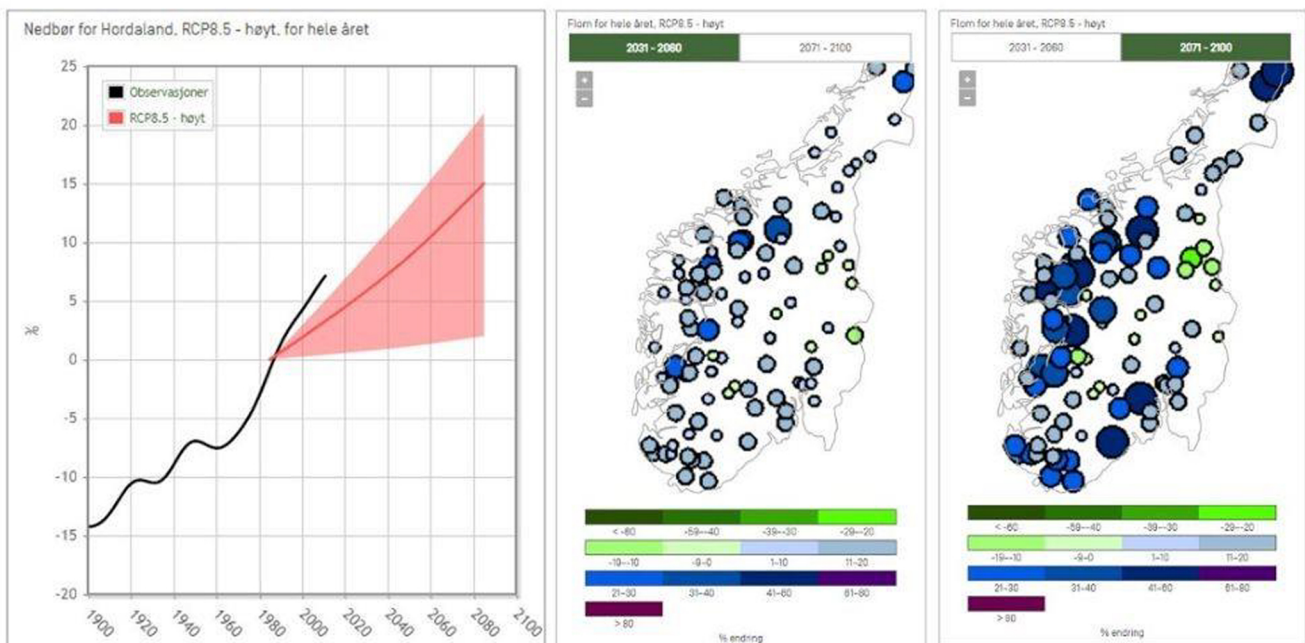


UNCLEAR COMMUNICATION OF LOCAL CLIMATE JOURNALISM

- Read more about the measures that should be taken



This evaluation was written as an exam assignment at MIX202 "Design for Media Use" in the spring of 2020. The course is part of the Bachelor's program Media and Interaction Design at the Department of Information and Media Science at the University of Bergen. The course leader was Professor Lars Nyre. Subject teachers were Professor Andy Opel (Florida State University), Senior Engineer Zulfikar Fahmy, PhD Fellow Fredrik Håland Jensen, PhD Fellow Oda Elise Nordberg and Master's Student Jonathan Lindø Meling. The evaluation is translated into English by Kristin Eidsheim.

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Introduction

In this report we will evaluate Bergensavisen's (BA) climate journalism. The evaluation is based on BA's ability to reach parents in Bergen, with children younger than 18 years. Nine informants from this target group read two digital news articles, with the purpose of finding out to what extent the climate journalistic content engaged them. As well as what measures should be taken to increase interest. Both news articles contained different visual elements. Thus it was interesting to research whether the visuals complement the content of these articles or not. With the use of interviews and observational studies with eye tracking and stress bracelet, we collected data that will be analysed and presented in this report.

The report will initially explain the background for this evaluation and choice of target group. It also considers the methods used, as well as an analysis of our findings. The two news articles will be evaluated on the basis of the findings, in addition to different design principles. In light of findings from our analysis, design implications are presented as suggestions that will strengthen BA's climate journalism. Finally, the report comes to a conclusion.

Background for the evaluation and choice of target group

In this project we have partnered with Bergensavisen, which is one of 86 local newspapers in the Amedia Group. The newspaper is one of the largest local newspapers in Bergen with coverage areas Bergen, Askøy, Fjell and Os. BA was founded in 1927 and in 1996 it was published as an online newspaper (Amedia.no).

In a meeting with BA, it became clear that parents with young children in Bergen were one of the target groups they wanted to reach better. We thought it might be interesting to find out how BA's climate journalism engages these parents. It was assumed that this target group was initially concerned with climate issues, because of their concerns regarding the future of their children. The target group therefore became parents with young children in Bergen. These parents represent an important group in the Norwegian society and consist of tens of thousands of people.

With this target group, the design implications of this report can be useful not only for BA, but also other local newspapers trying to reach the same target audience.

Much of BA's climate journalism is about weather dissemination, where the news articles deal with floods, rainfall and landslides. The selected articles presented to the informants, on the other hand, were about preparedness. The first article (Figure 1) was chosen as we perceived it to be very relevant to families with children. It was assumed that the theme of this article was something the target group would care about. In addition, it was also assumed that the target audience might get stressed out by reading the content, as the article is likely to make the informants think about how well their own family is prepared for a potential crisis.

The second article (Figure 2) addressed the same topic, but focused more on the consequences of climate change and how it has affected individuals. Compared to the first article, this article was more aimed at a municipal emergency as opposed to a home emergency. This article was also local. Both texts contained a lot of stimuli in the form of pictures, graphs and tables. This was something we thought would be exciting to see if the informants had any particular opinions about.



Figure 1. Frontpage [Article 1](#)



Figure 2. Frontpage [Article 2](#)

In order to recruit informants from the target group, our own network was used by contacting old teachers, former colleagues and relatives. In addition, top supporters from BA's Facebook page were contacted. Due to several cancellations, new informants who did not live in Bergen were recruited. This did not necessarily impair the data collection, but gave us new perspectives that potentially strengthens the analysis.

Informant-number	Gender	Age	Residence	Number of people in household
1	Male	42	Bergen	6
2	Male	57	Stavanger	3
3	Male	37	Karmøy	4
4	Female	27	Bryne	5
5	Male	52	Bergen	5
6	Female	47	Bergen	4
7	Male	47	Bergen	3
8	Male	39	Bergen	4
9	Male	55	Klepp	2

Figure 3. List of informants.

The goal of the evaluation was to conduct ten interviews, but because of the covid-19 situation we ended up with nine. In addition, two of them were observational studies with eye tracking and stress bracelet. We ended up with a distribution of seven men and two women. A smoother gender balance was something we had hoped for when the project started, but several of the women who had agreed to participate had to withdraw from the project.

Method

In order to evaluate BA's climate journalism, both subjective and objective data were collected from the selected informants. As the project processes personal data (NSD, 2019), a consent form to NSD privacy services has been submitted and approved. Objective data was obtained using the eye-tracking glasses Tobii Pro Glasses 2 and the stress bracelet Empatica E4. The method used to collect the subjective data was semi-structured interviews, and the findings from the study were analyzed based on a thematic analysis.

Eye tracking and stress bracelet

The use of eye tracking makes it possible to observe where the informants see, how the gaze moves and how long they spend on different elements (Lazar et al., 2017, p. 370). This information gives us insight into how the informant reads the content of the articles, and insights into what catches the informant's attention. The stress bracelet provides access to physiological data such as sweating, temperature, movement, heartbeat and blood volume (Empatica.com). This type of information will be useful as an increase or decrease in heartbeat and sweating may indicate basic emotions, such as fear, anger, tension and mental concentration (Lazar et al., 2017, p. 383).

Semi-structured interview

A semi-structured interview is a form of qualitative interview, characterized by the fact that the topic to be discussed is predefined (Østbye et al., 2013, p. 105). It was based on an interview guide which was prepared in advance of the data collection, but on several occasions it also became natural to ask follow-up questions.

This was especially true regarding observations from the eye tracking and the data from the stress bracelet. In this way, we managed to get some explanation, or a comment from the informant about incidents that caused a physiological reaction.

Triangulation of methods

Combining several methodological approaches can strengthen the validity of the project (Østbye et al., 2013, p.125). The combination of the three methods mentioned above is called psychophysiology (Lazar et al., 2017, p. 381). Such triangulation of methods will also be important because validity may be impaired as informants may change behavior as a result of knowing they are being studied, also known as the Hawthorne effect (Halle and Tjora, 2018).

Execution of eye tracking and stress measurements

In each study, a moderator was appointed who was responsible for the informant and the semi-structured interview. In addition, there were two observers where one was responsible for the technical, and one noted observations from the eye tracking.



Figure 4. Test setup at Media City Bergen. In order to create the most natural environment as possible, a divider was set up between the informant and the observers.

Part 1: Introduction

Put on stress bracelet which takes 10min to stabilize. Start sound recording.	
Information (5min)	<ul style="list-style-type: none"> - Information about the interview and equipment - Make sure the informant understands what is about to happen and that nothing is unclear - signing of consent form
Warm-up (5min)	<ul style="list-style-type: none"> - General questions - Getting to know the informant

Part 2: Experience

News habits and BA (5min)	<ul style="list-style-type: none"> - Questions about news habits - Questions about their relationship with BA - Questions about climate engagement
------------------------------	---

Part 3: Focus

Put on eye tracking glasses. Calibrate and start recording. Timestamp 1 on bracelet and clock at the same time.	
Article 1	- The informant reads the first article
Timestamp 2 bracelet and clock at the same time. Take off eye tracking glasses and stop recording - do not turn off glasses.	
Questions (10 min)	- The informant is asked questions about the first article
Put on glasses, calibrate and start recording. Timestamp 3 on bracelet and clock at the same time.	
Article 2	- The informant reads the second article
Timestamp 4 bracelet and clock at the same time. Take off eye tracking glasses and stop recording - turn off glasses.	
Questions (10 min)	- The informant is asked questions about the second article
Remove bracelet.	

Part 4: Looking back

Recap (5min)	<ul style="list-style-type: none"> - Closing questions - Ask if the informant has any last questions - Any questions from eye tracking and physiological data
Stop sound recording.	

Figure 5. Schedule of observational study.

A schedule (figure 5) was prepared in advance, which was followed actively, in order to have an overview and control during the data collection. The informant was first asked to put on the stress bracelet to stabilize a baseline before the test could begin.

The baseline was later used to compare the results of the measurements from the test. Furthermore, the informant read and signed the consent form, audio recording started, and some general questions were asked. It was made clear that the informant could withdraw at any time, and that all started measurements would then be deleted. During the study, the informants were encouraged to read the articles as they would normally do. This is how we got the most accurate data on how the informants read news to the ordinary, although one can assume that the situation is different with physiological equipment and eye-tracking glasses.

After the informant had read both articles, a semi-structured interview was conducted. Then all equipment was taken off and the moderator asked some closing questions. At the same time, the observers went through the physiological data to see if there were any incidents that we wanted to ask about, before the study was completed.

Analysis of findings

The articles were evaluated based on the findings from the interviews and the physiological data collection, in addition to Donald Norman's design principles (Preece et al., 2015, pp. 26-29) and the Seven Principles For Visual Climate Change Communication research report (Corner et al., 2016). The research report deals with seven principles on how to best communicate climate change when it comes to visual elements. Our analysis of the interviews, was based on thematic analysis (Braun and Clarke, p.77-101). Following the thematic analysis, we came up with three themes that will be the main focus of the analysis: news habits, content and design, as well as visual elements.

News habits

At the beginning of each interview, questions were asked about demographics, news habits, their relationship with the climate issue and relations with BA. The purpose was to get an idea of who the informant is as a person and establish the reasons for their opinions.

Few parents with young children read BA

It turned out that most of the informants had similar news habits. Every informant read the news daily, but rarely read BA. As only 2 out of 9 informants stated that they read BA firmly, we interpret it as the rest having no particular relation to the newspaper. This can be positive for the evaluation, as the informants can have a neutral attitude towards the articles without any special expectations or prejudices. On the other hand, this can also be a disadvantage, as it can be a negative reason why the informants do not initially read BA. The informants stated that they trust Norwegian journalism, but some think BA is a bit tabloid and is characterised by leftism. One of the informants stated; "I have no relationship with BA, I've always had more confidence in BT, and thought of BA as more tabloid." In general, it seems that the informants have more confidence in the larger newspapers because they perceive them as better at presenting multiple viewpoints of a case.

Concerned parents

A majority of the informants stated that they were interested in climate issues, and even more read climate journalism. As mentioned, we had an assumption regarding parents' concerns about the children's future in regards of climate change. To find out whether this was the case, the following questions were asked during the interview; "Is there anything special you might think that families with children care about when it comes to climate issues?". For the majority, the question seemed difficult to answer. This may have been because the question came as a surprise, or because it was perceived as unpleasant or personal. At the same time, they do not seem very conscious of their role as parents when reading climate news.

Throughout the interview, however, it emerged that one should think longer than one's own generation, which supports the assumption. The same question also affected the physiological data of one informant in terms of an increase in heart rate (Figure 6).



Figure 6. Right after the question was asked, the pulse increased from 69 to 94 bpm in 45 seconds. After the response was given, the pulse slowed down again. This may indicate that the informant became uneasy by the question.

Confusing content and design

Content and design are two essential parts of a news article. To investigate whether BA's journalism engages the target audience, we have chosen to focus on how they manage to communicate the message in its articles and how the reader receives it.

The articles are too long and tend to derail from the topic

More than half of the informants thought the articles were too long. The fact that the themes changed may be the reason for this, as the majority of informants commented that the topics in both articles changed along the way. The articles first address one topic, then the texts end up addressing other topics that are less relevant to the headline. Readers may then feel fooled because the article changes to something other than what they expected to read about.

It was also mentioned by several informants that they would not have read the article if they were not in a test situation, which is an example of the Hawthorne effect. The reader statistics for the articles show that an average reader has accessed the article in a much shorter time than it actually takes to read the articles (Figure 7). This statistic is not just for parents, which means that this applies to all target groups. The statistics and our findings show that the newspaper loses the reader along the way. This suggests that the content is not engaging, but despite this, the informants emphasized that the themes in the articles were both important and exciting.

	Article 1	Article 2
BAs reading statistics	2:20	1:06
Estimated average reading time	7:07	4:17

Figure 7. BA's reading statistics show that BA's readers do not read the entire article.

The articles have no impact

None of the informants said they were affected by any of the articles. The informants would not use the advice for preparedness given in Article 1 as the article did not engage them, and they perceived the advice as unnecessary. Instead of being engaged, the article is seen as excessive. One informant stated, among other things; "I'm nowhere near their level of preparedness and I live pretty well with that." If the article was written with the intention of "frightening" readers to increase home-preparedness, it does not work. The articles' lack of influence is reinforced by 8 out of 9 informants stating that the articles did not affect their views on climate change.

Visual elements

Visual elements are often used in news articles to reinforce the message and to visualize information. Both articles have implemented different visual elements.

Irrelevant images

Pictures are an important tool in news distribution. Data from this study, on the other hand, shows that BA's image use does not serve as a good tool in their climate journalism. A majority of the informants pointed out that the pictures served as a nice break from the text,

however, some thought they were too large, which made it difficult to read the captions and see the whole picture at the same time. One informant also pointed out that the pictures were irrelevant and stated; "Of course, pictures attract, but the pictures themselves were not that interesting. They don't really add anything". Thus, although images are used as a break, they have no informative function if they do not capture the reader's interest. This is also supported by the Affective Images of Climate Change report, which concluded that there is a big difference between what readers think is relevant in climate journalism, in relation to what images the journalists use (Lehman et al., 2019, p. 8).

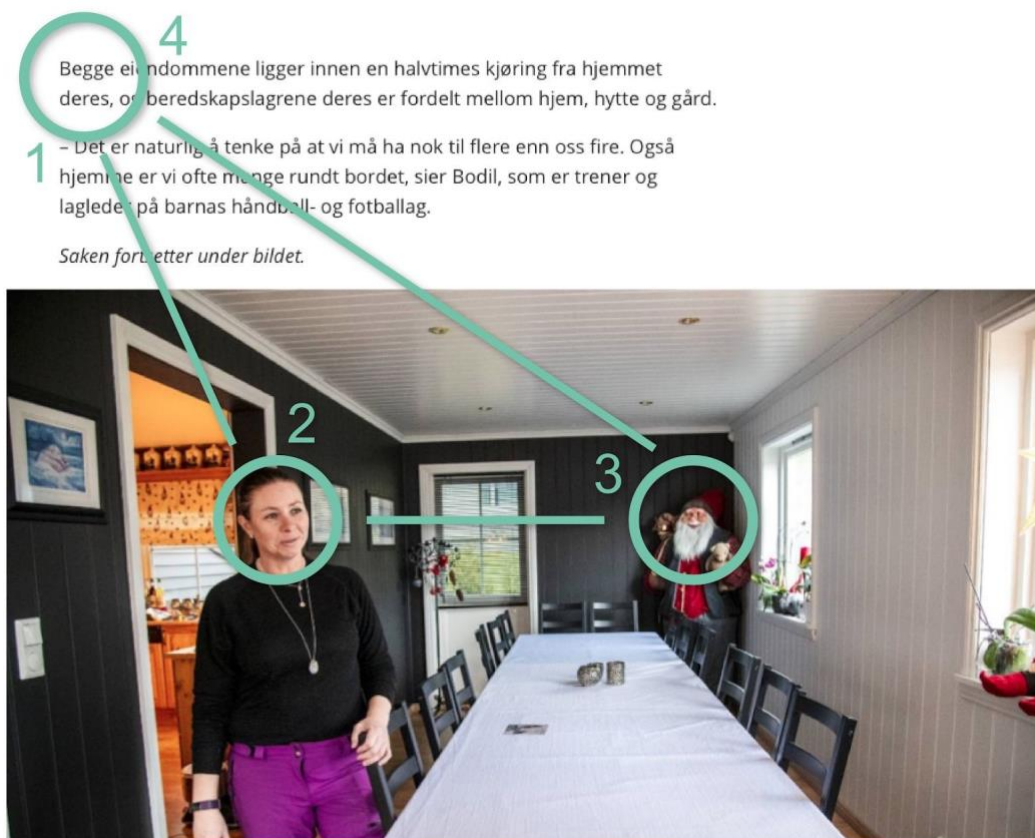


Figure 8. Gaze points are when the eye focuses on areas for a close period of time, often unconscious (Lazar et al., 2017, p.371). Here, the gaze points show that the informant sought out all the faces in the picture, before the text was read.

Eye tracking data showed that all images that contained humans were studied more than others. In these pictures, the faces attracted attention (Figure 8), but as the pictures were staged they did not attract much interest among the informants.

This is also supported by the first principle of the research report, which is that readers prefer authentic images of people when it comes to climate issues (Corner et al., 2016, p.14). The images which did not contain humans aroused almost no interest and several of them were not even looked at (Figure 9).



Figure 9. Gaze points showing that the informant did not look at the picture with no faces at all.

The emergency preparedness list is not taken seriously

Article 1 contains an emergency preparedness list from the Directorate for Social Security and Preparedness (DSB), which includes what one should have at home to manage for 72 hours (Figure 10).

This is a list that is sent out to all households and is an expected level of home preparedness. Nevertheless, it did not seem that the informants were affected by this list. All of the informants looked at the list and thought it was relevant to the article, but at the same time thought it was too long and that some of the items were unnecessary. Some also wanted the list to be sorted into different themes, and some wanted tips on how to store all of the items at home.

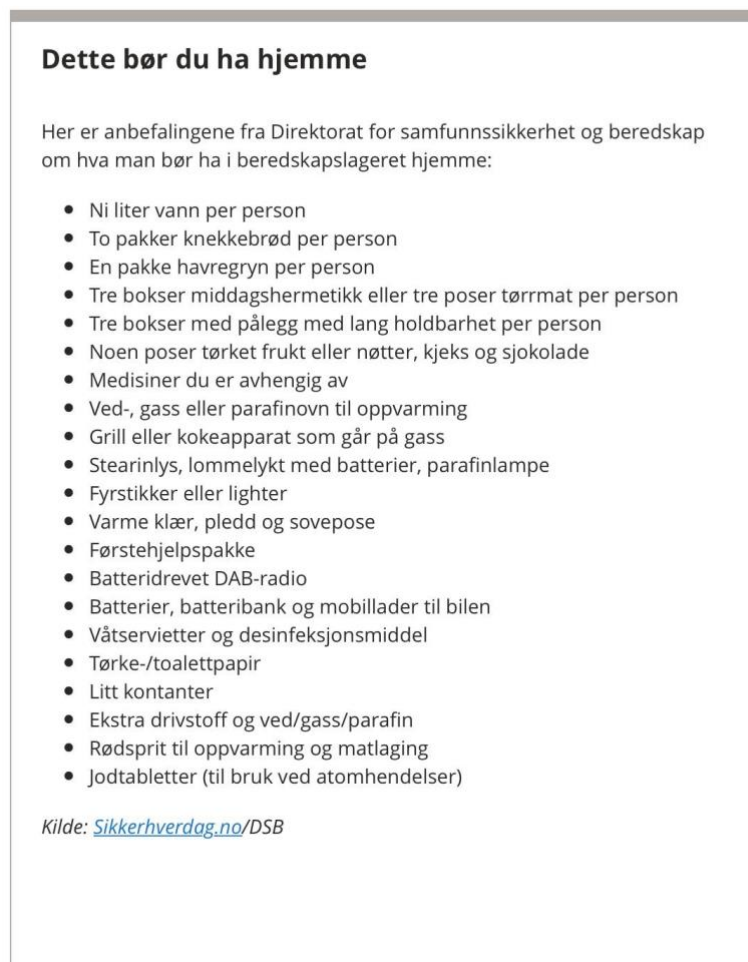


Figure 10. Displays DSB's emergency list with an overview of what one should have at home, from article 1.

In advance, it was assumed that the physiological data would show a reaction when the informants read the emergency preparedness list. The reason for the assumption was that they could be stressed if they did not have everything on the list.

However, the assumption was disproved as there were no obvious effects from the stress bracelet (Figure 11). In addition, it was observed that one informant did not read the entire list (Figure 12). This agrees well with what has been said in several interviews, that the list is long, uninteresting and too detailed to elicit any major reactions.



Figure 11. The physiological data shows that the informant's heart rate remains relatively stable when the emergency preparedness list is read, so one can assume that the informant was relaxed and not much concerned during the reading.

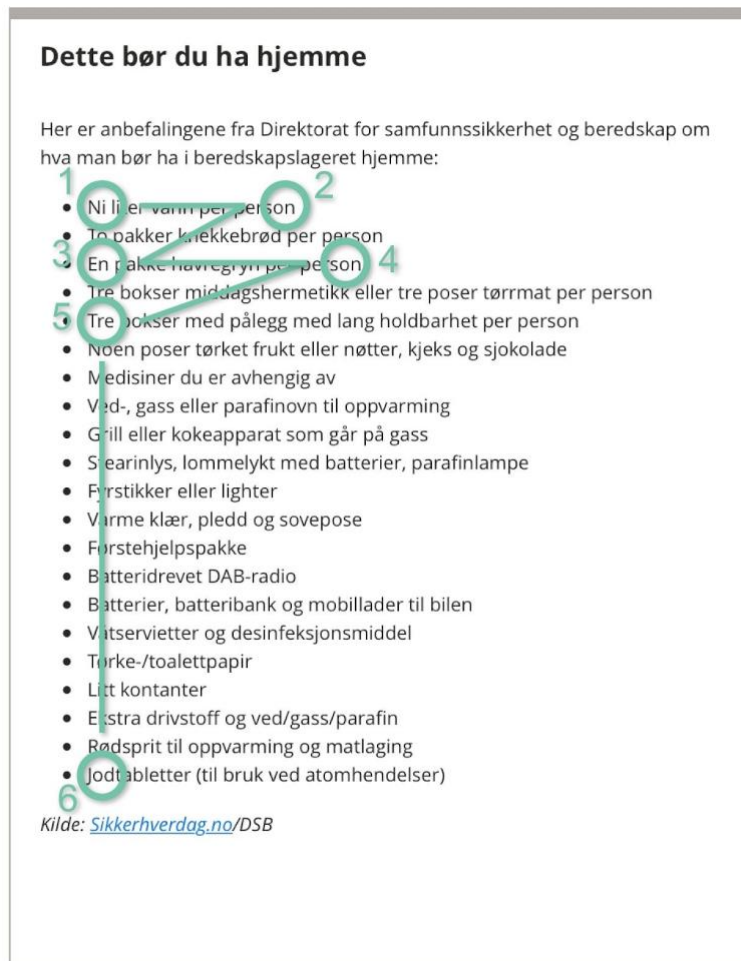


Figure 12. The eye tracking data shows that the informant reads the first points and skim through the rest.

Repetitive quotes are annoying

The use of highlighted quotes is pervasive in both articles. This is a common journalistic tool, but has received mixed feedback in this study. Among the informants, 4 out of 9 were positive to such quotes. They point out that it was a good tool, especially if you do not read the whole thing. On the other hand, the informants expressed that if one actually reads the entire article, the quotes become repetitive and disturbing (Figure 13).



Figure 13. Screenshot from article 1 with a highlighted quote which is repeated in the body text.

Frustration about quotes being repeated in the text was confirmed in the two observational studies, both via body language and physiological data. The first informant clearly expressed irritation while reading the article, as he sighed and sank into the chair at one point. By comparing the audio recording and video from the eye-tracking it became clear that he sighed just as he read the repeated quote. Additionally, physiological data for the other informant showed an increase in heart rate after repeating another citation in the text (Figure 14). The increase was a sign of irritation, which was confirmed via follow-up questions after the test.



Figure 14. Heart rate increase from 75 to 101 within 26 seconds when informant read recurring quote.

A table which contradicts the article

Graphs and tables are visual tools that can be useful in disseminating climate journalism, as it normally are a lot of figures and statistics being presented. If used correctly, they can convey heavy and difficult information in a more understandable way. Article 2 uses different graphics to present this. Monthly rainfall is presented in a table (Figure 15).

År	Januar	Februar	Mars	April	Mai	Juni	Juli	August	September	Sum
2018	217,2	141,6	73,2	137	62,2	101,1	50,7	345,2	520,3	1648,5
2019	190,9	117,1	249,5	12,9	89,9	159,6	151,5	399,6	219,7*	1590,7

Tabellen viser månedlig nedbørmengde målt i millimeter mellom januar og 15. september i 2018 og 2019. Data er hentet fra Meteorologisk institutt.

Figure 15. Table showing monthly rainfall from Article 2.

A majority of the informants felt that the table did not add anything to the article. The informants understood what the table should present, but pointed out that numbers given in millimeters were difficult to imagine. The third principle from the research report points to precisely this. The principle is that climate issues must be viewed on a large scale (Corner et al., 2016, p. 25). It will be challenging to imagine the amount of rainfall shown in the table without putting it in a larger context.

Another important matter, pointed out by one of the informants, was that the table showed that the amount of precipitation decreased from 2018 to 2019. The rest of the article, on the other hand, was angled towards the fact that we must prepare for increased rainfall in the future. The table therefore contradicts the message that the article is trying to convey, which leaves one with a question as to why it is included at all. In combination with the informants' opinion that it adds nothing to the article and that precipitation in millimeters do not tell them much, it is unnecessary to include the table.

Graphics that increases heart rate

In the same article there was also a graph and a map with an overview of flood hazard in the future (Figure 16). The majority claimed that they understood the graphs, but a few struggled to explain them. Here, the newspaper has actually tried to follow the third principle in the climate report research report.

Although this shows changes and consequences on a larger scale, it has little effect if one does not understand the consequences because of its poor presentation. One informant stated that he did not understand the graphs at all, and chose to scroll past.

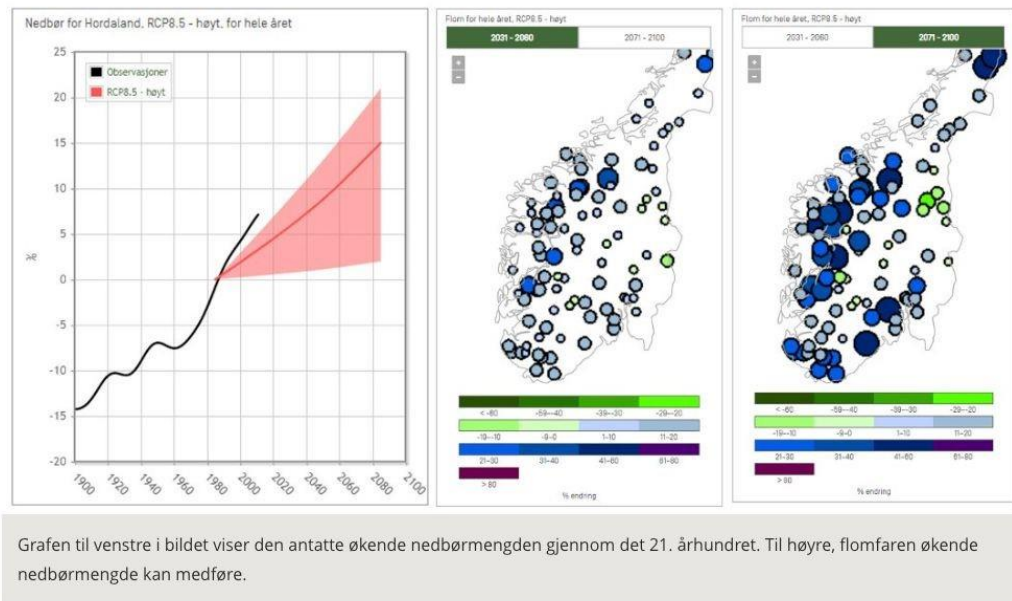


Figure 16. Flood hazard graph and map from Article 2.

It was also commented that the text used in the graphs is small and that unknown concepts, such as RCP8,5, are used. According to Donald Norman's principle of visibility, it is important that all parts of a presentation are visible in order for the message to be understood (Preece et al., 2015, p. 26). This also applies to the graphics in Figure 16, as it becomes difficult to understand if you can not see all the information needed to grasp the context. Norman's principle of limitations is also relevant to this graph presentation. The principle deals with the fact that limitations can make it easier for people to understand the information (Preece et al., 2015, p. 27). On the map, there are some buttons that appear like they are interactive and clickable for the user, however they are not. This can result in confusion.

All the informants thought the most important thing about presenting data is that one understands it. One informant emphasized the importance in making this quote;

"It must be easily understandable for everyone. A newspaper article should, in principle, be able to meet all age groups and then it must be easy to understand. So they can't be too complicated".

One of the informants had an increase in heart rate from 53 to 77 within 39 seconds as he looked at the graphics (Figures 17 and 18). The informant was informed of the increase, and who then explained that he did not immediately understand the graph. This is not a very big finding in itself, but together with the insight from the interviews, this reinforces the notion that the graphics were difficult to understand and not very engaging.

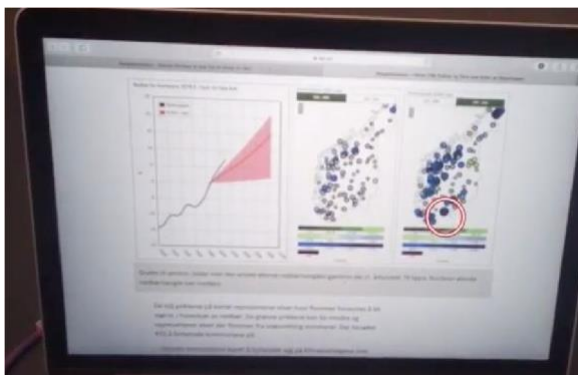


Figure 17. Image from the eye-tracking as the informant looked at the graphic in article 2.



Figure 18. Impact on heart rate as the informant looked at the graphic in figure 17.

Design implications

Based on our insights from the interviews, a common theme is that the articles are exciting, but they do not affect the informants. This is also visible in the physiological data, as these do not show any major results. The results of this data collection build up under the pervasive comments, which indicate that the articles are perceived as boring. The informants' thoughts on climate change were also not influenced by the selected articles. This clearly indicates that action must be taken to increase the target group's engagement. Therefore, based on findings from the analysis, we have some recommendations on how BA can improve their climate journalism, so that the content is better targeted to this audience. These recommendations can also help the rest of the Amedia Group, which reaches 1.9 million people every day (Amedia.no).

Shorter articles which do not derail from the topic

The analysis revealed that the articles were unable to keep the reader's interest until the end of the article. The informants mentioned that they would not read the articles in a normal setting. The fact that BA's reader statistics also support these statements is very negative for the newspaper. In order to make a change to this, our recommendation is to produce shorter articles that stick to a specific theme throughout the article, rather than one long article where the theme slips out along the way.

Authentic images, rather than staged

In regards of image use in the articles, our recommendation is to use authentic images of real people, rather than staged photos when it comes to climate issues. This recommendation is supported by both findings from our analysis and the first principle from the research report's Seven Principles for Visual Climate Change Communication (Corner et al., 2016, p. 17). As previously mentioned, findings from our analysis show that informants seek out faces (Figure 8), while images without people are scrolled past (Figure 9). Another finding that supports this is that the informants stated that the articles' pictures were arranged, unnecessary and irrelevant. This insight clearly shows that readers prefer images of people, but in order for the images to be compelling, or create an impression on readers, they must be authentic. BA can improve their images by avoiding staged photos, like they used in the selected articles (Figure 19), and rather replace them with authentic images that show something specific or an action (Figure 20).



Figure 19. Example of staged photo (Hagesæter, 2019)



Figure 20. Example of authentic photo (Ekeland, 2020)

Customized content

Another recommendation is that the presentation of the emergency preparedness list in Article 1 must be changed in order for it to be taken seriously. Our advice is to make the list interactive so that one can enter how many people there are in the household, and then the contents of the list adapt accordingly. Another recommendation is to allow readers to tick off what they have on the list so they can see what percentage they are away from being prepared for crisis (Figure 21). The advice is given on the basis of the analysis, where it was clearly stated that measures must be taken for the content to be taken seriously and not seem overstated. One of the informants was more dissatisfied with the production than the others, and came up with this quote; "It is absolutely cruel to watch". Thus, there is no doubt that there is potential for improvement when it comes to design. With our recommendations, the contents of the list would be tailored to the reader, making it more relevant to each reader. A customized solution will also make it more interesting to read everything on the list.

Dette bør du ha hjemme

Her er anbefalingene fra Direktorat for samfunnsikkerhet og beredskap om hva man bør ha i beredskapslageret hjemme.

Hvor mange er det i din husstand?

Kryss av for det dere har hjemme:

- 18 liter vann
- 4 pakker knekkebrød
- 2 pakker havregryn
- Fyrstikker eller lighter
- Førstehjelpspakke
- Litt kontanter

Din husstand er 50% forberedt på krise.

Figure 21. Self-illustrated proposal for an interactive emergency preparedness list.

Another approach that would have made more people read the entire list would have been to combine plain text with images or icons (Figure 22). These approaches would have made the process more efficient, so that readers could quickly get an overview of the content of the list. In this way, the contents of the list would not seem so long and full of details, as some of the informants were dissatisfied with.



Figure 22. Self-illustrated proposal for visual presentation of contingency list.

To increase the target group's engagement even more, we recommend that BA focus more on how to store everything on the emergency list. This could be done as in Figure 23. The recommendation is supported by the analysis, which revealed that the informants thought the list was prohibitive and tedious.



Figure 23. Shows how you can store everything on the list (Fjellanger, 2019)

Do not repeat quotes in body text

The analysis also mentions the informants' frustration about the quotes in the articles. Words like "disturbing" and "annoying" were used to describe what they thought of the quotes. These are clear signs that repetition of quotes is not positive for those who read the entire article, and one would think the newspaper would want them to read all of it. It would therefore be advisable for the newspapers to emphasize the opinions of those who actually read the articles. The use of quotes as it is done today means that the reader experience is not optimal, which is why we recommend BA to address this. In this way, readers do not have to read the same thing twice, in addition to the fact that those who only skim through the articles are still able to get the most important parts.

Give some context to the graphs and tables

As the analysis points out, BA has not been able to use the third principle from the research report in a favorable way, since the informants had difficulty understanding the table which illustrates expected rainfall in article 2 (Figure 15). The way BA can apply the principle is to make the table more understandable by comparing the table with normal rainfall or visualizing the actual amount. Our recommendation is to visualize the precipitation using a bar chart or a creative presentation. When using a bar chart versus table, it is easier to see the differences and how large the variations are. You can also use a bar graph to put the table into a larger context, comparing the expected rainfall with normal rainfall.

A creative way to present the amount of rainfall would be to show the amount of rainfall in buckets of water (Figure 24). In this way, the contents of the table would be more understandable to the target audience, since it is visualized how much precipitation in millimeters it actually is. This solution is also supported by the analysis, which indicates that the table has no impact on the readers as it fails to show the amount of rainfall in question.

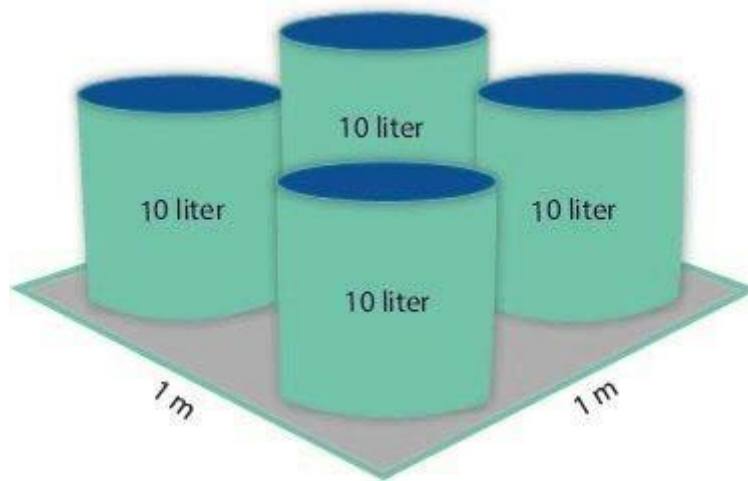


Figure 24. Self-illustrated proposal which visualizes that 40mm of rainfall corresponds to approx. four bucket buckets per square meter.

In Article 2, there are also three other graphical representations that show statistics (Figure 16). The informants also had difficulty interpreting these. The elements in the article are presented differently, but show data on the same topic. Our advice is to apply Norman's principle of consistency (Preece et al., 2015, p.29). As presented now, the reader must spend time interpreting three different graphic elements. Using only one way of presenting graphics will make it easier for the reader to understand the content.

Another recommendation is not to use unfamiliar terms without explaining them. The terms used in the current graphs make it challenging for readers to understand what the graphs are trying to show, and they end up scrolling past it.

Another advice is to make the graphs interactive. One solution might be to make it possible to zoom in and out on the map, or make it possible to search municipalities. In this way, the graphs had become more relevant to the readers as they could see details of the flood in their immediate area. Content that readers can relate to will also have greater impact.

Conclusion

In this evaluation we have evaluated BA's climate journalism based on two specific articles and the target group of parents with young children. Using eye tracking, physiological data, semi-structured interviews and various design principles, we have evaluated the article's content, design and visual elements. We have come up with a number of findings that can be useful to BA in their work on producing and designing future articles about climate for the target audience.

BA's communication of climate journalism is unclear and arouses little interest among readers, even though readers are engaged in issues regarding climate. The images used in the articles are irrelevant, while the tables and graphs are difficult to interpret. The informants find the themes in the articles interesting and important, yet the articles do not encourage engagement. The findings show that the newspaper loses its readers along the way, and measures must be taken to engage and influence the readers. We have therefore come up with the following design implications;

- Produce shorter articles that stick to one specific topic
- Use authentic images of people rather than staged images
- Make the emergency preparedness list interactive to make it more personal
- Supplement the emergency preparedness list with images or icons
- Focus on how to fit and store everything on the emergency preparedness list at home
- Do not repeat quotes in the body text
- Be consistent in graphic representations
- Visualize and compare rainfall
- Do not use unfamiliar terms without explaining them
- Make the maps interactive with the opportunity to search municipalities

For further studies, it would have been interesting to examine whether the implications we have come up with would have increased the engagement of parents with young children. It would also be interesting to find out if our insights only apply to the target group of parents, or whether this is a general opinion independent of the target group.

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