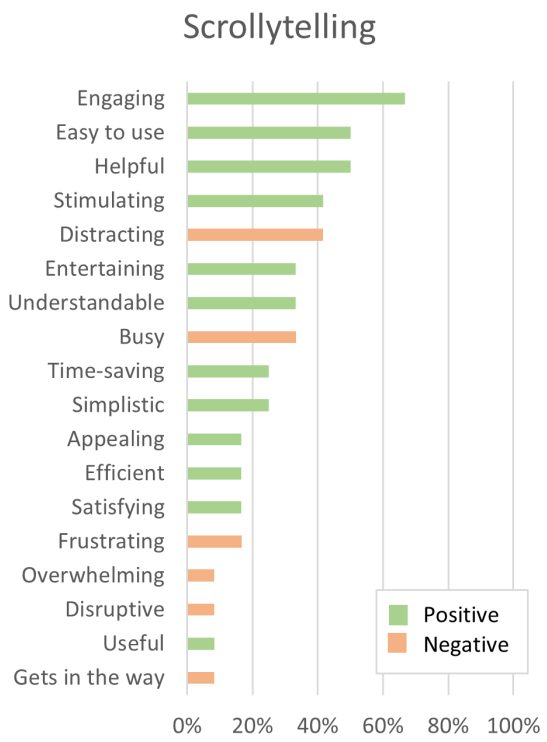

Figure 13: Frequency of chosen words when describing the scrollytelling version.

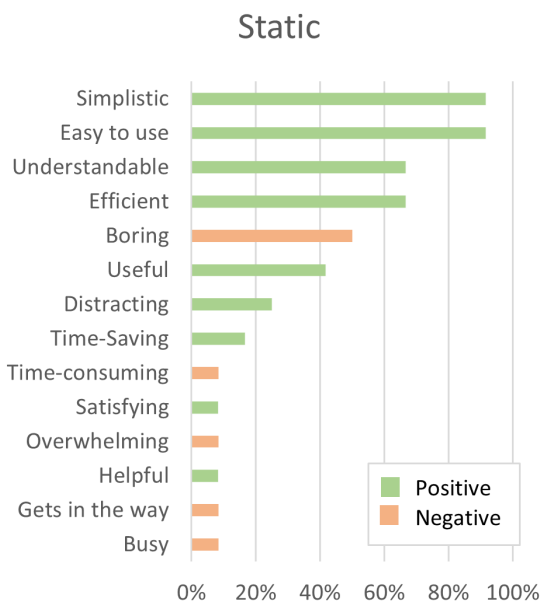

Figure 14: Frequency of chosen words when describing the static version.

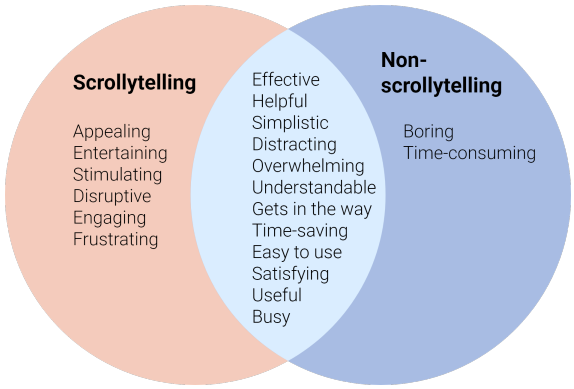

Figure 15: Venn diagram showing which chosen words were chosen for both formats (center segments) and which chosen words that were unique to one format (edge segments).

place for the text box, which caused uncertainty about what was happening.

When asked about if there was anything they liked about the scrollytelling format, 2 out of these 3 people mentioned at least one of the positive aspects listed above, whereas 1 person only had a negative experience.

As for general dislikes about the scrollytelling format in this article, 50% of respondents specifically mentioned the issue with the text above the figures. Another thing that came up was that it was not clear that you could scroll upwards, some people perceived it to be a one-way navigation, and therefore thought that it was inconvenient since they could not go back and reread sections and compare figures. One person also said that even though they felt like they got a broader understanding of the content, that perhaps it was still less informative. They felt they were scrolling through it, more because it was interesting and fun, and did not focus as much on the content in the figures, and thus "absorbed" less details.

4.5 When to apply scrollytelling

When it came to this news article, 58% preferred the scrollytelling version, 25% the static normal version, and 2 people had no preference.

Out of the 7 people who preferred scrollytelling, 1 person said they thought it would be good if the scrollytelling version was introduced first since it increased interest in the article, and then to present it in the static version if one wanted to reread it. Because of peoples' knowledge of the static format's structure they therefore know where things are in relation to each other, which makes it easier to go back and look for information.

When asked about other types of news articles or situations where scrollytelling could benefit the reading experience, a wide range of answers were given, from which some common characteristics could be distinguished.

A lot of text and educational: Some do not have the patience to carefully read everything when there is a lot of text, that in some cases also might be educational. These could be, for example, long articles, or study material and textbooks, and for the latter,

especially in a setting where there is a lot of text that describes only a small part of a figure. A similar answer to these was Wikipedia, also because of its (often) long text and spread out images.

Less text and less complicated: Others said they thought scrollytelling would be suitable when there is less text-heavy content, such as comics or easier factual texts that do not include heavy statistics. One person had read a scrollytelling article about the ocean where you could see which species existed at different depths, which they thought was a fitting situation to apply the format.

To focus and compare: Settings where it is beneficial to be able to guide the reader and point their focus to a specific thing. This can be extra useful for people who have difficulties navigating text since they do not have to search and find pieces of information themselves. Furthermore, it can be useful for articles where you want to easily be able to compare data. One respondent exemplified this with articles that contained "a lot of statistics and topics such as the climate crisis, the stock market, supply and demand for materials in healthcare, etc".

Heavy topics and to create interest: Since scrollytelling can have a vivifying effect on the reading experience, one person hypothesized that it could useful if you want to convey a message, for example to empathize the gravity of a topic such as war and starvation, where people might not grasp its importance. Another person also mentioned topics that people might not be very knowledgeable about, such as politics. They compared it to explainer videos, but where they had more control of the pace, and thought that the scrolling navigation could aid the intake of information.

4.6 When not to apply scrollytelling

These cases were not widely agreed on however. When asked about situations where scrollytelling would not benefit the reading experience, some brought up similar examples and argued that the format could be detrimental.

Heavy topics and when comparing: Since scrollytelling can add a more playful vibe to the article, one person thought it would be inappropriate for articles covering serious and heavy topics such as severe crime, war, and starvation, especially if it happened recently, such as the Russian invasion in Ukraine. Also going against what other people had said, two people stated that scrollytelling would be unhelpful for situations where you want to be able compare text and figures, and when there is a lot of data that changes with every scroll.

Scholarly literature and when looking for information: Four people specifically brought up academic papers, where it is important to follow a certain structure. One of the respondents said that "You want to figure out what is written in the paper, not the structure of when and how things move." and "You also want to easily be able to go back and forth between pages and figures to compare". 3 other people also explicitly pointed out the latter. A fifth person who did not mention academic papers also brought up similar thoughts, mentioning "situations where you are looking for some specific information".

5 DISCUSSION

The results of this study strongly suggest that scrollytelling, according to younger audiences, has a definite impact on the reading experience and the perception of long-form journalism. All participants felt affected by the format and while some stated it worsened their experience, a clear majority reported scrollytelling to have improved it.

This is especially evident when evaluating the results from the close-ended question sections. Scrollytelling scored significantly better than non-scrollytelling on the reader-perceived engagement section for all statements except two. These two statements, "I found this story confusing to read through" and "I felt frustrated, annoyed, or discouraged while reading through this story", touch upon similar aspects that could explain the lack of difference between the two formats — the topic and content of the article itself. While 10 people reported that they were familiar with the topic, it does not necessarily mean that they are knowledgeable about it. Thus, it could be hypothesized that scrollytelling has a limited effect, or none at all, on the perceived experience of the content itself if is too burdensome to read through. However, one could also argue that the other aspects compensate for this. If it is more fun, more rewarding, makes people interested in the story, encourages people to finish, is visually appealing, and less mentally taxing to read, then that could perhaps offset any issues with the content/topic itself.

As for the Microsoft Durability Toolkit, it is not possible to make statistical claims, but the results give an indication of different aspects and features that scrollytelling can produce, and how desirable these are. Looking at the most frequently chosen words, and assigning shared words to the format where it was most common, there is a clear difference between the formats. The positive words for the scrollytelling format describe more of an emotional feeling ("Engaging", "Helpful", "Stimulating", and "Entertaining") compared to the static versions' ("Easy to use", "Simplistic", "Understandable", "Efficient", and "Useful"). Looking at the negative words, the scrollytelling version was described as "Distracting" and "Busy" which is in line with some of the answers to the open-ended questions. While it might be more engaging and fun, it can become excessive and obstructing. The static version was described as "Boring" which is in clear contrast to the scrollytelling format.

These findings, including the results from the open-ended questions, are in line with the findings of Segel and Heer [14] and Seyser and Zeiller [15] — a positive influence on the cognitive processing and perceptual qualities of visual storytelling, as well as its possible negative effects due to overtaxing.

Continuing with the open-ended questions, more light has been shed upon the advantages and disadvantages of scrollytelling, and when it can be applied. Although there were contrasting opinions by the participants, one clear favorable case can be identified: in an initial phase of exploration. The strength of scrollytelling is the emotional response it can generate, which can be utilised to create or raise interest in a topic. It is especially effective when you want the reader to get a fundamental understanding of a subject. While it still can be very successful for explaining and conveying heavy information in detail, the reception of this can be more dependent on the individual reader. Presenting the context around a situation in a way that increases general comprehension should be the goal. The ones who produce scrollytelling articles should be aware that even if people express that they are able to focus more, they can be describing an overall feeling of being engaged, rather than that

they are focusing and learning more specific details. Of course, this is only negative in some specific cases, and scrollytelling can still generate these results. The clear situation where scrollytelling should be avoided is in cases where the readers have a goal of finding specific information they know (or assume) to be in the content.

It is important to note that the study is too small to be able to claim that these results are wholly applicable to the entire targeted study population, i.e., those under the age of 35. Although a large section of the study was qualitative and the demographics show that the participants represent a fairly diverse group (an equal amount of women and men; students, employed and unemployed were represented; a spread out topic familiarity and topic interest; and varied frequency of, and channels for, news consumption), and align with Flamingo's [4] report (reasons for consuming news), 12 participants cannot represent the target population. The results may be skewed because of bias, one issue is that only half of the participants were recruited randomly; the other half were some kind of acquaintance to the author. For this study, however, it was necessary to be able to quickly recruit people who were not students. A related issue is that the participants did not cover the complete age range of the target group.

Another limitation that is important to discuss is the testing material. As described in the theory section, scrollytelling does not have a singular format; there are many different layouts, features, and purposes of inclusion. This study only included one article, which cannot represent the complete concept of scrollytelling, only some of it.

However, the results are still relevant. The objective of this study was to investigate how scrollytelling could affect younger audiences' perceptions and experiences of long-form journalism, and although the results may not cover the entirety of all effects, it is still a part of it, and thus, important.

6 CONCLUSION

This study showed a significant difference in reader-perceived engagement between the scrollytelling and static format, favoring the former. It also showed clear indications of which features scrollytelling can produce, as well as how desirable these are. The strength of scrollytelling is its ability to invoke an emotional response, which can be used to increase engagement in a topic and give a broader fundamental understanding of content. However, the results were not completely unanimous, there is an individualistic component to how people perceive and experience the format.

Future research would highly profit from testing more articles, covering different kinds of topics and formats, on a much larger sample size. It was touched upon in this study that there are different reasons and purposes for reading news, such as exploring a new topic and gaining interest and having a clear goal of finding information. Therefore, it is also important to include different settings of when people consume news and journalistic content. Some aspects to take into consideration are when people want entertainment and when they want to gain specific knowledge. Another substantial element to consider is if there is a difference depending on the device, which this study excluded.

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