



Journalistic Use of Augmented Reality

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ABSTRACT

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As the implementation of augmented reality (AR) in newsrooms is still in its early stages, this research was motivated to examine how AR is currently used, what seem to be its benefits or disadvantages, and what would be the reasons for a newsroom to start creating content with AR. The objective was also to consider the ethical dilemmas that are faced with producing and publishing AR content. All these research questions were studied with literary review and semi-structured interviews. The aim of the research was to gather and evaluate information and experiences of the tools, skills and practices needed in producing AR content in Aamulehti. This was studied with a pilot project of AR content in Aamulehti. The result of this development project was evaluated by professionals from Aamulehti with a focus group interview.

New technologies can be an interesting and beneficial field for news media companies to examine. AR is one of the technological advancements that are seen as a potential way to engage audiences. This research highlights that there are possibilities to create journalistic AR content. AR can be a tool for standing out, engaging users, and creating immersive content. On the other hand, there are demands for the AR content. It needs to have a wow effect and special content so that the extra effort put into it is worthwhile. The technology should support the content and vice versa. Publishing the AR content is yet another major question. If the news media company's own platform does not support AR content, AR can be published on outsider's platform. The reasons to use other platforms need to be justified. The ethical side of AR content needs also to be considered when creating content. For example AR needs modern devices and good internet connections to work and this can exclude some users.

When used in journalistic context, AR content has the same requirements of truthfulness as any other journalistic piece. In the future there may be a need for specific rules and demands considering new technologies in journalism's ethical codes. The process of creating ideas for journalistic content in newsrooms can be developed further from the visual point of view. One of the possible difficulties of design AR content in Aamulehti is to notice potential subjects. More examples of AR content are needed to implement the new tool in the everyday workflow. An easy to use library of story concepts and technologies could help to create new ideas.

Key words: augmented reality, AR, journalism, newsrooms, Aamulehti

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1 INTRODUCTION

The news media landscape is in a permanent stage of change. The pace of new technologies emerging and current ones evolving is ever-increasing, and the effect it has on the landscape stretches between positive and negative, new possibilities and challenges. One of the interesting new technologies is augmented reality (AR). AR has been used by news media companies since at least the early 2010s, but as the devices and technology have evolved so have the content and practices. As the implementation of AR in newsrooms is still in its early stages, it is very interesting to examine how AR is currently used, what seem to be its benefits or disadvantages, and what would be the reasons for a newsroom to start creating content with AR.

AR is computer generated information – audio, video, haptic – overlaid with the real environment. The most common use of AR is visual. (Kipper & Rampolla 2012, 1.) AR combines virtual elements with real world but it does not create a virtual reality, a completely synthetic environment where user can visit (Milgram & Kishino 1994, 2). AR can be seen as a part of the virtuality continuum, which is a concept presented by Paul Milgram and Fumio Kishino in the year 1994 and since then often referred to in studies considering virtual environments and technologies. At the other end of the continuum is real environment, the other extreme is virtual environment. AR can be situated somewhere between those extremes. (Milgram & Kishino 1994, 3.) AR is viewed with technical aids, for example through mobile phone screen or with AR glasses. The difference to virtual reality (VR) is that with AR content there is always real world elements visible, user is not completely immersed in to the virtual environment.

AR is a well-established tool for example in marketing, technical education and industry, and mobile gaming. For instance AR is used by aircraft technics to check that the installed parts are in the correct places (Arnaldi, Guitton & Moreau 2018, 12). Pokémon Go is one of the best known examples of AR in games. In the same year that the Pokémon Go was launched, the year 2016, the New York Times (NYT) published an article Pokémon Go Brings Augmented Reality to a Mass Audience (Wingfield & Isaac, 2016). Pokémon Go had 232 million active players in 2016 (Iqbal 2022).

In my research, I am interested in journalistic AR and will separate it from AR used in games, teaching or commercial use. Aitamurto et al. mention that AR can contribute to journalism's objective to give information to people (Aitamurto et al. 2022, 1282). I will also take a closer look only to AR content, that combines virtual elements with the actual real world of the user via mobile phone or AR glasses thus excluding for example digital additions to a live stream television.

Currently, specifically journalistic AR content can be seen in regular use in only few news media companies, mostly the early adopters of the new technology. In Finland hardly any examples of journalistic AR, as I view it, can be found. In a Finnish Public Service Media Company Yle Uutiset article written by Jussi Hanhivaara (2022) is mentioned that Yle Uutiset has tried VR technology in a story a few years ago, but the technology has not stuck to the everyday use. Many news media companies may also shy away from the use of AR in journalism for multiple reasons like lack of time, tools and money (Vindenes & Gynnild 2021, 25). In the case of VR journalism educator Robert Hernandez, interviewed by Esa Sirkkunen et al. (2021), says that the biggest bottleneck for adapting VR in newsrooms is the culture of fear of the costs of producing VR (Sirkkunen et al. 2021, 20). Some early adopters, like NYT, on the other hand seem to have succeeded in creating journalistic use for AR as they have published over 30 experiments in AR storytelling (The New York Times, 2022). A new development path that is seen in the AR content of NYT is publishing the AR as filters in Instagram. Earlier NYT has published AR content on their own application. In my research, I will take a closer look at this new practice of using Instagram.

The objective for this research is to examine what seem to be the benefits and disadvantages of journalistic AR, and what would be the reasons for a newsroom to start creating content with AR. I will investigate how Aamulehti could publish AR content. This is studied with semi-structured interviews. I will also take a look into what content should be published as AR content. This is done by literary review and semi-structured interviews. I will also consider the ethical dilemmas that are faced with producing and publishing AR content. This is studied with literary review. The ultimate goal of this research is to combine gathered information and create a pilot AR project for Aamulehti to test the practices of AR.

The result of this development project is evaluated by professionals from Aamulehti with a focus group interview.

2 METHODS

I will approach this development project as constructive research as represented by Katri Ojasalo, Teemu Moilanen and Jarmo Ritalahti (2015, 65–71). According to Ojasalo et al. constructive research combines innovation production and service design, but is separated from them because the result is not an innovation or an improvement to services. Constructive research aims to solve a problem with new and theoretically justified solution that brings new knowledge to the organization and to the scientific community. (Ojasalo et al. 2015, 65–66.) This approach fits well with the goal of my research that aims to create a concrete pilot project but also to provide new information about the use of AR content in journalism.

My first research question considers how Aamulehti could publish AR content and what are the benefits and disadvantages of different platforms. This question is studied with semi-structured interviews with the experts of the field. According to Ojasalo et al. (2015, 41) a semi-structured interview is used when the wanted data and subjects are not exactly known beforehand and the interviewer does not want to guide the interviewee too much. Anne Galletta explains that the semi-structured interview is a great way to address a specific topic while also leaving space for interviewees to offer new ideas and meanings (Galletta 2013, 24). Questions in semi-structured interview can be both open-ended and more theoretically driven. Each question should be clearly connected to the purpose of the research. Semi-structured interview can be separated into different segments. (Galletta 2013, 45–46.) According to these guidelines I created an interview protocol for each semi-structured interview (see appendix 1 and 2).

For this study I interviewed two experts about their views of AR in journalism. Hannu Kivimäki is a Senior UX Developer in Gofore and Professor of practice in Journalism at Tampere University for the academic year 2023–2024. Kivimäki graduated from University of Southern California Annenberg School for Communication and Journalism where he studied new technologies including AR in journalistic use. Juhani Saarinen is a Data Editor in Helsingin Sanomat and leads the team of infographic artists, motion graphic designers, coders, designers, editors and data journalists. The team aims to develop and rethink

digital journalism. Interviews were executed as semi-structured interviews. Both interviews gave valuable information from different points of view about the subject.

Second research question concentrates on what content should be published as AR content. This is done by literary review and semi-structured interviews. Theory is an important tool for understanding the background of the development project and the solutions (Ojasalo et al. 2015, 30). According to Ojasalo et al. (2015, 34) literary review is the basis of the development process by gathering relevant existing knowledge about the subject.

To understand the publication process and technical demand, I will produce a small scale pilot of AR content for Aamulehti. As defined by the Association of Project Management, a pilot project is an initial small-scale test of a project idea. The pilot project enables an organization to see if a new idea is suitable for larger scale testing before great amounts of resources are committed. (Association for project management 2022.) The aim of this pilot project is to gather and evaluate information and experiences of the tools, skills and practices needed in producing AR content in Aamulehti. Timo Toikko and Teemu Rantanen (2009, 80-81) present ways to document exploratory development activities. Two of these ways are used to document the pilot project in Aamulehti: action description with calendar markings, and diary entries. As Toikko and Rantanen explain (2009, 81) a diary can be used as an observation diary and to analyze learning experiences. The results of the pilot project are discussed with focus group interview. I will gather feedback from the work community about the AR pilot with focus group interview. Ojasalo et al. explain that in focus group interviews there are several participants and one of the benefits is that the group dynamic can elevate the subject to a new level. The leader will guide the conversation and reflect the results. (Ojasalo et al. 2015, 111–112.)

The third research question considers the ethical dilemmas that are faced with producing and publishing AR content. Is there some danger in using AR content? What are the boundaries of journalistic AR content? This research question is studied with literary review.

2.1 Data management and privacy plan

The personal data collected for this research includes expert interviewees' name and title. Name and title are published as the interviewees represent experts in their fields. Personal data is collected with interviews and email. The personal data is stored on an external flash drive as recorded interviews and text files. The data is stored until the final thesis is published. The data is deleted by formatting the flash drive.

Privacy notice is done to inform the interviewees: "This interview is recorded and the email exchange is stored for the research purposes. The interviewee's name and title are published in the public final thesis. The interviewee has the right to read their citations before publishing. All stored data (name, title, interview record and emails) is deleted after the publishing of the final thesis."

3 AR AS A TOOL IN IMMERSIVE JOURNALISM

3.1 Journalism and immersive journalism

As Pavlik and Bridges explained already almost ten years ago, news media organizations are struggling “to reinvent their business model for the Internet and the mobile and global media marketplace” (Pavlik & Bridges 2013, 14). While struggling with profitable business models and finances, media companies are fighting for audiences’ attention in a field of news and entertainment, which is nowadays an even more versatile and competed field than ever before. In addition, Pavlik and Bridges (2013, 5) stress that technological change presents a fundamental challenge to the models of news media content and storytelling. There is a lot of research about this change also concerning AR. For Pavlik and Bridges (2013, 10) AR is a part of “computational journalism”. In many other studies AR is looked at as a storytelling tool in “immersive journalism” (Aitamurto et al. 2022, 1282; Tejedor-Calvo et al. 2020, 4; Gynnild et al. 2021, 2; Nielsen & Sheets 2021, 2639).

In my research, I will look at AR as a tool of immersive journalism. For Gynnild et al. (2021) immersive journalism is an experimental approach, and the main quality is that the approach allows the users to become immersed in the stories created. In immersive journalism the user experiences the stories in a virtual, augmented or mixed reality. (Gynnild et al. 2021, 2). Other advantages of immersive journalism according to Gynnild et al. are the experience of presence, the way of capturing the attention of users, and the ability to make journalism more relevant. Immersive journalism can create the feeling of presence and thus create a feeling of emotional connection to people, places and events. (Gynnild et al. 2021, 2–3.) As Nielsen and Sheets mention, empathy and emotions are not new qualities that users seek from media, but immersive journalism has an immediate and intense way of evoking them. Empathy and emotion can be more important reasons to use immersive journalism than traditional journalism. According to Nielsen and Sheets, emotions and empathy can give users a more thoughtful and deep understanding of stories by appealing to feelings and a strong understanding of others. (Nielsen & Sheets 2021, 2645.) All the qualities

mentioned above are interesting for a modern news company, and AR can be a tool for creating immersive journalistic content.

Both AR and VR are immersive technologies, but their intensity differs. Aitamurto et al. describe that because of the smaller field of view and other technical differences, mobile AR has less immersive qualities than headset-based VR. Despite these differences AR can create immersive experience, induce a sense of physical presence, or create a sense of being in the created scene, Aitamurto et al. say. As findings suggest that immersion can increase empathy, these immersive characteristics of AR may also affect users' empathy when AR is used in journalistic context, Aitamurto et al. explain (Aitamurto et al. 2022, 1283–1299.)

3.2 AR as a tool

New technologies can be an interesting and beneficial field for news medias to examine. According to Pavlik and Bridges (2013) the significance of the way technological advancements change storytelling is that it gives new potential to engage audiences. They mention that audiences have become disengaged from traditional news forms and have turned to mobile media and social media to learn about their world. (Pavlik & Bridges 2013, 5.) This is why some news medias and hence researchers are also looking into AR and its use in journalism. There have been experiments with AR in newspapers and magazines from the early 2010s. The common nominator for at least most of these early experiments has been the gimmicky nature of the content. According to Tejedor-Calvo et al. (2020, 4), Meneses-Fernández and Martín-Gutiérrez (2016) have mentioned that journalistic AR content has mostly been used as a complement to printed or televised media content, to the detriment of its potential as an “immersive” and “surprising” entertainment resource. Pavlik and Bridges (2013) share examples of the AR content from the early days: In the early 2010's NYT made content with AR that interacted with the masthead of the newspaper. When user pointed their mobile phone's or tablet's camera to the masthead, an 3D-animation was activated. On March 1, 2012 NYT banner transformed into an animation of the New York City and played music. On November 12, 2011 the animation featured the actress Charlize Theron. (Pavlik & Bridges 2013, 13.)

The recent innovative use of AR in journalistic content and some explorative studies about the use and reception of journalistic AR content has suggested that the medium has more potential than gimmicky promotional use. For example Tanja Aitamurto et al. (2022) study showed that AR can contribute to journalism's goals of informing and engaging people (Aitamurto et al. 2022, 1298). Tejedor-Calvo et al. (2020) examined possibilities and journalistic scenarios for AR. They gained insight about AR in journalism with expert interviews, and based on those results they estimate that AR as a technology enables greater interactivity with information, through both immersion and augmentation, using for example the elements of portability, geolocation, and connection offered by mobile devices. (Tejedor-Calvo et al. 2020, 6.)

There are different reasons for a news media organization to be interested in using AR in journalism. Zillah Watson (2017) lists possible reasons to use any new innovative technologies: curiosity, exploring new business models, and to demonstrate that the brand is innovative and forward-thinking. According to Watson, there are also sensible reasons not to test new technologies at the forefront: the audience is limited and other priorities can be more relevant, so a small experimentation and watching the market is a good option. (Watson 2017, 10-11.)

Data Editor Juhani Saarinen says that AR and VR are both interesting emerging technologies that have arisen interest also in Helsingin Sanomat. In earlier reviews the conclusion has been that technical restrictions have been too big to benefit from the new technologies. Saarinen and his team have seen more potential in AR than in VR in journalistic use. One of the reasons is that the potential audience for VR content is small because of the devices to use it are still rare, whereas a device to use AR content is almost in every Finnish pocket. (Saarinen 2023.) Kivimäki also estimates, that if consuming journalism means that you have to always wear VR glasses, that will not probably become mainstream unless some lighter gear is invented or the technologies become cheaper. On the other hand, Kivimäki mentions that some American news media companies have managed to create content for VR that is effective and

impressive. Kivimäki says that if the goal for journalism is to affect emotions, VR is a good way to do it. (Kivimäki 2022.)

One of the guiding lines of the current development of journalistic AR content is that the technology supports the journalistic content and vice versa. According to Tejedor-Calvo et al. (2020, 9) in journalistic stories AR should not play a testimonial or decorative role, but assume an important role in the conception of novel journalistic formats. Creating such content in an affordable and time conscious way needs more examining. Kivimäki states that the idea is the king, it is crucial in doing any kind of content (Kivimäki 2022). Saarinen also recognizes that in addition to technical challenges there are also challenges in storytelling that hinder the use of AR. 3D-models are already done in Helsingin Sanomat, but what would be the added value to see the model in the users' space via AR, Saarinen asks. He says that journalistic AR content should not be just a cheap trick. (Saarinen 2023.) Other expert interviews have suggested the same. Tejedor-Calvo et al. (2020) interviewed professors, researchers, and well-established journalists who have used AR technology. Their interviewees agreed that AR content can be anything as long as the AR is seen as a tool to service journalism and not as a significant in itself. (Tejedor-Calvo et al. 2020, 7.) Helsingin Sanomat published AR content in Instagram the first time on 27 November 2022. The AR content was a part of an article about Neanderthals and how the modern human has inherited some traits from them (Ruukki 2022). Saarinen says that the mentioned AR content was a good example of an AR content that is well justified. According to Saarinen, the content was in a way a fun trick but also very demonstrative, it visualized the information. (Saarinen 2023.)

Saarinen thinks that because gaining access to any AR content needs effort from the audience, the actual content needs to be truly worth the effort. One of the reasons why Helsingin Sanomat has not used AR a lot is that there has been lack of good ideas that would have benefited from the AR content, Saarinen tells. When we talk about any new technologies there is always a learning experience, where one person makes content and someone else sees it, gets inspired to create new kinds of content, and slowly people learn to create ideas to be published with the specific way, Saarinen explains. He also recognizes that

Helsingin Sanomat is currently in the early stages of this learning experience with AR. (Saarinen 2023.) Tejedor-Calvo et al. (2020) emphasize that there is a need to rethink the conception of journalistic stories in a way that AR can be in an important role in the conception of new journalistic formats. At the same time the conception is done within guidelines of the journalistic profession of accurate information. (Tejedor-Calvo et al. 2020, 9.)

3.3 Creating AR content

Tejedor-Calvo et al. refer to foundation Telefónica (2021) and define AR by its way of adding something to our sensory perception of the world with digital elements that are accessible through technological devices (2020, 3). As this definition suggests, the content can be anything added to our experience of the world by virtual technologies, also including visuals, sounds or haptic experience. In journalism AR can be used to present “multiple layers of information” onto a specific space where the user is (Aitamurto et al. 2022, 1282). This makes journalistic AR content a unique and special combination of for example news graphics and photojournalism, which are more traditional tools of journalism.

When creating journalistic AR content, for the start, a visual exciting effect, a wow factor, is important, says Kivimäki. AR content is successful, if the user remembers the wow factor afterwards. From his own experience in university, studying AR among other new technologies in the courses led by Robert Hernandez, Kivimäki learnt that often when storming ideas for the AR content the ideas were too strongly based on the text. The subject could have been socially important but the concept lacked the visual wow factor, Kivimäki says. Some other obstacles were that the execution of the idea would take too long or there were no sufficient technical skills to complete the idea. Kivimäki tells that the solution was to try to find the middle ground: ambitious ideas enough to great the wow factor but an execution that could be completed in a reasonable time and with existing technical skills. (Kivimäki 2022.)

Choosing the subject is a challenge also in other forms of immersive journalism and storytelling. Sirkkunen et al. (2021) tell that there are various ways to make

the decisions, and for example CNN's newsrooms uses what they call the witness test. This means that they make 360-degree videos only about topics in which the environment is interesting and creates strong experiences, and witnessing it has value to the user. (Sirkkunen et al 2021, 17.) Kivimäki also notes that because big media companies have done great AR content around the world, in Finland we have to decide do we execute similar ideas or do we come up with something entirely new. It is also a risk to keep in mind that if the result is gimmicky or bad quality, there are already good examples worldwide to compare it with. (Kivimäki 2022.) Sirkkunen et al. (2021) also mention that the quality of the sound and visuals are important factors to create the sense of presence and immersion (Sirkkunen et al. 2021, 18). The study results of Aitamurto et al. suggest that the quality of the visual is the most important no matter the publishing format (Aitamurto et al. 2022, 1296.) This emphasizes that the AR content should be good-quality content so that the wanted goals can be reached and the user experience is good.

Visual content is more commonly mentioned when talking about AR (Tejedor-Calvo et al. 2020, 2). Visuals of the AR content can be done in various styles. For example VR creations have been done with actual photos and videos but also with animation. With animated scenes the credibility of the journalistic work has been maintained with authentic sounds or detailed modelling of the real circumstances, according to Sirkkunen et al. (Sirkkunen et al. 2021, 21).

AR content can bring traditional graphics to a whole new level. In their research Aitamurto et al. compared AR visuals, interactive visuals and static visuals. Their study results show that AR was the only method in which perceived knowledge gain – how much the users feel they learned – and the sense of physical presence correlated positively and significantly with each other. Aitamurto et al. mention that this correlation suggests that the immersive nature of AR can positively affect user's feeling of learning. When Aitamurto et al. studied the objective knowledge gain – how much the users actually learned from visuals – AR was neither better nor worse way to present information compared with interactive and static visuals. (Aitamurto et al. 2022, 1294.) Aitamurto et al. study results also highlight not just the way of presenting the information – AR, interactive or static – but also the content itself and the design have significant affect to the user's knowledge gain

(Aitamurto et al. 2022, 1296.) Thus the use of AR content needs also other motivations than to convey simple information.

All in all, as Tejedor-Calvo refers to Meneses-Fernández and Martín-Gutiérrez (2016), AR enables convergence between audiovisual, photographic, infographic and three-dimensional content and it all can be enriched by interactivity. This brings many new possibilities for the journalistic storytelling. (Tejedor-Calvo et al. 2020, 3.) Thus the content can be very creative and many new possibilities with journalistic AR content are yet to be explored.

3.3.1 Packaging the Story

A modern journalistic story can consist of many pieces created with different technologies and techniques. Vindenes and Gynnild (2021) refer to Gynnild's earlier studies and explain that, for example, journalistic videos are contextualized with text elements like headlines and information about the time, place and event. These elements affect also how the journalistic message is perceived. (Vindenes & Gynnild 2021, 31-32.) This is also true with AR content. The journalistic ideals affect the content that the AR presents, but also how the AR is published, what other journalistic elements surround it and refer to it. Hernandez and Rue call this a news media package, a way which different media forms assemble and form a package. (Hernandez & Rue 2016, 1-2.) Hernandez and Rue mention that the different media forms need a different approach to storytelling. In addition, the users' way of consuming media on different devices needs to be considered. Is there for example other distractions, notifications, or adds (Hernandez & Rue 2016, 2-3). A crucial notion of Hernandez and Rue is that when a single story consists of different media forms, a part of the making process is to evaluate how different segments are best told. A journalist must understand how different media forms function and why to use one over another. "The story will tell you how it wants to be told", state Hernandez and Rue. (Hernandez & Rue 2016, 7.)

Packaging digital news brings up the question of managing the package. Ideal situation is that all the elements can be seen in the same place, for example in

one news article on mobile application. Kivimäki (2022) says that from a media company's point of view the best case would be to have all the elements on the company's own platform where also the AR content could easily be seen. As an own platform did not come to question in Kivimäki's case, as discussed more in the next chapter, they chose to use QR codes on the website to guide the user to Snapchat where the AR content was published. The digital news package consisted of the text and pictures on the website of the project web site and the AR content on Snapchat. (Kivimäki 2022.) Helsingin Sanomat published their first AR filter on Instagram and directed users to it from the main news article that can be accessed on their website and application. At the end of the article there is a link to the Instagram page and video instructions to how to use the filter. (Ruukki 2022).

The other journalistic elements surrounding the AR content can also be looked at from the ethical point of view. Kivimäki points out that if someone can not access the AR content for any reason, the journalistic point should come across also, for example, in text form on the website. Kivimäki considers also that the content of the AR could be shortly described in text form to inform the user and to hint what they are missing out of. (Kivimäki 2022).

3.3.2 Publishing AR Content

One of the common problems is that media houses need to find the best technical solutions to make and publish AR content while also controlling the costs and time management. Sirkkunen et al. (2021) highlight that the question of how to make content available to users is a substantial challenge (Sirkkunen et al. 2021, 19). Journalists Ville Juutilainen and Jussi Pullinen, interviewed by Sirkkunen et al. (2021), underscore the importance of open standards and platform independence especially when talking about national media companies (Sirkkunen et al. 2021, 20). Saarinen mentions that in Helsingin Sanomat the technical restrictions are still quite big, because Helsingin Sanomat publishes content on the website and on Android and iOS applications, and all the platforms are executed with different technologies. That means that if Helsingin Sanomat would want to develop an AR feature for example to its apps, it would be very

arduous. (Saarinen 2023.) Kivimäki also suspects that developing AR features would be costly and time-consuming for any media company, and the possible benefits need to be considered carefully (Kivimäki 2022).

Regarding publishing VR content on external platforms, Sirkkunen et al. (2021) explain that some platforms can take a share of the revenues that come from for example showing an advertisement connected to the viewing. They also highlight that companies need to be mindful about what user data the platform is collecting. (Sirkkunen et al. 2021, 20.) Saarinen tells that now-a-days it is expected to be strict with privacy and security matters. Talking broadly about external platforms Saarinen says that many solutions have been ruled out in Helsingin Sanomat because of the cookies the platforms use or how the information is stored. Instagram has passed these strict expectations, and when using an external platform the company plays with the service provider's rules, Saarinen says. (Saarinen 2023.)

As mentioned earlier, Helsingin Sanomat recently published its first AR content on Instagram. Juhani Saarinen says that first one of the team members collected information about the current ways to create AR content. Publishing AR content on the currently used Helsingin Sanoma's apps was too complicated, so the team decided to use ready-made technologies in Instagram. Saarinen tells that they chose Instagram and its tool Meta Spark Studio because the tool seemed good and the execution fairly easy. The aim was to experiment with the new technology, not to accomplish anything revolutionary, Saarinen says. (Saarinen 2023.) Kivimäki also tells that their team in university saw that the ready-made platform and tools were the best way to go. Their team chose Snapchat and its tool Lens Studio. They also considered Instagram, but there were some obstacles. Kivimäki tells some content that was made for the app stopped working after Instagram was updated. Kivimäki says that Snapchat was seen as more trustworthy in this regard. (Kivimäki 2022.)

There are other possible platforms to publish AR content, but Sirkkunen et al. say that the downloading process can be a hindrance to the users (Sirkkunen et al. 2021, 20). Saarinen tells that earlier Helsingin Sanomat has tested collaborating with other companies and their AR applications, but the conclusion has since

been that using another application is not desired unless the application used is very common among audiences, like Instagram. Saarinen says that the guideline is that if loading a new application is necessary to see some content, it is not worth doing. (Saarinen 2023.) No matter the platform, Kivimäki mentions that the simplicity of using the AR content is very important. One can create all sorts of AR content, but the basis is that using AR content, even getting access to it, can be challenging, Kivimäki says. He reminds that using the content must be as simple as possible and the wow effect should come quickly. (Kivimäki 2022.)

4 IDEALS AND ETHICS OF JOURNALISM AND AR

When AR is used as a tool in journalism, it places certain expectations on the use. At its core, journalism is executing the freedom of speech and being the fourth estate (The Union of Journalists in Finland, 2022). This term refers to journalism's duty to discuss and speak up about democracy, political power and inequality. Journalism deals with matters of public importance and interprets those subjects within a larger social context (Pavlik & Bridges 2013, 6). Journalism is also sharing information and telling stories, giving a voice to different participants of an event and telling an objective account of a story (Jones 2021,38). In Finland, as in many democratic countries, the freedom of speech is protected by law. As Flatlansmo and Gynnild mention, journalism is guided not only by law but also by the journalism organizations themselves with ethical codes made and monitored by the said organizations. Ethical codes vary between different countries, but truth and accuracy seem to be basic requirements. (Flatlansmo & Gynnild 2021, 61.) In Finland these ethical codes are maintained and monitored by The Union of Journalist in Finland.

Visuals, for example photographs, in journalism are also expected to follow the ethical norms and aim to objectively portray the world (Tirohl 2000, 338). In journalism photorealistic visuals are expected to be accurate and authentic. By declaring to work within the journalistic ethical codes, journalism separates itself from for example advertising and propaganda (Aitamurto et al. 2022, 1284).

Computers and mobile devices have created numerous new ways to create and experience journalistic stories. As a subcategory of journalism, immersive journalism is also deeply involved in the ethical rules of journalism. According to Uskali and Ikonen, ethical considerations in immersive journalism often deal with the same questions as photojournalism due to its visual nature. These questions can be for example the use of violent or cruel material or the authenticity, truthfulness and verification of visual material. (Uskali & Ikonen 2021, 53.) The immersive nature may also call for more careful consideration of who the readers and users are or can be. Uskali and Ikonen bring up that in the year 2021 the Guardian was one of the few news media organizations that had provided special

instructions and age recommendations for immersive journalism users (Uskali et al. 2021, 55).

Existing rules can be applied for new technologies, but the new ways of storytelling need to be critically examined, and the need for new ethical rules should be evaluated. For example Uskali and Ikonen (2021, 54) mention the need for some updates and fine-tuning in the ethical rules: in some cases the existing codes can guide decisions but for example the immersion itself may bring new questions. The immersive and emotions affecting side of AR content needs to be considered from the ethical point of view. In the context of VR and news Nielsen and Sheets mention that empathy plays an essential but possible controversial role (Nielsen & Sheets 2021, 2640). Charlie Beckett and Mark Deuze (2016, 1) say that in the modern society and journalism, emotions have become an important dynamic in how news are produced and consumed. As the focus is on empathy, the question of impartiality in news is brought up (Uskali et al. 2021, 86-87; Beckett & Deuze 2016, 1). Journalists need to be careful not to sacrifice objectivity when finding an effective way to convey emotions. On the other hand, Nielsen and Sheets argue that as immersive journalism gives new ways to present information, it also gives “more agency and control” to the user. Users are able more freely to choose how they consume especially complex topics, take a deeper look or simplified view, creating “a more personal information experience”. (Nielsen & Sheets 2021, 2646.)

As a tool of journalism, the journalistic AR content is expected to follow the ethical rules and morals of journalism, but those rules and morals need to be further discussed in the current context. AR content can be for example pictures, graphics, text, sound, computer-generated elements or a combination of these elements. Aitamurto et al. (2022) talk about the finding that traces of computer-generated elements in the visual may reduce users’ perceived authenticity. They consider this finding alarming considering the demands of accuracy and truthfulness for journalistic visuals. Aitamurto et al. emphasize that regardless of the medium, journalistic visuals are expected to support journalism’s goal of authenticity. (Aitamurto et al. 2022, 1298.) This poses great expectations for also computer-generated visuals, for example 3D-models, that are quite popular journalistic AR content. The perceived authenticity of this content is greatly

related to the credibility and reputation of the newspaper itself as a journalistic actor.

The ethical rules also define how errors in the journalistic content should be corrected. The Union of Journalists in Finland defines that error must be corrected as soon as possible and so, that the correction has the potential to reach the same audiences as the content with the error. The correction should be published on the website of the newspaper and also on the platform that the original content was published. (The Union of Journalists in Finland, 2023.) This would also concern errors in the AR content. This would mean that the correction is in the original AR content and a correcting article is published on the website of the newspaper and on for example Instagram, if that was the platform used for AR.

When publishing AR content, the question of the digital divide is also essential. The digital divide means that from an instrumental point of view, using new technologies excludes some groups, because an upper or middle-range equipment is needed to access the content (Tejedor-Calvo et al. 2020, 10). Today a smartphone is the most popular device to use news content in Finland. Digital News Report 2022 shows that in the year 2022 75 % of the people had used smartphone to follow news during the last week. According to the same report, the use of smartphone to follow news grows more popular faster among younger people than among older. (Reunanen et al. 2022.) In Finland a large portion of population uses internet via mobile phone. According to Statistics Finland, in the year 2019 80 % of the population used mobile phone to access internet and 90 % of the population have access to internet with some device (Statistics Finland 2019). Still there are some people with no access at all and also the quality of mobile networks vary. Traficom explains that the 3G mobile network has a very extensive coverage area in Finland, and the coverage area of the 4G network is expanding, but the expansion starts from densely populated areas (Traficom 2021). This digital divide, created by the access to devices and network, should be considered when publishing journalistic content with new technologies. This means balancing between the journalistic goal of informing big audiences and finding new innovative and interesting ways of publishing journalistic content that can also attract new audiences.

News companies also have an ethical motivator to be present on new platforms and technologies. As Gynnild et al. (2021, 3) mention, the need for ethical storytellers on multiple platforms will most likely grow in the years to come. As Pavlik states, new tools like AR need to be added to journalistic storytelling simultaneously maintaining the values that make journalism essential to society (Pavlik 2020, 142).

5 AR PILOT IN AAMULEHTI

To combine and to apply the collected information in practice I did a pilot test of what could Aamulehti AR content be. Based on the theoretic ideas discussed in the previous chapters, I created an idea for the AR content. Then I technically executed the content and reported the process. Finally, I reflected how the process went and could it be useful for the future. The aim of the pilot project was to test how could Aamulehti gain from the benefits of AR content. I was also interested in the process of making AR, could it be done in the Aamulehti newsroom.

Aamulehti is a daily newspaper established in 1881. Aamulehti has a print edition, digital website and its own application. Aamulehti publishes daily news, sports, culture, features, and live streams. It is published in Tampere region. From the year 2020 Aamulehti is owned by media corporation Sanoma, which also owns Helsingin Sanomat.

5.1.1 The Pilot Project Plan

By reflecting the expert interviews and literature reviews I have gathered a few guidelines and perspectives how to approach the process of making journalistic AR content. As a tool of immersive journalism AR content has potential to capture attention, give an experience of presence, and make journalism more relevant.

These are the most important points of journalistic AR content I want to highlight from the information gathered.

1. AR content should be easy to use and find.
2. The content should be informative and follow the ethics of journalism.
3. The content can try to reach emotional connection.
4. The idea is the king. The idea needs to be good enough so the effort and time put into the content will pay off.

I chose to use Instagram and its tool Meta Spark Studio for the pilot testing. Aamulehti cannot currently publish AR content in the application, so an external

platform must be used. According to Saarinen, the experience in Helsingin Sanomat was that Instagram and Meta Spark Studio tool seemed to be good and the execution fairly easy. Their team could use it with the help of YouTube tutorials. (Saarinen 2023). Also, many people already use Instagram so no uploading of a new application is needed and audience can be expected to know the basic functions of the application.

Sirkkunen et al. (2021, 18) mention that a great way to start using a new technology like AR is to start small and gradually expand into more complicated and longer stories. This is also the baseline of my pilot testing.

First I created an idea for the journalistic story that the AR content will be a part of. Secondly I assessed what information is presented as AR content and what is presented in other forms such as text and pictures, in other words, how the news story is packaged. Next step was to evaluate what new skills I need for creating the AR content, and then learn the new skills or find other solutions to the problems. Then I created the story and the content needed and publish the content. Lastly I reflected how the process went, what could be learned from it and could it be done again in the newsroom of Aamulehti. This process was documented by action description with calendar markings, and diary entries.

5.1.2 The Execution of the Pilot Project

I started the process by creating the idea for my AR content. I had two important starting points: Firstly, the goal is to make a story that has journalistic values. Secondly, the AR content needs to be interesting and give new value to the story. As the baseline for generating the idea are the skills that I have. I can write, photograph, process pictures and make 2D graphic elements. These were my frames for generating the idea.

Around the middle of April, I got inspired by the idea of glasses that demonstrate different visual impairments. I started to wonder if similar effect could be reached with an AR effect. I estimated that I could execute filters that would distort the view similarly to the glasses. I talked about the idea with the Head of New

Audiences Jutta Högmänder in Aamulehti and we agreed that the story could be interesting and it could be published on Aamulehti's website and the AR content in Aamulehti's Instagram.



Picture 1. The glasses which demonstrate different visual impairments.

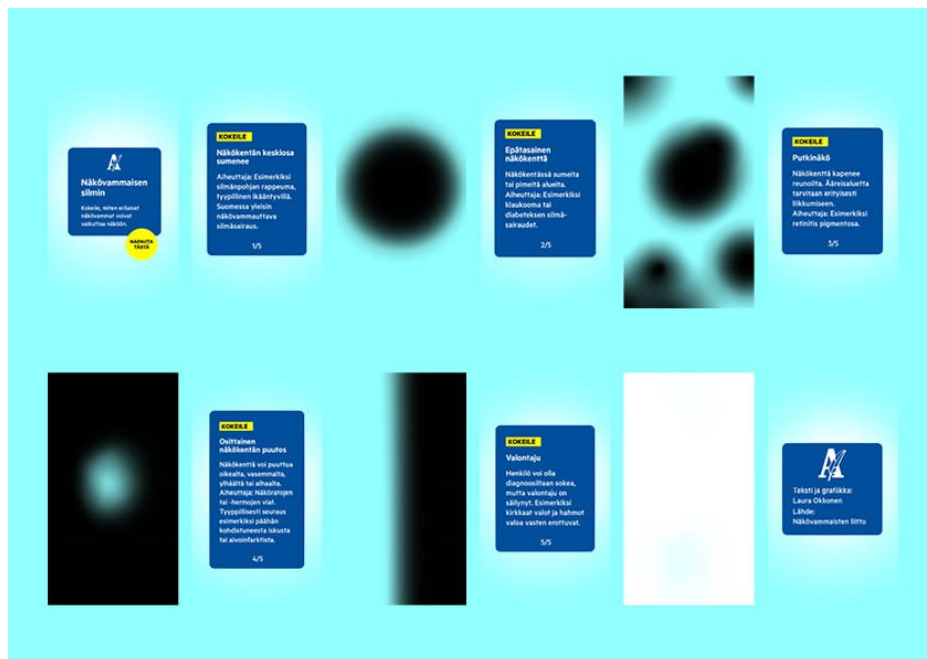
After the idea for the story was accepted, I started to gather information. April 19th I contacted the Finnish Federation of the Visually Impaired, and they recommended an expert who I could interview. The federation also has a massive amount of information on visual impairments on their website that I could read. I also contacted Tampereen seudun Näkövammaiset which is an association for visually impaired in Tampere. They recommended local interviewees to me. I gathered information by reading the website of the federation, reading the annual statistics in 2021 of the Finnish Register of Visual Impairment, visiting the Tampereen seudun Näkövammaiset association and interviewing several experts, including the head of research of the Finnish Register of Visual Impairment, a traffic engineer from the city of Tampere, a mobility mentor to visually impaired, the head of accessibility work group in Tampereen seudun Näkövammaiset, a coordinator in Tampereen seudun Näkövammaiset, and an expert by experience. I also visited the office of Tampereen seudun

Näköammaiset and I had change to test the demonstrative glasses in person. Collecting the information was done between April 19th and May 12th.

After collecting the information, I decided how the story will be packaged. I decided that the AR content would be a demonstration of a few visual impairments and it would also include a compact amount of information about them. Other forms of content would be text, graphic, and photographs.

I studied from YouTube tutorials how the Meta Spark Studio works. I learnt that the best way to create the content I had in my mind was to use the “switch frames with tap to change” feature. As a guide, I used a video published on the YouTube channel DJS Creates (DJC Creates 2022). I learned that the frames created in Photoshop should be size 720 pixels x 1280 pixels. For this specific feature the frames must be named in the correct order. Following these guidelines I created the frames. First I made five frames with the information about the visual impairments and five frames that demonstrate the visual impairments. These were done with Aamulehti’s brand colors and text styles to match the brand image.

I tested the AR content with Högmänder and Tuija Tammi, the Head of Design in Aamulehti. While testing the AR content, we realized a few points: The AR content also needs a good starting frame, a cover to indicate what the content is and what is coming. I tried to use the Meta Spark Studio’s own feature, which guides the user to tap the screen to move to the next frame, but it is fixed to the center of the screen and that did not match my own content, so I decided to include the instruction to the frame I made in Photoshop. This way I could dictate the style and place of the guide. In testing, we also noticed that the content needs an ending slide, where the credits and sources are told. We also decided to add the number and order of the slides (one out of six etc.) to indicate how many slides there is to come. Based on these observations I finalized the frames and imported them to Meta Spark Studio. Finally, I had twelve frames.

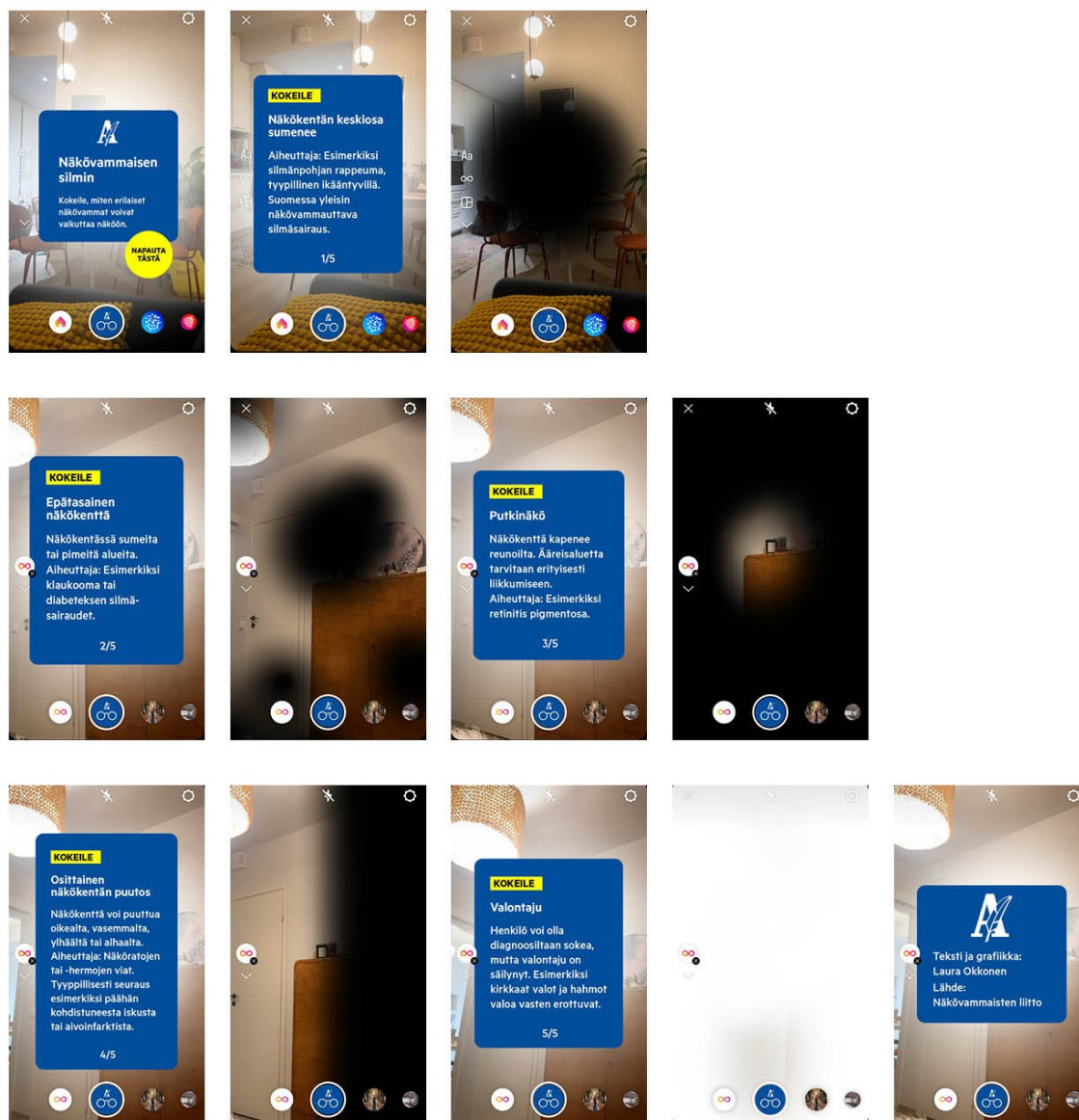


Picture 2. All the frames of the AR content. The light blue background color indicates what is transparent in the pictures.

Creating the AR content with the “switch frames with tap to change” feature was quite simple with the help of the YouTube tutorial. The switch frames proved to be simple enough to execute easily, but also the end result worked well and the quality was good. I learned that after importing the frame files to the Meta Spark Studio, making changes to them is quite complicated, because all frames need to be imported at the same time. I also learned that the testing phase can be quite slow because the test link that the program makes updates quite slowly. On the other hand, sharing the test link was easy, because the link could be opened by anyone who has Instagram on their phone.

When the content was completely done, it could be published. The publishing phase had a few surprises I did not anticipate. The biggest one was that there is an acceptance process for Meta Spark Studio effects. Company Meta evaluates that the content meets the Meta Spark Policies and for example Instagram Community Guidelines. Meta says that effects are usually reviewed within 24 hours, but it may take longer on weekends. (Meta Spark, n.d.) In our case, the acceptance took approximately three hours. Other aspects to note are that a short tutorial video is required and a small icon can be done that is visible in Instagram with the AR effect. Because Instagram, the Meta Spark Studio and its tools belong to the company Meta, one must sign in to the platforms with Facebook

profile. I needed the admin rights for Aamulehti page in order to publish the AR content to Aamulehti's Instagram.



Picture 3. Published AR content in use on iPhone11.

The main article with text, pictures and graphics was published on May 18th (see appendix 3). Also, a teaser article about the AR content was published at the same time (see appendix 4). The goal of the teaser article was to tell about the AR content, how to use it and to guide mobile users to the content with a link. The teaser article was linked to the main article in a suitable spot. When editing the story, we estimated what would be the best way to guide to the AR content: to write about it in the main article or to write the teaser article and link it to the main article. We chose the teaser article so that the flow of the text in the main

article would not be interrupted by technical information about the AR content. In addition of the teaser article, an Instagram story promoted the AR content. In the version of the story published on print paper there was a QR code that directed readers to the teaser story.

Kun näkövammaisena kaupungissa liikkumisesta kertoo tavallisesti näkeväälle, on usein lähdettävä aivan A:sta liikkeelle, toteaa näkövammaisten liikkumistaidon ohjaaja **Tuija Seppänen**. ”Näkövamma ei ole yksi ainoa asia, vaan niitä on niin monenlaisia.”

Täydellinen sokeus on yksi ilmenemismuodoista, mutta se on Suomessa harvinaista. Suurin osa näkövammaisista on eriasteisesti heikkonäköisiä.

Lue lisää: [Miltä maailma näyttää näkövammaisen silmin? Testaa Aamulehden Instagramin AR-tehosteella](#)

Picture 4. A link in the main article to the teaser article.

puoiten kanssa keskustelut, onko mahdollista lisätä suojateitä Hämeenkadulle.”

Samalla esteettömyys on koko ajan ajankohtaista kaupungin kehittyessä. Rakentamista ohjaa kaupungin esteettömyyden erikoistason tavoiteverkko. Se päätettiin vuoden 2021 lopussa. ”Koko keskusta kuuluu korkeimpaan luokkaan, eli aina kun täällä rakennetaan, pyritään tekemään erikoistason mukaisia ratkaisuja.”

Ratkaisut tarkoittavat muun muassa niin näkövammaisille kuin pyöräapuvälineillä liikkuville sopivia kadun reunoja ja jalankulun erottamista pyöräliikenteestä. ”Ohjeiden mukaan mennään ja sovelletaan, mitä tilaan mahtuu rakentamaan.”

Esteettömyyden huomioon ottaminen ei ole enää hetkeen

ko jelpia”, kuvailee Sarkinen. ”Kun oli keskustassa ratikkatyömaa, niin työmaalta saattoi työntekijäkin tulla avuksi”, Ågren kiittää.

TESTAA AR-TEHOS

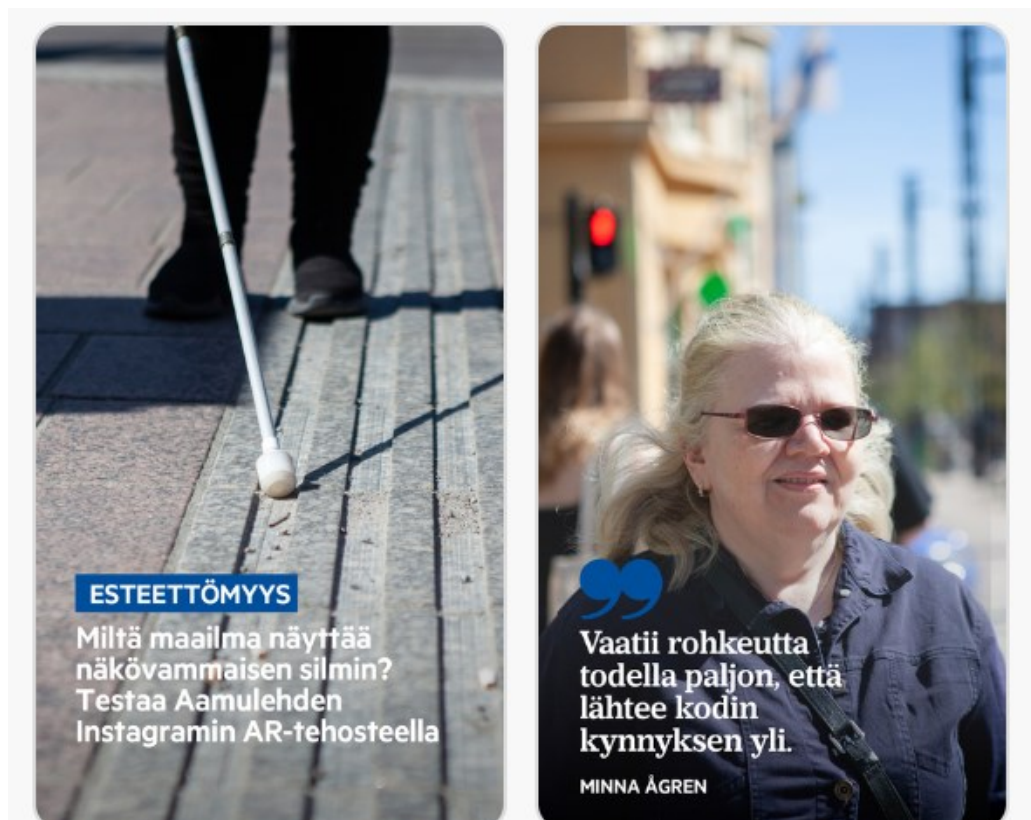
MILTÄ maailma näyttää näkövammaisen silmin? Kokeile Aamulehden Instagramin lisätyn todellisuuden eli AR-tehosteella.

Osoita viereistä QR-koodia puhelimesi kameralla ja seuraa ohjeita.



Picture 5. QR code directing print paper readers to the teaser story about the AR content on Instagram.

Aamulehti uses consistently Instagram stories to promote new articles or live streams. I made the images for the stories about both the main article and the AR content and they were published the same day than the articles on the website of the Aamulehti and the AR content on Instagram.



Picture 6. Instagram stories about the AR content and the main story. Links to the content were added when published on Instagram.

5.1.3 Reflecting the Pilot Project

Statistically, the AR pilot in Aamulehti was quite successful. According to the statistics gathered from Meta Spark, from May 18th to June 5th there were 1913 users. The average time to use the AR content was 57 seconds. Högmänder estimates that the time of use is good, a lot longer than usually in Aamulehti's Instagram content (Airo et al. 2023). 63 % of the users were female. 55 % of the users were under the age of 35. Based on this pilot, the AR content published on Instagram could be a potential tool for reaching younger audiences.

To gather feedback about the AR pilot I conducted a focus group interview in Aamulehti. The goal was to examine the work process and the end result, how the AR content was perceived and does it have journalistic value. Another interesting goal for the conversation was to innovate new ways how we can improve the creative process of visual stories; how can we spot the opportunities to be visually creative with AR or other ways. I invited people who work closely

with the planning of the news articles and journalism in general in Aamulehti: Tatu Airo, News Editor, Kimmo Koski, Managing Editor, Elina Laurila, Producer, Högmänder, and Tammi. I led the conversation with themes mentioned above and reflect the results.

The biggest value of the AR content was seen in the way the AR helped the user to understand a topic more deeply with visual effects. The group thought that the AR content helped the users to empathize with people who might deal with visual impairments. Tammi mentioned that a great merit was also how the subject and the use came together in the AR content: a very visual effect to demonstrate visual impairments (Airo et al. 2023). Högmänder appreciated how the pilot succeeded in choosing the right method of telling each part of the story (Airo et al. 2023).

AR pilot was published on Instagram because Aamulehti's platforms do not support publishing AR content. This was seen as an annoying but necessary factor by the group. The goal is to keep the reader on Aamulehti's platform, but Högmänder said that it is beneficial to test and learn what works with AR even if we have to use Instagram (Airo et al. 2023). Members of the group had not encountered any technical problems with the content. Some had found the AR content via Instagram stories, some through the teaser story published on the Aamulehti's website. Both ways had worked well. As an improvement Högmänder suggested that the Instagram story promoting the AR content could be more different from the usual stories Aamulehti posts so the user would notice the specialty of the content (Airo et al. 2023). Now the Instagram story followed the visual appearance of other Aamulehti's stories. On the other hand, it was seen as a positive thing that the AR content seemed familiar to the Aamulehti reader.



Picture 7. Aamulehti's Instagram story about the AR pilot. This also included a link to the content.

Members of the focus group did not need more instructions than there was in the teaser story or in the actual AR content to use it. Elina Laurila mentioned that when publishing this kind of new media content on Instagram it could be also expected that the readers who are interested to use it are already quite familiar with technology and Instagram and thus do not need too many instructions and explanations (Airo et al. 2023).

The focus group interviewees thought that the AR content had journalistic value. Tammi mentioned as a journalistic merit the way the AR content made a specific topic more understandable (Airo et al. 2023). Airo said that when all parts of the pilot project, including the long story, pictures, graphics, were very well made journalism, he does not see any reasons why also the AR content would not be journalism. Airo explains that the AR content was a storytelling method that gave more information but also an experience. (Airo et al. 2023.) The group saw also a great value in the fact that users enjoy themselves and have the wow experience. It leaves a different kind of remembrance, Tammi says (Airo et al. 2023). Högmander mentioned that VR and AR have great potential in creating

experiences and emotions, and Aamulehti's AR pilot succeeded in both (Airo et al. 2023).

The focus group did not see a major problem in the fact that all readers do not have access to the AR content because of device or other limitations. Högmänder explained that user profile in Aamulehti's Instagram is quite young, and that is the audience Aamulehti might not reach in other platforms. Aamulehti has made a decision that some of the data journalism content is only accessible online, and the same principle can be applied to the AR content published on Instagram, Högmänder says. The AR content on Instagram has also a role in building the Aamulehti brand and demonstrates the journalism and storytelling of Aamulehti, and thus it has its own value, she adds. (Airo et al. 2023.) Airo says that in this AR pilot, the content is interesting and complete also without the AR content. Airo says that it might need a different evaluation process if a crucial part of a story would be published in a form that all users do not have access to, but Högmänder argues that also that kind of test with AR could be done if the workload would not be too big and the idea was good. (Airo et al. 2023.)

The focus group interviewees collectively recognized that packaging the story the best way and noticing the potential for visual stories is a challenging part of producing a journalistic story. Laurila mentions that in her opinion the best way to produce new AR content is to come up an idea for the AR first. If the AR content is added on top of an existing project it could feel forced, she says. (Airo et al. 2023.) Koski says that AR is a quite challenging storytelling method to truly be able to give something worth the effort (Airo et al. 2023). Högmänder reminds that in all story producing the best way to package news should be considered well in the beginning. That way also great potential for AR content could be recognized, she says. (Airo et al. 2023.) Airo tells that in the everyday work it is quite easy to become stuck only to text and pictures, more open-mindedness would be needed. One solution to the problem could be a library of examples of all the storytelling methods and technologies that are possible to use in Aamulehti. Different ways to tell the story are quite quickly forgotten, says Tammi. If there was a library of story concepts and technologies, it would be easier to find a suitable way to package a new story, and there would be no need to start all

over the producing and designing every time from the beginning, Tammi explains. (Airo et al. 2023.)

5.1.4 Reflecting from the Creator's Perspective

From the creator's perspective, the AR pilot was very successful. I started the process with a goal to produce and publish AR content, and the idea for the story came quite naturally. Most time-consuming parts were the interviews and collecting and editing information. After writing notes about interviews and editing the collected information I found it very useful to assess the whole picture and evaluate what would be the best way to package the story. In this part it was easy to drop from the text all the information that could be better presented in the pictures, fact boxes, graphics or AR content. The other time consuming part was learning the use of Meta Spark Studio, but for this pilot I studied only the minimum skills to use the tool for executing what I wanted.

Fine-tuning the AR content took surprisingly long. This part of the process will become easier after creating more AR content because the basic elements and adjustments can be learnt and done to all content in the beginning.

A good amount of effort and time need to be dedicated also to the so called selling the story, the teaser story and Instagram and other social media content. As Högmander suggested (Airo et al. 2023), it would be a good idea to make the social media content to truly stand out from the regular content. For the future it could be discussed in Aamulehti how the AR content is branded to stand out but also to be recognized as Aamulehti content. This branding can include the small icons that are visible on the app when using the AR filter, fonts and colors, how the teasers and Instagram stories are made and what pictures are used in them.

This pilot tested the process of creating journalistic AR, and publishing Aamulehti content in other platform than its own. Quite many people found the content and seemed to be interested in it considering the time that was spent on the AR content. In my opinion, the process of creating journalistic AR can be done again. The pilot project gave valuable information that can help to create new content

more fluently. The biggest obstacle is to come up with new ideas for the AR content, that is suitable specifically to AR, creates the wow factor and fulfills the readers' expectations.

6 DISCUSSION

The purpose of my thesis was to take a closer look at the journalistic use of AR and how could Aamulehti create AR content. My conclusion is that AR is a potential tool for journalism and there are no profound obstacles to its use. Although to reach its full and best potential, AR content needs to be well planned, justified, and executed.

The greatest benefits of AR as a tool in journalism are related to AR's immersive qualities. Immersive journalism can give an experience of presence, capture the attention of users, make journalism more relevant, and create a feeling of an emotional connection (Gynnild et al. 2021, 2-3). AR content enables greater interactivity with information (Tejedor-Calvo et al. 2020, 6). These qualities can help a news media company to stand out, find new audiences, and create a more meaningful relationship with its readers. According to Nielsen and Sheets, empathy and emotion can be important reasons to use immersive journalism (Nielsen & Sheets 2021, 2645). To reach the best impact, the AR content needs to be good quality. The quality of the sound and visuals are important factors to create the sense of presence and immersion (Sirkkunen et al. 2021, 18). All in all, AR can be a great tool for including in a news media company's arsenal.

Some disadvantages or challenges are that the execution might need an external platform, and creating the idea for the needed wow factor is difficult and sometimes time-consuming. As Saarinen (2023) explains, there is a learning period in the creative process when starting to use a new technology. The more we get used to seeing journalistic AR content the more naturally we can create new ideas and recognize good opportunities to use it. Aamulehti is now at the very beginning of that process which means that creating new AR content can demand a lot of effort and work.

As there is still quite little journalistic AR content published in Finland, there is a great possibility to be innovative and forward thinking. Visual content is more commonly mentioned when talking about AR than haptic content (Tejedor-Calvo et al. 2020, 2). Creating haptic AR content would be a good next step for Aamulehti, as it is truly something unique that is possible with AR.

This pilot project also highlighted the benefits of packaging the story well. Högmänder appreciated how the pilot succeeded in choosing the right method of telling each part of the story (Airo et al. 2023). Aamulehti might benefit from discussing further the current practices of packaging the stories and how the process might be improved to recognize all the opportunities.

At least for the near future it seems that Aamulehti will have to use an external platform to create and publish AR content. Using external platforms means that the pros and cons of the process need to be examined. From the point of view of data safety, Instagram has passed the evaluation (Saarinen 2023). Using Instagram does not only provide a technical platform but also the updated and quality tool for editing the content, the Meta Spark Studio, which is a big benefit. Instagram is commonly used by Aamulehti so it is quite natural to publish also AR content on Instagram. Högmänder emphasizes that it is beneficial to test and learn what works with AR even if we have to use Instagram (Airo et al. 2023). The next steps would be to create a consistent visual brand for the Aamulehti AR content so it would stand out but also be recognized as Aamulehti content.

When AR is used as a tool in journalism, all the journalism ideals and ethical rules apply to the content created. This can affect to what is published and how it is done. For example visual material is expected to be accurate, authentic and verified (Aitamurto et al. 2022, 1284; Uskali & Ikonen 2021, 53). The existing rules can be applied also to AR content, but some of AR's features might induce the need for further developing the ethical rules. The immersive qualities can be an effective and powerful tool, but power comes with responsibilities. Could there be a need to use content warnings more often with immersive journalism than with traditional journalism? As empathy is often important in immersive journalism, the question of impartiality in news is brought up (Uskali et al. 2021, 86-87; Beckett & Deuze 2016, 1). Journalists need to be careful not to sacrifice objectivity in the process of creating an emotional story.

When talking about ethics of how to publish the AR content, the digital divide is an essential problem. Even if Finland has statistically a good coverage of internet connection and major part of public has access to internet, there are still people who do not have the access or the devices. Kivimäki (2022) offers a solution that if someone cannot access the AR content, the journalistic point should come

across also, for example, in text form on the website. Airo says that in Aamulehti's AR pilot, the content is interesting and complete also without the AR content, but it might need a different evaluation process if a crucial part of a story would be published in a form that all users do not have access to (Airo et al. 2023). On the other hand, also other forms of publishing content, text, pictures, videos etc., are not always accessible to everyone. This could be because of the challenges of the user or of the platform. Because of the technical qualities of the platforms, Aamulehti has made a decision that some of the data journalism content is only accessible online and not published on print paper, and the same principle can be applied to the AR content published on Instagram, Högmander says (Airo et al. 2023). The fact that AR content is not accessible to all is nevertheless an important factor to keep in mind when creating the AR content, but in my opinion it does not prevent a media company from publishing AR content altogether. I believe there is a lot of great potential in AR for Aamulehti and it can be a good tool for being creative and surprising.

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APPENDICES

Appendix1. Semi-structured interview 1

Hannu Kivimäki. Time and place: 27.10. Tampere

language: finnish

Permission to record the interview

Permission to publish the interviewees name

Interviewee: Hannu Kivimäki, Interviewer: Laura Okkonen

Purpose of the research: Explained briefly via email

Question segment 1: Background

What is your experience with AR? How about AR in journalistic use?

Making and consuming

Question segment 2: Technical

Best practices in doing AR?

What to avoid?

Experience in publishing in different platforms?

Question segment 3: Ethical

Collecting data

Inclusivity

Appendix 2. Semi-structured interview 2

Semi-structured interview

Time and place:

14.12. klo 13.40-14.30, Helsinki

language: finnish

Permission to record the interview

Permission to publish the interviewees name

Interviewee: Juhani Saarinen
Okkonen

Interviewer: Laura

education and profession: Data editor at Helsingin Sanomat

Purpose of the research: Explained briefly via Slack-message

Question segment 1: Background

What is your experience with AR? How about AR in journalistic use?

Making and consuming

Question segment 2: Technical

What needs to be considered when using AR in newsroom?

What steps have already been done?

How do you see the future of AR in newsrooms?

What are the most interesting reasons to use AR in journalism?

What are the biggest obstacles for using AR in journalism?

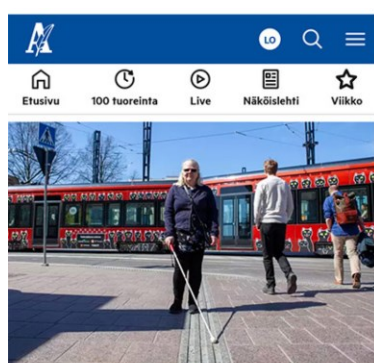
Question segment 3: Ethical

Collecting data

Inclusivity

Other ethical thoughts

Appendix 3. Screenshot of the main article



Minna Ägren on asunut seitsemän vuotta Tampereella, sitä ennen kolmenkymmentä vuotta Helsingissä. Ensireaktio Tampereella oli, että täällä on ihanan helppo liikkua, liikennevaloissa useissa risteyksissä, Ägren kuvailee.

KUVA: LAURA OKKONEN / AAMULEHTI

Kuulon ja kosketuksen varassa

Pirkanmaalla on yli tuhat ihmistä, joilla voi olla vaikeuksia kulkea Tampereen Hämeenkadulla. Nyt asiaan on tulossa merkittävä muutos.

★ TILAAJILLE



Laura Okkonen
18.5. 6:00

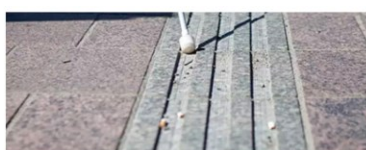
Aamulehti

VALKOISEN kepin pää napsahtaa uraan. Keppi työntyy edellä rahisten kiinni harmaan laatan syvennyksessä. Tätä harmaata laattaa on tullut tallattua varmasti satoja kertoja ilman, että ymmärtää sen merkityksen. Muutaman metrin päässä kepin pää kopsahtaa jälleen, kohdalla on urien risteys. Naps, olemme perillä. Tähän kohtaan pysähtyvät saapuvan ratikan ovet – toivottavasti.

”Tampereella olen asunut nyt seitsemän vuotta, tämä on vielä minulle vähän uusi kaupunki,” kertoo **Minna Ägren**.

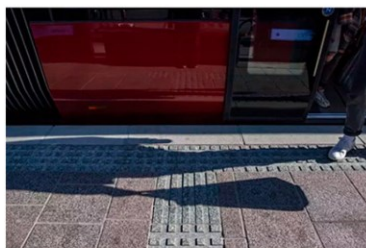
Ratikan lähestymisen Ägren kuulee ennen minua, pitkä kokemus on hänet harjaannuttanut. ”Kun olen heikkonäköinen, en osaa käyttää kuuloa kuitenkaan yhtä hyvin kuin täysin sokea voi osata.”

Valtava osa informaatiosta, jota käytämme kaupungin kaduilla liikkumiseen, on visuaalista. Kun näköaisti heikkenee tai jää kokonaan pois pelistä, kehittyä omanlainen tapa hahmottaa maailmaa. Ägren kertoo, että hän näkee värejä, valoja ja hahmoja, mutta nopeita havaintoja edellyttävässä kaupunkikuvassa toiset aistit ovat hyödyllisempiä: ”Kadut ylittän kuulon perusteella. Ja sitten on valkoinen keppi, jolla liikun periaatteessa tunto- ja kuuloaistin varassa.”



Valkoisia keppejä on erilaisia. Pitkää keppiä käytetään muun muassa reitin tunnusteluun, lyhyempi malli voi olla vain merkinä siitä, että käyttäjä on näkövammainen.

KUVA: LAURA OKKONEN



Opastelaattojen risteys ratikkapsäkillä kertoo, mihin raitiovaunun oven voi odottaa pysähtyvän. Ihan aina tämä ei onnistu. KUVA: LAURA OKKONEN

Keppi auttaa Ägrenia erottamaan esimerkiksi tasoeroja. Tampereen ratikkapsäkeiltä sekä raitiovaunujen sisältä löytyy myös omia opastinkuvioita valkoista keppiä käyttäville. Sellaisen varrelta mekin löysimme juuri raitiovaunun kyytiin. Vain kuukausi sitten, takatalven lumipyryn keskellä, tilanne olisi ollut eri.

”Kun on tullut kymmenen senttiä lunta, niin on kuin kepillä puuroa hämmettäisi. Joku on verrannut osuvasti, että lumipyryn jälkeinen tila on näkövammaiselle kuin sakea sumu on näkeväälle.”

Samalla lumi vaimentaa äänimaailman. On myös aivan eri asia ylittää katuja kovalla tuulella tai kun työkone jylisee taustalla, Ägren kertoo.

TAUSTA

Näkövammaisuus Pirkanmaalla

Pirkanmaan sairaanhoitopiirin alueelta näkövammarekisterissä on 1331 henkilöä, joista 61 prosenttia naisia.

Noi 70 prosenttia näkövammaisista on yli 65-vuotiaita.

Yleisin diagnoosi silmäpohjan rappeuma (AMD), toiseksi suurin ryhmä on tarkemmin määrittämätön heikkonäköisyys ja kolmantena retinan rappeumasairaus retinitis pigmentosa.

Pirkanmaa ei tee poikkeusta rekisterin peruskuvassa, eli ikääntyneitä on paljon ja diagnoosit ovat yleisimmät.

Valtakunnallisesti keskimääräinen näkövammautumisikä on 84 vuotta.

Rekisterin 40 vuoden ylläpidon aikana täydellinen sokeus on vähentynyt ja heikkonäköisyyden osuus kasvanut.

18.5. vietettiin saavutettavuuden ja esteettömyyden päivää

18.5. vietettiin saavutettavuuden ja esteettömyyden päivää.

Lähde: Näkövammarekisteri 31.12.2021

Pirkanmaan sairaanhoitopiirin alueella on tällä hetkellä hieman yli 1 300 näkövammaista. Valtaosa, noin 70 prosenttia, heistä on yli 65-vuotiaita. Näkövammaisten liiton oikeuksienvalvonnan asiantuntijana Minna Ägren on erityisen huolissaan ikäihmisistä, jotka ovat voineet elää 70–80 vuotta normaalisti näkevinä, mutta menettävätkin näkönsä esimerkiksi hoitamattomana nopeasti etenevän koston silmäpohjan rappeuman takia. ”On voinut vaikka vielä kaksi kuukautta sitten ajaa autoa. Se on iso sopeutumisen paikka.”

Kun näkövammaisena kaupungissa liikkumisesta kertoo tavallisesti näkeväälle, on usein lähde aivan A:sta liikkeelle, toteaa näkövammaisten liikkumistaidon ohjaaja **Tuija Seppänen**. ”Näkövamma ei ole yksi ainoa asia, vaan niitä on niin monenlaisia.”

Täydellinen sokeus on yksi ilmenemismuodoista, mutta se on Suomessa harvinaista. Suurin osa näkövammaisista on eriasteisesti heikkonäköisiä.

Lue lisää: Miltä maailma näyttää näkövammaisen silmin? Testaa Aamulehden Instagramin AR-tehosteella

Moninainen joukko

Myös kaupungin suunnittelun kannalta olennainen ymmärrys on ollut se, että jokainen yksilö on erilainen ja omalle liikkumiselle keskeiset asiat nousevat merkitykselliseksi, toteaa Tampereen kaupungin liikenneinsinööri **Katja Seimelä**. Vaikka näkövammaisuudesta puhutaan kokonaisuutena, kaikki näkövammaiset eivät kuitenkaan hyödy samoista ratkaisuista. ”Ongelma on se, että miten yhdellä ratkaisulla voidaan palvella mahdollisimman suurta käyttäjäjoukkoa, ei niinkään se, ettei ymmärrettäisi, että jotkut henkilöt tarvitseva apua liikkumiseen.”

Millaista esteettömyys on Tampereella?

”Toivottavasti koko ajan parempaa. Minun mielestäni esteettömyyteen on vähintään viimeisen viiden vuoden aikana kiinnitetty paljon huomiota.”

”Varmaan ratikka oli sellainen, joka osaltaan nosti tämän kysymyksen aika vahvasti esille.”





Kuvio raitiovaunun lattiasa on apusteena esimerkiksi valkoista keppiä käyttävälle. Avuksi on myös se, että ratikan sisällä tulee kuulutus seuraavasta pysäkestä. Vastaavaa kuulutusta moni toivoo myös busseihin sekä ulos pysäkeille. KUVA: LAURA OKKONEN

Yksi Tampereella liikkumisen ja esteettömyydenkin näkökulmasta kuuma aihe on Hämeenkatu. Se nousee myös Seimelällä ensimmäisenä mieleen, kun puhutaan meneillään olevasta kehityksestä esteettömyyden näkökulmasta. ”Hämeenkatu meitä pohdittua koko ajan. Tavoitteet olivat korkealla, että on jalankulun ympäristöä ja esteetöntä ympäristöä. Sitten kuitenkin toteutuksessa on ehkä muut arvot menneet vähän edelle”, Seimelä pohtii.

Keskustan murheet

Hämeenkatuun kiteytyy monta esteettömyyden näkökulmaa, niin hyvää kuin huonoa, myös Tampereen seudun näkövammaiset ry:n esteettömyystyöryhmän puheenjohtajan **Ossi Särkisen** ja ohjaaja Tuija Seppänen mielestä.

Ossi Särkinen kulkee nyt 37. vuotta opaskoiran kanssa. Keskustan ruutukaava helpottaa kulkua, mutta uuden Hämeenkadun kanssa on vastaan tullut ongelmia. Ensimmäinen niistä on Särkiselle helppo nimetä: ylityspaikat. ”Ne ovat näkövammaisille suorastaan vaarallisia.”

Käytännössä seurauksena on, että Hämeenkadun ylitykseen on etsittävä aina lähin valoristeys. Niitä on suhteellisen harvassa matkalla rautatieasemalta Metson pääkirjastolle. Pisimmillään matka valoristeysten välillä on Särkisen laskelmien mukaan noin 270 metriä. Matkaan saattaa tulla pitkäkin lenkki.



Ikäkkäämmälle, ehkä rollaattorin kanssa jo liikkuvalla, muutos on ollut erityisen hankala, muistuttaa Minna Ägren. Pahimmillaan liikkumisen hankaluus saa pysymään kotona. ”Näkövammaisen ei välttämättä edes halua lähteä liikkumaan sinne, kun se on niin paljon hankalampaa. Se lisää liikkumattomuutta ja siinä on taas isommat asiat kyseessä”, Tuija Seppänen toteaa.

Kadun ylityksissä myös suojateiden merkinnät vaihtelevat. Tutuin on valkoinen viivoitus, mutta suojatiestä saattavat kertoa myös erivärinen kiveys tai pelkkä liikennemerkki. Niiden huomaaminen voi olla heikkonäköiselle erittäin hankalaa. ”Kiveyksen väri on myös koiralle suorastaan hankala ja mahdoton”, Ossi Särkinen lisää.



Kuninkaankadun ja Puutarhakadun risteyksessä suojatie on merkitty harmaalla kiveyksellä. Sen erottaminen ajoväylästä voi olla erittäin hankalaa heikkonäköiselle. Suojatie näkyy kuvassa vasemmassa laidassa. KUVA: LAURA OKKONEN

Oli paikalla sitten suojatie tai ylityspaikka, usein Tampereen keskustassa jalankulkija joutuu ylittämään pyöräkaistan päästäkseen tien yli. ”Ne ovat näkevillekin aikamoisia paikkoja”, Tuija Seppänen toteaa. ”Ja kun löydät varoitavan laattarivin ylityspaikalta, pitää vetäytyä taaksepäin, ettei raitiovaunu aja jaloille, ja sitten on taas pyöräilijän tiellä”, lisää Ossi Särkinen.



Varoituslaatat eli noppakivet kertovat näkövammaiselle, mistä kohtaa ajorata alkaa. Tässä kohtaa Hämeenkadun ylityspaikalla pyöräkaista kulkee aivan noppalaattojen vierestä. KUVA: LAURA OKKONEN

Toisaalta taas toisia palvelevat ratkaisut eivät ole avuksi kaikille. ”Rotvalliin oleminen on ikuinen kysymys. Näkövammaiset tarvitsevat rotvalliin, jotta hoksavat missä voi seistä odottamassa kadun ylitystä, mutta ymmärrän myös pyöräilijöitä, rollaattorin käyttäjiä ja lastenvaunujen kanssa meneviä, että ne rotvallit on hankalia”, Seppänen kertoo.



Kesä tuo taas terrassit keskustan katukuvaan. Niiden aidolla on iso merkitys, sillä valkoisen kepin kanssa kulkeva tarvitsee kiinteän esteen johon keppi kolahtaa. Keppi voi luiskahtaa pitkällekin pelkän köyden ali. Köysiaitauksia ei ole kuitenkaan kielletty esimerkiksi Hämeenkadun terrassiohjeissa. KUVA: LAURA OKKONEN

”Hämeenkatu kaikille”

Hämeenkatu halutaan kuitenkin kehittää. ”Viime vuonna tehtiin Hämeenkatu kaikille -projekti. Siinä erilaisten käyttäjäryhmien – ikäihmisten, näkövammaisten, pyörätuolilla ja lastenvaunujen kanssa liikkuvien – kanssa havainnointiin ongelmia maastokävelyillä”, Katja Seimelä kertoo.

Selvitysvaihe valmistui ja seuraavaksi kaupungilla tehdään toimenpide-ehdotuksia. Ensimmäisiä konkreettisia muutoksia on jo tehty: Hämeenkadun pyörätiet saavat suojaamaalaukset.



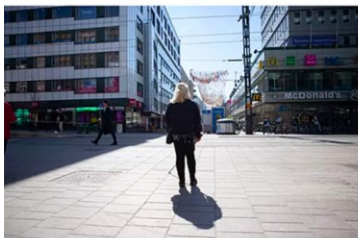
Hämeenkadun suojatie Keskustorin liepeillä on jo saanut valkoisen massamerkin. Se muistuttaa pyörätiellä kulkevia väistämään jalankulkijoita. KUVA: LAURA OKKONEN

Maalauksilla halutaan ratkaista epäselvä väistämisoikeus: ne muistuttavat pyöräilijöitä väistämään jalankulkijoita kyseisissä kohdissa. Luonnonkivien massamerkinä ei ole välttämättä lopullinen ratkaisu, mutta sillä päästään ainakin alkuun, Seimelä toteaa.

Ylitiskiä hankaluu ja toive suojaiteista nousi esiin tässäkin projektissa. Ongelma nostetaan pöydälle, Seimelä lupaa. "Kesän jälkeen viimeistään aloitetaan ratikan ja muiden osapuolten kanssa keskustelut, onko mahdollista lisätä suojaiteita Hämeenkadulle."

Samalla esteettömyys on koko ajan ajankohtaista kaupungin kehityksessä. Rakentamista ohjaa kaupungin esteettömyyden erikoistalon tavoiteverkko. Se päivitettiin vuoden 2021 lopussa. "Koko keskusta kuuluu korkeimpaan luokkaan, eli aina kun täällä rakennetaan, pyritään tekemään erikoistalon mukaisia ratkaisuja."

Ratkaisut tarkoittavat muun muassa niin näkövammaisille kuin pyöräapuvälineillä liikkuville sopivia kadun reunoja ja jalankulun erottamista pyöräliikenteestä. "Ohjeiden mukaan mennään ja sovelletaan, mitä tilaan mahtuu rakentamaan."



Ylitiskiä ovat hengenvaarallisia näkövammaisille, sanoo Minna Ägren. KUVA: LAURA OKKONEN

Esteettömyyden huomioon ottaminen ei ole enää hetken ollut mitenkään poikkeuksellista kaupungin työssä, Seimelä toteaa. Esimerkiksi liikennevalosuunnittelusta käydään säännöllisesti keskusteluita Tampereen seudun Näkövammaiset ry:n edustajien kanssa.

Seimelä kuvailee esteettömyyden muuttuneen vuosien aikana "kuumasta jutusta" suunnittelun arkipäiväiseksi osaksi. "Voi pitää hyvänäkin asiana, että se ei ole enää mikään hurmosjuttu,

johon satunnaisissa hankkeissa panostetaan, vaan se huomioidaan lähtökohtaisesti kaikissa suunnitelmissa."

Seuraava kehityskaskel voisi olla ohjeiden ja käytäntöjen yhtenäistäminen valtakunnallisella tasolla. Seimelä kertoo, että monet kaupungit ovat tehneet omia ohjeitaan, ja ohjeet poikkeavat toisistaan. Ohjeiden kehitys näkyy kerroksellisuutena Tampereen kaupungin sisälläkin, kun vanhat ratkaisut jäävät ympäristöön. "Kun henkilöt liikkuvat ympäri Suomea ja maailmaa, on aina uudet asiat opiskeltavana."

"Vaatii rohkeutta"

Ratikkapysäkin takaa jylistää rekka, joka tööttää yllättäen. Kova ääni hätkäyttää ja hämmentää: tapahtuiko jotain vaarallista ja uhkaako se minua? "Sitä jää miettimään, mitä tapahtui," Minna Ägren kertoo.

Opiskelu, muisti ja rohkeus – siinä kolme olennaista taitoa, joita näkövammaisena kaupungilla liikkuminen vaatii, Ägren kertoo. "Vaatii rohkeutta todella paljon, että lähtee kodin kynnyksen yli. Mitä myöhemmin elämässä vammautuu, sitä vaikeampaa se on."



Rohkeus kasvaa liikkumalla, Minna Ägren neuvoo. Myös vertaistuen piiriin hakeutuminen voi antaa rohkeutta: "Kun näkee, että hänkin liikkuu, minäkin voisin liikkua." KUVA: LAURA OKKONEN

Kokemuksilla on valtava vaikutus. "Jos joku tiuskaisee jotain, jos jätät auton alle tai pyörän töytäisemäksi, syntyy psyykkisiä esteitä, joiden jälkeen joutuu taas kokoamaan itsensä. Hakemaan uskallusta reittien opetteluun ja kodin kynnyksen ylittämiseen", Ägren huomauttaa.

Tamperelaisista kanssakulkijoista niin Ägrenillä, Särkisellä kuin Seppäsellä on kuitenkin hyvää sanottavaa. "Oma kokemukseni on, että keskimääräisesti olen saanut hyvin apua ja asiallisesti on tultu kysymään, tarvitko jolppia", kuvailee Särkinen. "Kun oli keskustassa ratikkatyömaa, niin työmaalta saattoi työntekijäkin tulla avuksi", Ägren kiittää.

APUNA NÄKÖVAMMAISELLE

Miten voi olla avuksi liikenteessä?



Näkövammaisen voi tunnistaa valkoisesta kepeistä, valkoisesta kävelykepeistä tai näkövammaismerkistä (kuvassa). KUVA: TAMPEREEN SEUDUN NÄKÖVAMMAISET RY

1. Kysy, tarvitseeko henkilö apua. Mene kysymyksen kanssa lähelle, jotta näkövammaisen ymmärtää sinun puhuvan juuri hänelle. Voit myös koskettaa kämmenselällä kevyesti olkavarteen huomion herättämiseksi. Älä ota kiinni, tiukka tarttuminen voi olla pelottavaa. Puhuttele näkövammaista ihmistä, älä avustajaa tai opaskoiraa.

2. Tarjoa oma käsivarsi opastaessa. Näkövammaisen tarttuu sinua käsivarresta. Älä työnnä ohjattavaa edelle tai raahaa perässä, se ei ole turvallista.

3. Kerro ennen kuin poistut, jotta näkövammaisen seuralaisesi tietää sinun lähteneen.

4. Muista, että olemme kaikki ihmisiä. Aina avun tarjoaminen ei tule hyvällä hetkellä ja vastaus voikin olla negatiivinen.

Oho! Be my eyes -sovellus yhdistää näkövammaisia ja vapaaehtoisia maailmanlaajuisesti. Ilmaisella sovelluksella näkövammaisen voi videopuhelun kautta pyytää apua näkevältä. Tilanteesta voi olla kyse esimerkiksi katukylttien lukemisesta tai villapaidan värin kertomisesta. Be my eyes toimii myös suomeksi. Sovelluksella on lähes 500 000 näkövammaista käyttäjää ja yli 6,5 miljoonaa vapaaehtoista.

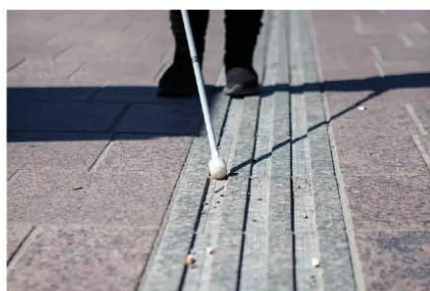
Lähde: Minna Ägren, Näkövammaisten liitto

Appendix 4. Screenshot of the teaser article

Uutiset

Miltä maailma näyttää näkövammaisen silmin? Testaa Aamulehden Instagramin AR-tehosteella

Täydellinen sokeus on yksi näkövammojen ilmenemismuodoista, mutta se on Suomessa harvinaista.



Pirkanmaalla on yli tuhat ihmistä, joilla voi olla vaikeuksia kulkea Tampereen Hämeenkadulla. Valtava osa informaatiosta, jota käytämme kaupungin kaduilla liikkumiseen, on visuaalista. Kun näköäisti heikkenee tai jää kokonaan pois pelistä, kehittyy omanlainen tapa hahmottaa maailmaa. KUVA: LAURA OKKONEN / AAMULEHTI

Laura Okkonen

18.5. 6:00

Aamulehti

AAMULEHTI haluaa näyttää, millainen maailma on näkövammaisen silmin.

Kun näkövammaisena kaupungissa liikkumisesta kertoo tavallisesti näkeville, on usein lähdeittävä aivan A:sta liikkeelle, toteaa näkövammaisten liikkumistaidon ohjaaja **Tuija Seppänen**. ”Näkövamma ei ole yksi ainoa asia, vaan niitä on niin monenlaisia.”

Nyt voit kokeilla Aamulehden luomalla lisätyn todellisuuden eli AR-tehosteella, miten erilaiset näkövammaat voivat vaikuttaa näköön. Instagramista löydät tietoisuuden kuudesta erilaisesta näkövammasta ja tehosteen, jonka läpi katsella maailmaa. Sinulla pitää olla puhelimellasi Instagram-sovellus, jotta voit käyttää tehosteita.

[Aamulehden tehosteen löydät mobiililaitteella täältä.](#)

Ei aina edes samalla tavalla

Täydellinen sokeus on yksi ilmenemismuodoista, mutta se on Suomessa harvinaista. Suurin osa

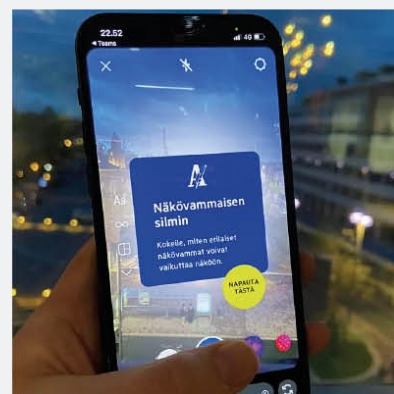
näkövammaisista on eriasteisesti heikkonäköisiä. Yleisin on silmänpohjan rappeuma, jonka seurauksena näkökentän keskiosalla ei näe kunnolla. Tiettyt sairaudet taas voivat aiheuttaa näkökenttään sumenemia tai pimenemiä, mikä tekee näkökentästä epätasaisen. Joissakin tapauksissa näkö katoaa näkökentän laidoilta.

Näkövammaisuus ei välttämättä tarkoita sitäkään, että kaikissa tilanteissa näkee samalla tavalla. ”On esimerkiksi niin sanotusti päiväsokeita, joka tarkoittaa, että kirkas päivänvalo häikäisee niin paljon, ettei ihminen kerta kaikkiaan näe mitään, mutta saattaa olla sen verran näkökykyä jäljellä josta on liikkumiseen hyötyä hämärällä”, selventää **Ossi Särkinen**, Tampereen seudun näkövammaiset ry:n esteettömyystyöryhmän puheenjohtaja.

”Sitten on taas toinen puoli, hämäräsokeus, jossa vähänkin kun valotaso laskee, niin ei enää näe. Tällaisen moninaisuuden kanssa liikutaan”, lisää Tuija Seppänen.

MITÄ?

Näin käytät tehostetta



KUVA: LAURA OKKONEN / AAMULEHTI

Mistä tehoste löytyy? Aamulehden Instagram-profiilista, tehosteet-valikosta tai mobiililaitteella [tästä linkistä](#).

Pitääkö olla Instagram-tunnus? Kyllä, ja kirjautuneena sisään Instagramiin.

Miten AR-tehostetta käytetään? Tehoste avautuu instagramin kameraan tarina-näkymään. Napauttamalla kuvaa voit siirtyä tehosteesta toiseen. Voit ottaa myös videota tai julkaista kuvan omassa Instagramissasi käyttäen tehostetta.