

# Public Media on the Web for Everyone – An Evaluation of the Norwegian Broadcasting Cooperation’s Website

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**Abstract.** Media plays a key role in ensuring freedom of expression which is an essential foundation for democracy. The emerging e-society poses pressing challenges for accessibility to public media on the Web. In this project we focus on The Norwegian Broadcasting Cooperation’s Website, NRK.no and study the possible accessibility issues and solutions using heuristic evaluation and focus group interviews with users.

**Keywords:** Accessibility, universal design, public media, heuristic evaluation, focus group.

## 1 Introduction

Media is a most important arena for general education and public debate. It plays a key role in ensuring freedom of expression, which is an essential foundation for democracy [1]. In the emerging e-society more and more of media content and public debate takes place on the Internet. Ensuring accessibility for all to these new arenas is therefore essential for equal participation.

In Norway the rights to access Internet services are stated in the Discrimination and Accessibility Act (DAA) [2], the regulation for section 14 in DAA [3] and in governmental ICT policy. The goal is to give all citizens equal access to the e-society. The government has allocated large amount of funding to expand broadband constructions and to increase digital knowledge. In 2012, 99.9 % of Norwegian households had possibilities for broadband access and ICT competence has been implemented as basic skills in the curriculum in primary schools. However, little attention has been paid to accessibility concerns in spite of many citizens having difficulties in accessing websites.

This project aims to gain knowledge on how complex web-based media services can be more universally designed through identifying accessibility issues and testing solutions with users. As a first step, we focus on The Norwegian Broadcasting Cooperation’s Website, NRK.no, and conduct heuristic evaluations and focus group interviews to collect data on the content creation and management tool, Polopoly, and selected web pages in NRK.no.

## 2 NRK.no and Polopoly

The Norwegian Broadcasting Corporation (NRK) is Norway's largest media house. It is mainly financed by annual broadcasting licence fee. Everyday almost nine out of ten Norwegians use one or more of NRK's services [4]. NRK.no is the website for NRK and it provides online news, TV, radio and a number of other services. According to NRK, there are 400 journalists working with the news portal at NRK.no, publishing about 250 articles daily.

Polopoly is a content creation and management tool used by NRK journalists to prepare content to the NRK.no news web pages. The Panorama rendering system, developed in-house at NRK, is used for rendering the web pages for NRK.no. Polopoly stores articles and other content together with metadata in a database and Panorama retrieves metadata and content when rendering web pages according to predefined templates. Journalists have a number of optional settings for creating metadata concerning the type of article and describing the different elements comprising the article.

## 3 Method

We have conducted heuristic evaluation on Polopoly. Two accessibility experts evaluated Polopoly based on the WAI guidelines ATAG (Authoring Tool Accessibility Guidelines) 2.0 part B [5]. The evaluations have been conducted in cooperation with NRK, the department of New Media (Nye Medier), who set up a test environment for the researchers.

The focus group interviews focus on selected web pages in NRK.no including news notices, domestic news, culture and entertainment, science, and opinions and debate.

The focus group interviews were semi-structured. The participants were from the following groups: 1) visually impaired, including blind and partially sighted, 2) hearing impaired, including sign language users, 3) cognitively impaired, 4) people with foreign language background, 5) elderly, and 6) volunteers in an organisation for underprivileged people. In total 19 users participated in the five group interviews.

The interview included questions concerning devices and experience using the Web and NRK.no as well as personal preferences. More specifically, the interview focused on their experience with different functions and design of NRK.no, including general design, structure, layout, navigation, text content, language, multimedia, and discussion. In addition, the participants were asked to discuss challenges in using NRK.no and give suggestions on future improvement.

## 4 Findings

In this section we summarise the results from the heuristic evaluations and the focus group interviews.

#### 4.1 Heuristic Evaluation of Polopoly

The heuristic evaluation focused on to what extent Polopoly allows the creation of accessible content in compliance with the ATAG 2.0 B guidelines. Table 1 shows the compliance of Polopoly with the criteria.

**Table 1.** Compliance of Polopoly with ATAG 2.0 B

<b>Criteria</b>	<b>Level A</b>	<b>Level AA</b>	<b>Level AAA</b>
B.1. Fully automatic processes produce accessible content	Pending	Pending	Pending
B.2. Authors are supported in producing accessible content	No	No	No
B.3. Authors are supported in improving the accessibility of existing content	No	No	No
B.4. Authoring tools promote and integrate their accessibility features	No	No	No

We have completed the evaluation of Polopoly concerning criteria in B.2, B.3, and B.4 and found that either Polopoly is not compliant, or the criteria are not applicable. It shows that Polopoly does not provide enough support for journalists to create accessible content. Since B.1 involves the evaluation of both Polopoly and Panorama, the evaluation is currently not completed. Nevertheless, the results clearly indicate that much work needs to be done in order for Polopoly to help journalists create accessible content. It is likely that the rendering tool Panorama plays an important role in the process of publishing accessible content in NRK.no. This role should be further clarified in future work.

#### 4.2 Focus Group Interviews

The users experience many challenges when using NRK.no. Table 2 shows a list of common issues that more than one group has identified. These issues cover what the groups think important, as well as barriers, challenges, and missing functions. The group numbers are presented in Section 3.

Many other important issues were also identified by individual groups. For example, Three out of four in the elderly group preferred Arial font. Some of the articles were found using inconsistent font or text style (e.g. Italics or “ ” for direct quotation). The elderly users found that some icons were not easily recognizable and that the names in some menus and their corresponding page titles were not consistent with each other.

The visually impaired group missed the keyboard navigation support in some occasions such as menu items and videos where the play button was not accessible through keyboard. They also found that some of the text for pictures were unnecessarily long and sometime irrelevant for the content of the pictures.

**Table 2.** Issues identified by more than one user groups

Component	Issues	Groups
Structure, layout and design	• Background and foreground contrast including both text and pictures (Missing text and buttons when using high contrast)	1, 4, 5
	• Size and position of picture (title of articles under picture(s))	1, 2, 4, 5, 6
	• Recognisable structure throughout the pages	All groups
	• Strong colour for highlighting (Missing)	1-5
	• Highlight or alert of important information (missing)	2, 5
Multimedia	• Subtitle for videos	2-6
Content/language	• Easy accessible explanation for foreign, domain-specific, and difficult words	2, 4
	• High quality of article content	1-5
Discussion	• Moderation is necessary	2, 4, 5, 6

The hearing impaired group thought that it was important to show whether a video has subtitle or not so that they could decide whether to download and open the video. A subtitle icon would save a hearing impaired person from the frustration of using time to download a video before finding out that the subtitle is missing. They also found some mismatches between article titles and the accessible content. For example, an article text was not consistent with the article title. The video content was, but it had no subtitle. The hearing impaired group found this frustrating.

Some groups gave different or even conflicting opinions concerning certain aspects on the webpages. For example, different persons preferred different font style and font size setting for different levels of headings and texts. Some preferred long sentences while other preferred short ones. Some preferred difficult terms while others needed easily accessible explanations for them.

Several groups expressed the importance of personal settings where they could specify their preferences. Some visually impaired users were dependent on such settings.

Another common feedback is that the discussion opportunities were not widely used by the groups. Most people we interviewed had never posted any comments, although some had read other's posts. Users with foreign language background were afraid that posts by person with foreign names and not perfect language would cause unpleasant experiences. Hearing impaired users highlighted that making an impairment visible could cause negative experiences. Both, therefore, preferred that NRK moderates their comments.

Although some of the issues identified do not prevent the individual persons in the groups from using NRK.no, they result in low efficiency and sometimes create confusion, frustration and irritation. User experiences could be improved greatly if these issues are addressed.

## 5 Discussion and Future Work

This paper presents the preliminary results from an ongoing project concerning universal design of public media on the Web. The heuristic evaluations of the content creation and management tool Polopoly and the focus group interviews on NRK.no have provided us with very interesting results. The participants were in general positive towards NRK.no and they experienced high quality contents and recognisable structure. In addition, NRK.no is free from advertisement, which they thought is a very positive feature.

Some of the issues identified in NRK.no can be caused by Polopoly and Panorama. For example, Polopoly does not have an option to add alternative text to pictures. Instead, Panorama combines caption and title of the picture, name of photographer and bureau as the alternative text for the picture. This creates an unnecessarily long and seldom relevant description, which has been pointed out by the visually impaired group.

Currently we are starting the heuristic evaluation of selected pages in NRK.no. Further we are planning user testing of NRK.no with different users who could face challenges on the Web due to either digital gap, Norwegian as second language, low income, cognitive, sensory or motor impairments. We are also in close collaboration with NRK for immediate improvements of NRK.no based on the results so far.

One of our foci in future work is plain language in online public media [6, 7]. We will study whether general public, especially people with cognitive difficulties, language barriers and little/lower education can easily understand and use the information provided by NRK.no.

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