EYE TRACKING RESEARCH

Report

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CONTENT

1. Introduction

Storytelling evolves. Nowadays with rapidly changing trends, new technologies arising and information overload various industries (e.g. journalism) try to reinvent the ways of delivering the story experience to the audience. It is not just a speech or a video anymore. Modern documentaries combine different mediums (text, videos, voice recording). Furthermore, they allow the audience to interact with the production itself through access to virtual reality (VR), 3D models or clickable elements. These relatively new technologies open up many new ways of how people can live and immerse themselves into the stories. This possibility of interactivity and participation in the story also increases the chances of recording and preserving the information stated in the documentaries[1]. On the other hand, many questions might arise: do interactive documentaries actually work as intended? Are they more appealing to the audience? Is it easier for consumers to receive the message or engage than in the traditional way? Sustainable design demands to learn the new habits and behaviors of different audiences depending on the device they use or type of content they are presented with. One of the solutions accessible on the market that allows to answer those doubts is the eye tracking technology. It is an easy and precise system that enables it to capture insights into human behaviors and observe even micromovements of eyes scanning the environment around. Analyzing the tested subject's direction of view allows the UX designer to collect detailed information and define certain regions of interest with a high priority for the user[2]. Analyzing and following users' interaction with web documentaries allows designers (or media producers, architects or UX specialists) to plan their projects better in terms of navigation, content hierarchy and composition in order to create accessible and user-friendly content.

[1] Nash, Kate (2014): What is interactivity for? The social dimension of web-documentary participation. In: Continuum 28 (3), S. 383–395. DOI: 10.1080/10304312.2014.893995.

[2] Kate Kartveit (2018): They never made it to the end: Reader uses of a multimedia narrative. In: Journal of Applied Journalism & Media Studies (7), S. 289–309.

For example, two common reading patterns for scanning a website are the F-pattern and the Z-pattern. These patterns simplify the viewing paths into a F-shape or a Z-shape. Whilst a Z-shape is often used to lead the attention to call-to-action buttons or sign-up fields, the F-shape is similar to the western world's usual reading behavior. This pattern is suitable for websites with more text or content in general, which also makes it useful for web documentaries[3]. This kind of research is especially interesting for guided storytelling narratives rather than e.g. the news, because the user experience is designed to be less individual and the content tells one coherent story.
Results of the eye tracking research described in this report will be implemented into the final web documentary project prepared by the group of media practices students.
This kind of research is especially interesting for guided storytelling narratives rather than e.g. the news, because the user experience is designed to be less individual and the content tells one coherent story[4].
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The following research was a practical assignment prepared by students of Web Documentary course. Results and main findings were presented publicly to the course group.

[3] LINE (2019): Visual Hierarchy, Gutenberg Diagram, F & Z Pattern. Online verfügbar unter https://lineindesign.medium.com/be-a-designer-who-can-also-help-with-writing-copy-2f4ea02a5646.

[4] Kate Kartveit (2018): They never made it to the end: Reader uses of a multimedia narrative. In: Journal of Applied Journalism & Media Studies (7), S. 289–309.

2. Methods

Research was conducted on 1 of March 2023 using Tobii Pro Glasses 3 system. Due to given circumstances (short time range, available resources and research done mostly for academic purposes only) students decided to proceed with a qualitative approach and carry a pilot study on users behaviors on Dreamvalley documentary. Students selected random 3 participants with different characteristics. Main condition to qualify to research with eye-tracking glasses was not seeing the examined documentary before.

Table 1

Participants profile

	Participant 1	Participant 2	Participant 3
Age	26	28	23
Gender	male	female	male
Studies	media practice	media practice	teaching
Country of origin	Albania	Netherlands	Germany
Is English your native language?	✗	✗	✗
From 1-5, how much do you like reading articles or stories?	3.5	4	3
Are you particu-lary interested in horses?	✗	✗	✓
Familiarity with using MacBook:	✗	✓	✓

Source: own research

Participants were tested in the same familiar environment (the dormitory room, sitting by the desk, using the same laptop). Firstly they were onboarded with the goals of the research, informed on which data are going to be collected and how they're gonna be processed. Then students collected the profile data, explained the procedure of the examination. Participants were not limited in time, they could freely discover the web documentary without interference from research responsible. (Main reason for declining "think-aloud-protocol" method was to see how the uninterrupted user will interact with the documentary and which parts they will focus most attention on.Meanwhile during the interview researchers were writing notes on peculiar behaviors to follow up on later). Apart from recorded footage, participants were interviewed right after they finished reading the documentary. (retrospective interview). Each of them was asked questions:

Retrospective interview questions

1. How did you like the documentary?
2. What was the most intereesting parts for you? Which parts were your favourite?
3. What was confusing? Were there parts that you were not sure on how to use them?
4. What do you remember the most?
5. What could be improved in this web documentary? What else would you like to see in this documentary?
6. Observations and notes taken

3. Research goals

Main questions and hypothesis the research confronted and strived to answer:

- Which elements get the most attention?
- Is it and if -what is the specific pattern behind how the participants use the documentary?
- How will participants approach the 3D map and interactive points?
- How will participants navigate through the website?
- What are good/bad case practices students should keep in mind for their project?

4. Main findings

Footage analysis

User's journeys through the documentary were recorded. All of the participants successfully accomplished the whole documentary. Time range needed hesitated between 9 min 51 sec to 13 minutes. Assessed documentary Dreamvalley is a typical example of scrollytelling. Users swipe the webpage down as there are no other tabs or hyperlinks that could direct them outside of the main story (apart from Youtube and interactive map part). Every user intuitionally followed the navigation path throughout the documentary.

Table 2

Time participants spent in documentary

	Participant 1	Participant 2	Participant 3
Time spent in web documentary:	**00:10:58.824**	**00:09:51.528**	**00:13:00.619**
Did participant reach the end?	✓	✓	✓

Source: own research

Usability

According to footage analysis the web documentary structure is very easy and intuitional to follow. Dashed lines helped to guide the sight throughout the sections. Participants did not struggle with reading parts, however in several text blocks it could be observed that they did not read it fully, but started scrolling after a few sentences. Engagement into the reading parts was dropping the further the user was.

The research sample is not really representative (only 3 participants). However in one case there was a struggle and confusion observed with scrolling down after watching the introduction video. Apart from that none of the users had issues with moving around the website.

Pedagogical functionalities

In a retrospective interview participants were asked about their general impression about the web documentary. For all of them it was an enjoyable and interesting experience. They understood the main storyline, it was clear and well structured (especially the balance between types of content: video, text, quotes, interactive elements).

Visual attraction

Footage proves tendencies of giving quick glimpses to the left, but what's more important participants' sight was quickly redirected to the pictures (usually on the face of the person, in case of participant 3 it was noticeable, he paid more attention to horses as well). After fixation on graphics, eyes were moving to a headline and text. All of the participants started watching each video - they did mention in retrospective interviews that actually these were the parts they enjoyed the most and they prefer to have more short videos than actual text blocks to read.

Analyzing participants eye movements while watching video it was visible they do focus on faces and follow the guiding lines or moving objects. Sometimes participants were fixating on some details in the background, but usually it was the main character that caught most of the attention.

Map usage analysis

One of the research goals was to discover how participants interact with a map. Approach towards this element was the most diverse compared to how they interacted in a similar way with a web documentary until that part. In case of participant 1 the map was skipped (later on in an interview he explained that he was not interested in discovering the ranch itself and that he considers it as the feature for tourists).

Participants 2 and 3 spent more time discovering the features of it - specific comparison was illustrated by heat maps and gaze plots below. No specific pattern on order of clicking was detected, it was rather random.

Note: Heat maps and gaze plots illustrate only the moments that users were looking at the map itself. In order to create them the research team completed an "assisted mapping process" (similarity threshold for each of them was set to 80%).

Participant 1

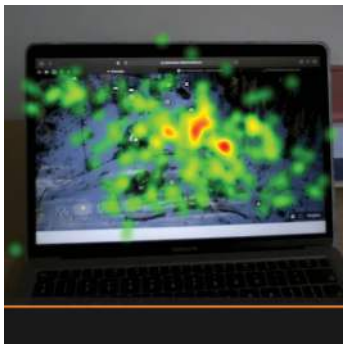
Interaction time
00:00:03.456

Heatmap 1

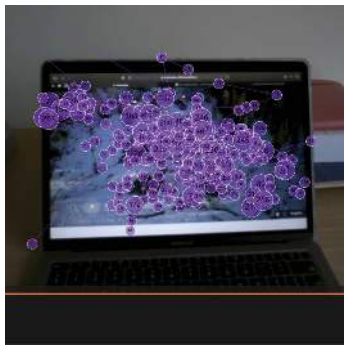
Gaze plot 1

Participant 2

Interaction time
00:01:24.256



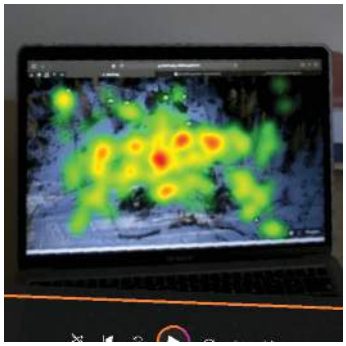
Heatmap 2



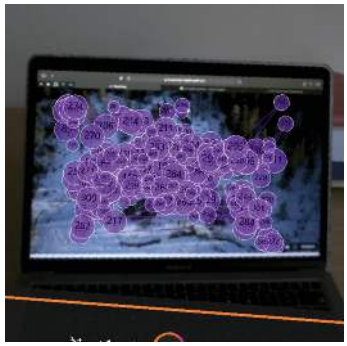
Gaze plot 2

Participant 3

Interaction time
00:02:40.345



Heatmap 3



Gaze plot 3

Source: own research

5. Suggested improvements

In general the web documentary is well constructed. The quality of embed content is quite high. Navigation is rather easy to follow and all participants quite quickly found their way around.
Based on feedback and eye movement analysis suggested improvements are:

- in order to avoid issues with scrolling after introduction video instead of uploading content via Youtube embed it directly to the website with option to mute,
- cutting longer video into 2 parts in order to minimize risk of user dropping out (too long videos bore the audience),
- to shorten longer blocks of text, keep the essential information,
- simplify the map: keep less points (some feedback suggested that this element gives an impression of "infinitive clicking"), reconsider which ones are crucial for the story and make sure they are marked and easy to identify for the user.

6. Final conclusions

After carrying the eye tracking analysis complemented with qualitative analysis gathered through interview main ways forward for the team designing new web documentary:

- Users are taught some behaviors while using websites, intuitively they scroll them down and once the team decides on complicating user journey they must be very mindful about the navigation.
- The simpler the easier to follow and higher probability to decode the message correctly. Embedding creative and new ideas is always good as long as they are implemented with a user-centered approach and well-designed instruction or navigation around them.
- On contrary to eye movement tracking, the audience connects to the story emotionally (at least in storytelling documentaries). In retrospective interviews they all mentioned that what stayed in their mind are quotes spoken by the main character in videos.
- Nobody mentioned interactive elements as the main highlight of the story. Adding them should be relevant and connected to the story.
- Participants prioritized videos and graphics to the texts. The tendency to fixate on faces was observed. Most of the time participants spent inside the web documentary was to watch videos.
- Along with getting further in the documentary it's easier to lose focus and interest of the audience. Plan content wisely according to that and diversify the mediums telling the story.