# REPORT OF OUR USER STUDY

## BE A VIKING

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image: Steinar Engeland

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# INTRODUCTION

Eye tracking can help to understand how users engage with an existing website. This information can be used to identify patterns of user behaviour, such as which parts of the website they focus on most, which elements attract their attention, and how long they spend in different areas. In the last years, eye tracking gained importance because of the improvement of technology (Holmqvuist, 2011). With eye tracking we can see that a user may navigate the page of an interface that houses the info the user wants (Ruel, 2007). For the analysis, the heatmap is the most-known visualisation method (Nielsen & Pernice, 2009).

## For our eye tracking user study about we chose the website https://gjellestadstory.com/

The main topic of the website we chose is about new findings about Viking ships and the Viking Age, after archaeologists discovered a ship grave in Gjellestad near Halden in 2018.
The website is an interactive journey into what Viking life might have been like in this particular area. You start with a video intro of an animated Viking ship sailing on the sea.
After the intro you find yourself in the Viking settlement. Here you fly through the different stations of the village, clicking through the text at the bottom of the page.

The journey has a total of 4 important stations where you can get more information by clicking on the buttons. You can read text with photos, watch videos, explore the settlement and how they lived and prepared food using 360-degree images or explore the ship using the 3D ship viewer. In the footer there are buttons that lead to a map of the settlement and the credits if you want to end the journey.

# INTRODUCTION


We chose this website because it offers a variety of ways to tell a story about the Vikings. Our aim is to find out which parts of the interface are the most important.

**Our Research Question are the following:**

Which parts of the sections get the most attention?
Which buttons do viewers choose to get more information about the topic? Are they choosing the text and image sections or the subtitled videos?
Are there parts they skip?
Was the user experience easy to navigate or is there something missing?

We want to use the results to make decisions about how to tell our story and how to structure and design the information into a whole scrollytelling journey.

We conducted this eyetracking study with a total of 4 participants.

# METHOD

For the Eye-tracking we used Tobii Pro Glasses 3, which record the movement of the eyeballs and accurately determines what a person is looking at, for how long, and in what order they view specific elements on the website. Therefore, eye tracking can serve as a powerful indicator of what potential users will look at or look for, but it can't tell you why they are paying attention to that specific element (Tam, 2019). Because of that, we conducted one retrospective interview after the eye-tracking. Retrospective interviews are a reflexive practice to better understand participants' perspectives and reasoning (Budach, 2012). During the interview, we were able to gain insight into the user's subjective experience and feelings about interacting with the site, as well as digging deeper and asking for information that we would not have received from the eye-tracking study alone.

The combination of these two techniques allowed us to take a holistic look at user behavior and how they use interactive websites. As a consequence, the results obtained are not only quantitative but also qualitative, allowing us to make a more comprehensive analysis and draw conclusions.

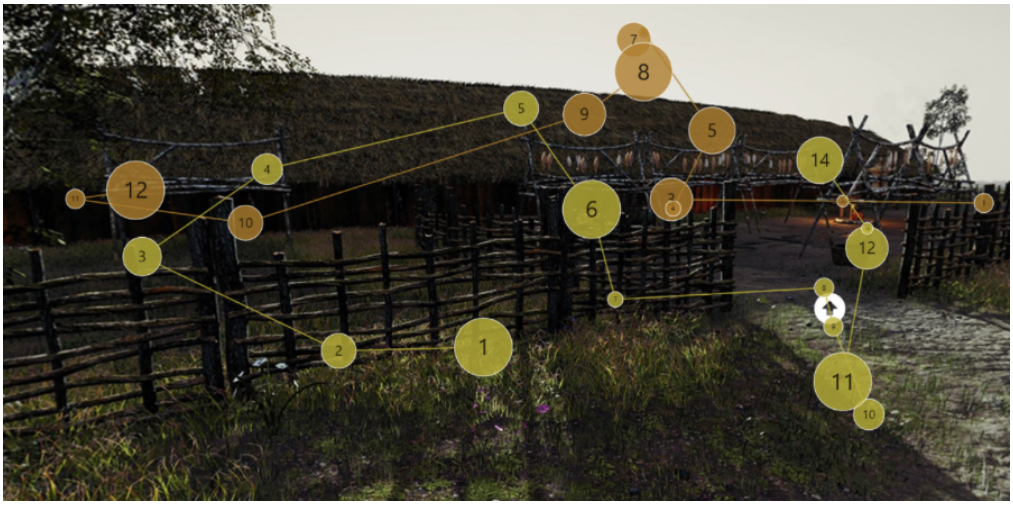
In terms of ethical considerations, before the study, participants were informed about the purpose and method of the investigation and their permission was gained. We also informed the participants that the recordings of the study would be used only for this particular study and report. The recordings would not be published anywhere and we would not use or publish their personal data in any way, e.g. names. Despite the preparation and taking care to ensure that the results of the survey are as true and unbiased as possible and that the survey was conducted reliably, methodological pitfalls that may have distorted the results of the survey cannot be excluded.
Problems with the correct calibration of the device or inaccurate measurements can lead to misleading data. In addition, participants, knowing that they were being observed, may have changed their direction of gaze and, during the interview, given answers that they considered more acceptable, rather than being completely honest, which may lead to deformed results.

# MAIN FINDINGS

## EYETRACKING

Using the Tobii Pro Glasses, it is possible to record what viewers find the most visually engaging and attractive by tracking eye movements and relating it back to the content. By using a similar website to that of what we intend to create, we were able to track user experience and analyze screenshots from the recording. From this we are able to interpret what we should include and what we should not include within our product. There are three main screenshots of the user experience which are clearly show key focus points of the users eyes.

The first screenshot is out of a 360 degree environment where the users could scroll around and look for interesting click points.

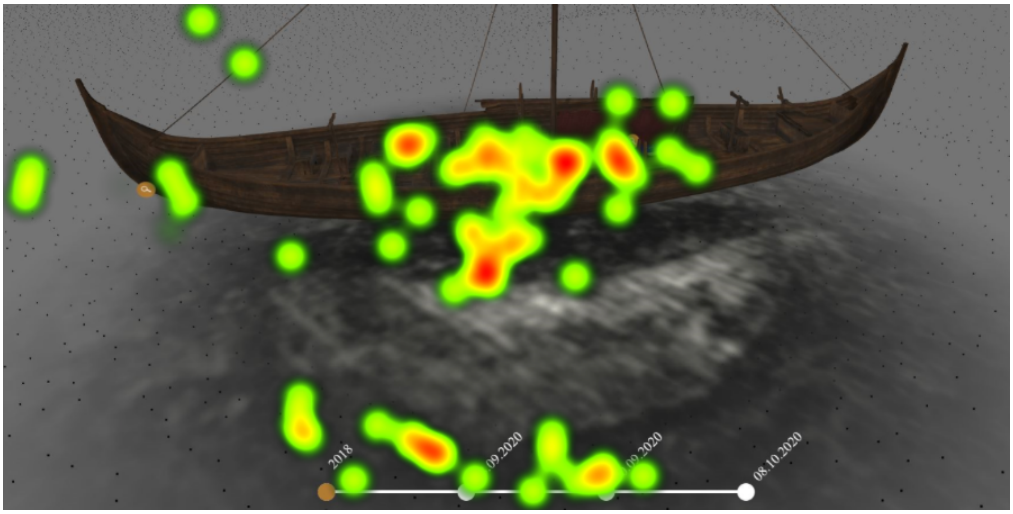


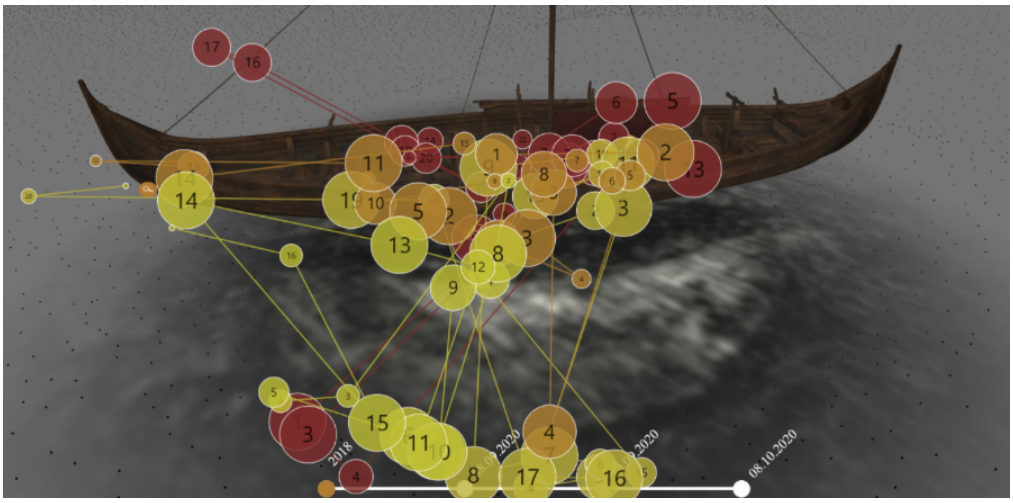

This shows that 360 content overall has a pretty balanced engagement across the screen. Viewers looked around the area to scan the environment and interpret what was being shown instead of necessarily focusing on a specific point, before deciding to click on the white arrow.

# MAIN FINDINGS

## EYETRACKING

The second screenshot shows a 3D model of a ship.





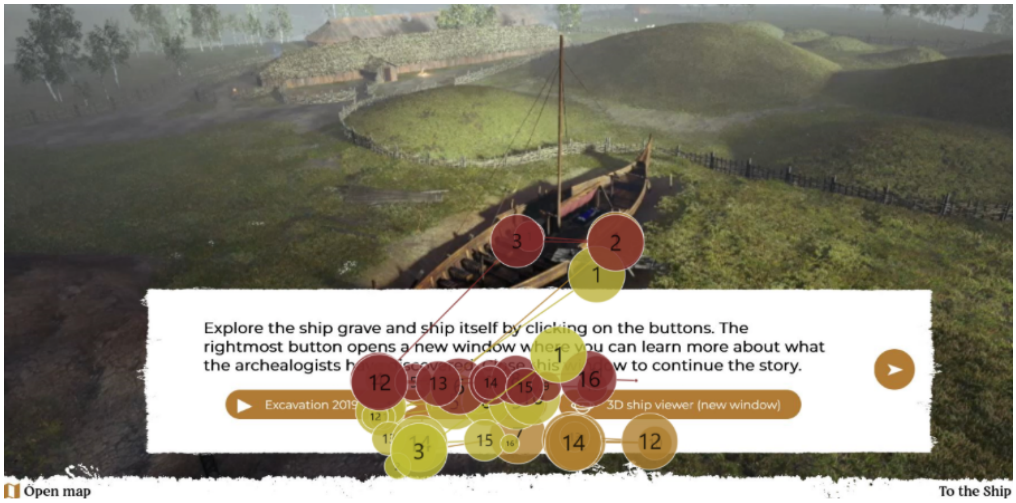
It shows the 3D model of the ship and the first look of the participants on it. There is a clear focus on the middle of the ship and on the timeline on the bottom as one can see with the analysis of the heatmap. Additionally the user's attention is on the yellow clickpoints. On the gazemap the users start on the ship, then shortly go down to the timeline, to get back up after that to view the ship.

In summary, the users understood the application because they were engaged with the ship and also with the timeline.

# MAIN FINDINGS

## EYETRACKING

On this screenshot of the user experience one can clearly see that the users pretty much skipped the text and directly went over to the buttons. When applying the heatmap, there is a focus on the button in the middle, but the users normally clicked on the button with the 3D model of the ship. There the scan path of gaze points shows that the last points of the screenshots always lead to the 3D model.

# MAIN FINDINGS

## RETROPERSPECTIVE INTERVIEW

For the second method we chose the retrospective interview, which means that directly after the user experience, we had an interview with 13 questions, all targeting the experience of the user experience before.

**Our participants are between 20 and 24 years old, all studying in Volda and do have a very little knowledge about viking history, but some knowledge of eye tracking.**

1 At first we asked the students how understandable the content was. This question targets the usability of the user experience. The answers differ from each other, because some said that it was easy and pretty good to understand and some argued that the navigation was lacking and keeping the focus was very hard.

2 The second question then was targeting the navigation through the user experience. Navigation was a mixed experience for users. Some found it relatively easy, while others encountered challenges. Common issues included small icons, unfamiliar navigation methods, and difficulties in locating information. Users generally appreciated the use of arrows for navigation but noted that small buttons posed a hindrance.

3 As a third question the users were asked how they found the way the content was displayed. This question leads to the pedagogical functionalities of the viking experience. The users expressed their approval of the dynamic elements in the content, noting that moving objects were engaging and attention-grabbing. The discovery of the ship and the 3D model were highlighted as particularly impressive.

However, some users felt overwhelmed by the presentation of too many options simultaneously and suggested a more streamlined layout. English-speaking users found it challenging to follow the content due to the Norwegian language.

# MAIN FINDINGS

## RETROPERSPECTIVE INTERVIEW

4 The next question targeted the use of text or imagery, where nearly all of the participants stated that they like the images more or that a mix between images and text would be a good thing.

5 For the next questions, the users should answer how the videos have been displayed. Opinions on the video aspects were varied. Some users found the videos cool and engaging, while others noted issues with sound, such as sound suddenly appearing. The interviews conducted in the videos were generally well-received. One aspect of the experience was a 3D model of a ship, which was precise, fun, and awesome in the view of the users. The 3D model of the ship received particular praise for its quality and presentation.

6 Another question focused on what the users found attention-grabbing, so what specific elements grabbed the visual attention. They highlighted various elements that captured their attention, including the introductory section, the virtual village walk-around, the 3D model of the ship, and the presentation of evolution using a burial mound.

On the other hand, there have been some unnecessary elements in and around the experience. These included the automatic opening of new tabs, excessively long camera movements in videos, and challenges in navigating through the virtual village.

7 The last question addressed the method of audio or text. The user preference leaned toward a combination of both text and audio. Some users suggested incorporating more ambient audio and background sound effects to enhance the overall experience.

# SUGGESTED IMPROVEMENTS

- **Less available options**

The feedback obtained from an eye-tracking study and user interviews provides valuable insights into the website experience. Users appreciated the variety of audiovisual content but expressed concerns about the overwhelming number of available options, finding the simultaneous presentation of too many choices confusing.

- **Better UX by using buttons and larger footer**

Moreover, website navigation was perceived as less clear by users, especially when it came to exploring the settlement. The button for self-guided exploration was hidden in the website's footer and was not easily noticed, which hindered users' ability to engage with this aspect of the content.

- **Better instructions for guidance through webpage (e.g. for 360 degree footage)**

Furthermore, both the eye-tracking study and user interviews revealed that no one utilized the map as a means of navigating the interactive journey. This suggests that the map feature was underutilized and potentially needs improvement. Additionally, users expressed confusion about how to use the 360-degree pictures. This suggests a need for clearer instructions or guidance regarding this feature to enhance the user experience. Another improvement could be, that the 3D model of the ship should be implemented into the whole user experience and not open on another website.

**In summary, to enhance the website's usability and user experience, it's essential to address the issues related to navigation clarity, reduce the complexity of options, and provide better guidance for features like 360-degree pictures.**

The user feedback indicates as well that the website's content is generally clear and engaging. However, there are notable areas for improvement, especially in the realm of navigation and simplifying the user experience. Users appreciate the use of visual elements, such as imagery and the 3D model. To enhance the overall experience, the addition of more audio, in conjunction with a balanced combination of text and audio, is recommended. It is also advisable to address language accessibility concerns for non-Norwegian speakers.

# CONCLUSIONS

The eye-tracking user study of the viking experience gave an interesting insight of how the audiovisual content was used by the viewers.

First of all the ship grabbed the most attention of the users, while the change to another tab for that is considered as unnecessary. The participants were most impressed by the 3d-model, the 360 degrees footage and the teaser video. Overall one can also conclude that each participant has a different view on the user experience. While most users are unhappy with the navigation, there are also some arguments that the navigation is easy and good to understand.

One thing the participants didn't notice was the map on the bottom of the screen, where you could easily navigate by yourself and decide where you want to go. Furthermore the users would be happy with more ambient audio and more spoken text. One can also clearly see that most users have the same habits in watching different audiovisual content. The ship was discovered by all the participants and looked at it in nearly the same manner.

# ATTACHMENTS

## RETROPERSPECTIVE INTERVIEW QUESTIONS

**personal questions**

1. How is your knowledge about viking history?
2. How old are you?
3. Did you do eye tracking before?

**questions about the user experience**

1. How understandable was the content for you?
2. How easily was it to navigate the website?
3. What did you think about the way the content was displayed - through models/videos/etc.?
4. Did you find the text or the imagery more engaging?
5. What do you think about the video aspect?
6. What do you think about 3D modeling?
7. What was one thing that got your attention?
8. What was one thing you thought was unnecessary – and why?
9. How did you find the text? Would you have liked it more to have audio instead of text?

# RESOURCES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