ARCADA

A comparison of advertisement in print and online – An eye tracking study of a magazine

Case study: Juoksija-lehti

Sakari Anttila

Abstract:	
This thesis compares how readers view the advertisement in a Finnish running magazine's (Juoksija-lehti) print version and digital version. The two magazine formats have identical layout. The study also has the additional objectives of finding out which magazine format the respondents preferred and if there are differences between how readers of the magazine and non-readers view the ads. The study was comissioned by Juoksija magazine's personnel, who found that there was a need for the study, because of the changes in the field of advertising. It has become increasingly harder to attract advertisers to the print magazine as many of them find the digital possibilities and channels more appealing. The theoretical background was based on existing literature and relevant online sources. The study uses quantitative and qualitative methods as the data was collected with the use of eye tracking and interviews. The videos collected by eye tracking glasses were analyzed with a software. The gaze plots showed that the print version had 24,8% more individual eye fixations on the advertisement than the digital one. The total time spent viewing the advertisement was 13% longer in the print magazine. The heat map results showed that most of the main focus was on the article headlines and text in both formats. 10 out of 12 respondents preferred the print version over the digital one. There were no major differences in the viewing of ads between the readers and non-readers. The main conclusions are that the ads in the print version gain more attention value and that the print is the preferred reading experience. The managerial implications based on this are that the print version should be taken good care of (it produces 70% of the income currently) and developed along with their new upcoming interactive digital magazine and web environment. This hybrid strategy can help the magazine in the future.	

OPINNÄYTE	
Arcada	
Koulutusohjelma:	International Business
Tunnistenumero:	7190
Tekijä:	Sakari Anttila
Työn nimi:	Mainosten vertailu printissä ja digitaalisessa – Aikakauslehden eye tracking-tutkimus – Juoksija-lehti
Työn ohjaaja (Arcada):	Niklas Eriksson
Toimeksiantaja:	Juoksija-lehti (Kustannus Oy Juoksija)

Tiivistelmä:

Tämä opinnäytetyö vertaa sitä, kuinka lukijat katsovat mainoksia Juoksija-lehden printti-lehdessä ja sen digitaalisessa näköispainoksessa. Tutkimuksella on tämän lisäksi ylimää-räisenä tavoitteena selvittää, kummasta lehden formaatista koehenkilöt pitivät enemmän, sekä tutkia löytyykö lehden lukijoiden ja ei-lukijoiden välillä eroja mainosten katsomi-sessa. Tähän tutkimukseen saatiin toimeksianto Juoksija-lehden hallituksen jäseniltä, jotka kokivat, että tutkimukselle löytyy tarve, johtuen mainonnan alalla tapahtuneista muutok-sista. Mainostajien houkuttelu printtilehteen on vaikeutunut enenevässä määrin, koska mo-net kokevat digitaaliset ratkaisut ja kanavat houkuttelevampina. Opinnäytetyön taustalla oleva teoria perustuu olemassa olevaan kirjallisuuteen ja olennaisiin verkkolähteisiin. Tämä opinnäytetyö käytti sekä kvantitatiivista, että kvalitatiivista tutkimusmenetelmää. Tutkimusdata kerättiin eye tracking -laitteistolla ja haastatteluilla. Eye tracking -laseilla kerätyt videot analysoitiin ohjelmistolla.

Gaze plotit osoittivat, että koehenkilöiden katse kohdistui printtilehdessä oleviin mainok-siin 24,8 % enemmän kuin digitaalisessa versiossa. Mainosten kokonaiskatseluaika oli 13 % pidempi printtilehdessä. Heat mapit näyttivät, että pääasiallinen huomio kohdistui otsi-koihin ja artikkelien teksteihin lehden molemmissa versioissa. 12:sta koehenkilöstä 10 piti enemmän printtilehdestä kuin digitaalisesta versiosta. Lukijoiden ja ei-lukijoiden väliltä ei löytynyt suurempia eroja mainoksien huomioimisessa. Pääasialliset johtopäätökset ovat, että printtilehden mainokset keräävät enemmän huomioarvoa ja että printtilehti on pidetympi lukukokemus. Suositukset toimeksiantajalle ovat, että printtilehdestä kannattaa pitää hyvää huolta (tuottaa tällä hetkellä n. 70% liikevaihdosta) ja sitä kehitetään samalla, kun Juoksijan uusi digitaalinen lehti ja verkkoympäristö ovat kehityksen alla. Tämä hyb-ridi-strategia voi auttaa lehteä tulevaisuudessa.

Avainsanat:	Eye tracking, haastattelu, mainonta, Juoksija-lehti, aikakauslehti, printti, digitaalinen, huomioarvo, vertailu
Sivumäärä:	53
Kieli:	englanti
Hyväksymispäivämäärä:	25.5.2020

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1 INTRODUCTION

Most people of today live in a globalized and in many ways fast paced world. The amount of various information poured on people in different forms is large and the flow of information is constantly seeking new ways to reach people more effectively. Advertising is a big part of this information flow. Advertisers operating in modern media surroundings are repeatedly seeking for new means to make advertisements more effective. According to Mann (2011), there is a continuing competition to gain the attention of consumers, which is a limited resource. Advertisers are able to plan and optimize advertisement design and placement, when having the knowledge of what and where the consumers are gazing at. Eye tracking can be used as a research tool to measure the attention that is given to different advertisements by the consumers, as it records where a person's eyes are looking at (Tobiipro.com, 2019).

The overall changes towards the digital environment have been hitting print journalism considerably, as millions of people are obtaining most of their information from the internet. Advertising revenues in the traditional media have declined during the past several years and the actors in that media field acknowledge this phenomenon. Still, the focus of traditional media should not turn too much towards the internet, as there still are several uses for these methods as well.

According to Hill (2013, cited in Zabkar and Eisend, 2017), online ads are competing with traditional advertisements e.g. radio and print, as in the past few years there have been rapid changes in the advertising and online media field. These changes are presenting advertisers and media also with new challenges, as consumers have become more experienced in ignoring traditional banner advertisement and the use of ad blockers has increased amongst internet users (Adobe, 2015, cited in Zabkar and Eisend, 2017).

1.1 Commissioner and problem statement

Juoksija (Runner) is a Finnish running magazine, that was founded in 1971. In 2017 their circulation was 20 537 and the number of readers was 72 000. The magazine serves primarily as an information source for the readers. They find information regarding their running hobby and endurance sports through articles and advertisement. The latest research on the reading habits and attention value of the ads in Juoksija was made in 2017 as a part of a national media study conducted by Aikakausmedia. The results of a survey from 681 readers of Juoksija showed that 24% of them had positive feelings towards the ads in Juoksija and 46% had quite positive feelings. This sample is national and represents the audience of Juoksija (Aikakausmedia.fi, 2017).

Discussions with the personnel of the magazine showed that, as Europe's most long-lived magazine in this particular field, a study relating to the differences of the print and online versions was considered useful and important for future aspects and development of the advertising. They stated that it has become increasingly harder to attract different companies e.g. sports equipment manufacturers, to advertise their products and services in Juoksija's print magazine, as negotiations with some of the companies have shown. This has been the trend for the past several years in their line of business. This study was seen as an important subject that could help in the development and securing of advertisement revenues in the future. An increasing number of companies want to focus their advertisements solely to digital platforms and this has created challenges for magazines like Juoksija, who still have most of their readers choosing the traditional print magazines. At this moment the digital magazine of Juoksija shares an identical layout with the print magazine, meaning that the ads and articles will appear in both versions and have the same positioning.

The main focus point for this study was set on the comparison of the advertisement on their print magazine and the digital version, as the advertisement sales on the print magazines has decreased over the years widely in journalism field.

1.2 Aim of the study and research questions

The main aim of this study is to use Tobii eye tracker and interviews, to find out which version (print or digital) of Juoksija magazine is better for advertisements, in terms of capturing and holding the attention of the viewers. The magazine board members consider it to be important to find out differences behind the viewing experience and to use this information to their advantage regarding the development and sales of advertisement spots. The assumption by the commissioner was that the ads in the print version attract more attention than the ones in the digital version. This was based on their knowledge of the reading experiences of the readers.

The following research questions were formed for the study, RQ1 being the main one;
RQ1: In which version (print or digital) are the viewers paying more attention to the advertisement?
RQ2: Which version do the respondents prefer and why?
RQ3: Are there differences in the attention towards the advertisement, between the readers of Juoksija magazine and non-readers?

The RQ2 was seen as an interesting question by the commissioner, as the digital magazine is available to the magazine subscribers through their website (www.juoksija-lehti.fi) and has the same layout as the print magazine. They are developing their digital environment and it is important to get insights for the digital magazine form. RQ3 was added later to the list, as the research sample was switched from 12 Juoksija readers to 6 readers and 6 non-readers. The inconvenience of finding a sample consisting only of Juoksija readers created an interesting new angle and research question. It is interesting for the magazine to know if there are differences on how novice readers view the magazine compared to seasoned readers and to hear their thoughts and opinions through interviews.

1.3 Demarcation

This study focuses on the attention value that advertisement gathers in two different platforms in this particular magazine, as the digital environment has affected the world of traditional print magazines. In order to keep the comparison clear and simple and to avoid

too much complexity, comparisons with magazines and content from other publishers was not included in this study. Also the desires of the commissioner, Juoksija magazine, were reasons for this delimitation. They were interested to see the possible differences in the two different formats of their magazine. The digital version of Juoksija magazine is a facsimile. This means that it is a digital copy of the original print magazine and shares an identical layout and it does not have interactive ads or hyperlinks.

1.4 Structure of the study

This eye tracking study is dived into five separate main chapters which are: introduction, literature review, methodology, results (eye tracking and interviews), discussion and conclusions. The thesis includes several subsections under the main sections, that provide information relating to them. The literature review provides insights from previous studies and aims to explain different aspects of advertisements and consumer attention towards them. Next, in the methodology chapter, the study methods are presented, along with the sample, data collection and data analysis. The results chapter presents the key results. The final, discussion and conclusion, chapter summarizes the results and provides conclusions to answer the set research questions. The last chapter also provides managerial implications for Juoksija magazine.

2 LITERATURE REVIEW

The purpose of the literature review chapter is to discuss different aspects of advertising. In this thesis it is by providing the reader with the characteristics of ad placement, print ads and digital ads, visual attention of viewers, banner blindness, human eye and its fixations and neuromarketing.

2.1 Advertising

Advertising is a part of marketing communications. Advertisements include different attributes, such as a message that is visual and/or verbal, delivered via one or several media channels, that has an identifiable sponsor behind it and there is a payment to the media that presents the message, by the sponsor. Jerome McCarthy's marketing mix or the 4Ps

are commonly known marketing tools that he introduced in 1960; product, price, place and promotion. Advertising falls under the promotion category in the marketing mix. It is good to notice that these tools are from the perspective of the seller towards the influencing of customers and that the customers point of view is focused on the benefits that can be delivered. (Kotler, 2003)

According to Etzel, Walker and Stanton (1997), an individual ad has to achieve and maintain the attention of the planned audience and influence them to act in the intended way, regardless of the advertising campaigns goals. It is the most well-known method of promotion, thanks to its comprehensive and penetrating nature (Belch and Belch, 1998). Most companies and organizations use advertising in some form and the fact that considerably large amount of money is used on it points out the significance that advertising has (Etzel, Walker and Stanton, 1997). Statistics show a steady increase in the global advertisement spending. From 2010 to 2018 the amount of U.S. dollars spent on advertising rose from 399 billion to 563 billion (Statista, 2018). According to Belch and Belch (1998), non-personal communication is also a definitive part of advertising, as different mass media channels (magazines, TV etc.) have the possibilities of sending marketing messages to an extensive number of people. Non-personal advertising does not usually allow the sender to receive feedback immediately (direct-response advertising is an exception in this part).

According to Du Plessis (2008) the process that advertising plays with consumers can be simplified by explaining that potentially, people first see an advertisement, which then alters their conception regarding the brand at hand (it can also create a totally new conception, if the brand is not familiar) and they end up purchasing that brand. It should be remembered that people do not pay attention to all commercials, e.g. during a commercial break on a television channel, it is most likely that a viewer is not concentrating on all of the advertisement that are being shown. A more probable scenario is that a consumer will be affected by some elements of a commercial with little acknowledgement of this effect and later on this impression affects their purchasing decision.

2.1.1 Placement of ads in magazines

Most readers of Juoksija magazine do running as a hobby (and other outdoor activities) and make the right target audience for the advertisement of organizations who operate in this field, e.g. marathon organizers, sport accessory manufacturers, sports nutrition providers etc. It is important for advertisers to implement advertisement research in order to increases their chances of reaching the most suitable creative solutions for the ads, but if the advertisement is not placed carefully into the right place where the right target audience can either see or hear it, it has a diminishing possibility to affect and motivate them (Davis, 2012). Advertisers who want to maximize their return on investment (ROI) need to define the right segments for their products and services. This is done by slicing up larger populations into smaller and specialized audiences. When the marketing message is pushed into this kind of a group that has a special interest for the things that the organization provides, instead of a general audience, there is a chance of increasing ROI effectively (AcuityAds Inc., 2017).

Choosing the right channel for a message is important in order to reach the right audiences and taking it one step further is to place it in the right physical spot on a certain media. This can mean e.g. choosing a spot on the magazine spread for the advertisement, that is deemed to be gaining good amounts of attention. There are some contradicting takes and results on this matter.

In a study by JHelske Research (2016, cited in Aikakausmedia.fi, 2017) full page ads (N=2163 ads) on print magazines were noticed on the first section of the magazine by 67%, in the middle part by 66% and by 65% in last section. This is an indicator of systematic reading. According to C&EN Media Group (2017), readers tend to remember the ads that are placed closer to the front part of the magazine better. They argue that the positioning of the advertisement on the right page or on the left page makes no significant differences. Discussions with the commissioner revealed that the right-hand page is often more desired placement by the advertisers in their magazine and in general. This is supported by Bruce (2016) who writes, that when readers are going through a magazine, the gaze of their sight moves naturally from the left, towards the right page and from the upper part to the lower part. It is suggested, that the bottom of the right-hand page is the

best location to place ads on a print magazine. JHelske Research (2016, cited in Aika-kausmedia.fi, 2017) showed contradicting results as full page ads (N=956 ads) placed on the right page gained only 0,6% more attention value over the ones on the left page. Several studies on the positioning in printed newspapers are supporting the same gaze pattern from left to right. They have shown, that most times the first newspaper fixation happens on the right page of the spread and page turning is partially the cause for this (Holmqvist and Wartenberg, 2005). The fixation is a quick one; often a second or less and then the gaze moves to the left and starts to move across the spread towards lower right corner. Holmberg's (2004) study had a low number of gazes on the right page ads and Holmqvist and Wartenberg (2005) ended up with similar results. The left-hand pages of the newspaper spreads were viewed for longer periods of time in Holmberg's (2004) and Leckner's (2007) studies. These study results are in contradiction with the aforementioned claims, that right-hand page is the most effective spot to plant ads in print magazines. However, it must be acknowledged that different magazine types, articles, colours and layouts effect on the gaze patterns and viewing habits of readers.

2.1.2 Print media advertising

For over two centuries the media has been advertised by newspapers and magazines and these were the only available major channels at the disposal of advertisers, for a considerable time period. Print media is still important according to Nyilasy et al. (2011), but its position in the advertising field has gone through significant changes over the past century due to changes in technology, social structures and economy. Broadcast media created new channels and possibilities for advertising, in the form of TV and radio commercials. After the birth and rise of the Internet, the digital platforms have created a whole new field where advertisers are competing for the attention of consumers, creating possibilities for ads that are automatically targeted and even tailored to specific individuals, with the use of data.

Magazines and newspapers have a different role in the advertiser's media strategy than broadcast media, as print advertisement allows the reader to process the information in their own pace, e.g. as Reebok's TV commercial flashes past the consumer's eyes quickly

on the screen, the consumer has the possibility of gazing at a Nike commercial in a running magazine for a longer period. There are several characteristics that make print magazines appealing to be used as an advertising platform, such as selectivity, meaning that an audience of specific readers can be targeted, transmitting the advertising message to consumers who find it more interesting (Belch and Belch, 1998).

2.1.3 Advertising in digital media & magazines

This chapter focuses on advertising in digital media and especially in the form of digital magazines, which is the other media form that is being compared in this study. McStay (2016) explains that digital advertising has so much different things going on, that it presents constantly new developments for people who practice or study it, while broadcast, press, outdoor media and direct mail are easier to understand.

Modern technology provides marketeers and journalists, with a wide selection of tools, for getting their message across more effectively to their audiences. Digital platforms and channels have streamlined the information flow and for example developing situations can be updated rapidly through online news. One of the practical advantages that digital media holds over traditional print magazines, is that consumers are enabled to buy, store and manage from their different devices, e.g. tablet devices, laptops. People are able to read numerous amounts of content and not even dead zones can prevent this from happening, as offline content allows the enjoyment virtually anywhere. Traditional advertising has not been ousted by online advertising, states Barreto (2013), as both complement each other.

The National Media Study (N=23 341) (KMT by Media Audit Finland, 2019) studied that 95% of the Finnish population read news or magazines in some format every week in 2019. Overall magazine content (including news etc.) was read in a digital form by 81% and print content was read by 74%. Newspapers were read more in digital form than in print (79% > 67%). When it came to periodicals (aikakauslehti), print was still more popular format over digital (51% > 44%).

The average age of respondents for this eye tracking study was 43. The share of Finnish people aged from 35 to 54 years who used a tablet device to read online magazines or visiting news websites (TV stations) was 43,5% in 2017 (Statista, 2020). This is a large amount but the real device that has taken the lead is mobile phone. The 2017 statistics from Finland (KMT by Media Audit Finland, 2018) showed that mobile phone was the leading electronical devices used in online news and magazine reading with 48% using it and the numbers are growing yearly. This directs online advertisement and its design more and more to the mobile platforms.

Wang (2011) writes about the consumers demanding need to govern their media experiences, that has been forced upon them by the media industries and technology. Readers now are enabled to have interactive reading experiences. According to the study results of Wang, readers are more engaged with the ads that are interactive. That particular study also showed signs of a stronger attitude and message involvement towards the ads.

2.1.4 Visual attention

It is important to bring out the motivation behind the idea of recording human eye movements (eye tracking) in this kind of a research and explain the basics of visual attention. Eye tracking itself is discussed and examined in the methodology part of the thesis. A simple explanation is that humans move their eyes in order to get a certain part of their view into high resolution, thus allowing them to see the focus of their gaze clearly. In many cases, the reason why humans gaze on a particular spot is to focus their concentration to an area or objective of interest. With this knowledge, it can be assumed that tracking a person's eye movements allows the capturing of the flow of their attention and this information can provide hints of what they are considered to be interested in. The attention to a limited area, where the human gaze focuses, is happening on the visual level, as well as on the cognitive side. While the eye implements the actual observing and gazing of the objective, brain works as an inseparable partner to it in the process of seeing. This shows that the process of seeing is not limited to the eyes solely. In a similar fashion, the brain does not exclusively execute the processing of visual input, even though the role of

the eyes is to implement basic tasks, as the brain works on the gathering and processing of information. (Duchowski, 2007)

Barreto (2013) divides attention to different types; voluntary, involuntary, choosy and occasionally unpredictable. These different forms of attention cause this concept to be seen as a limited variable, but studies have found connecting points with different variables. Hsieh and Chen (2011) proposed that different amounts of mental input are required with varying brands of information. This would indicate that the type of the main content that is being viewed effects on how much the advertisement gets attention, e.g. the ad banners on a web page.

2.1.5 Banner blindness

In the modern era, advertising is everywhere. Visual ads for various products and services cover the billboards next to busy highway junctions and at the same time the virtual world of internet is full of them, in many different forms. People spend increasing amounts of time online and it is the "place" where much of the focus of the advertisers has shifted to over the past years. But there is debate about the effectiveness of marketing in the internet, as for example Barreto (2013) writes, that the amount of people clicking and going through banner ads is going down. Banner blindness is a theory that was created by Benway & Lane in 1998. It suggests that people start to avoid advertisement as a counter reaction to, sometimes even aggressive, advertising. This theory is not solely confined to banner ads, as Benway and Lane (1998) wrote that it might cover other areas outside of advertising as well.

Some conducted studies support this theory, while others are presenting contradicting results. These differing conclusions are brought out by for example two different eye tracking studies on this matter. Research by Burke *et al.* (2005) used eye tracking to measure how much the 12 participants view banners. Their results were leaning towards the conclusions that the banners do not get a lot of direct gazes and that their content is not well recalled. The researchers suggested that the banner ads can possibly get better attention, if they are connected to the context at hand and to the goal of the viewer.

An eye tracking study by Bachofer in 1998 (cited in Barreto 2013), had opposite results with its participants ($n = 71$). The study showed a large portion of the participants noticing the banner ads, while going through the German online magazine's pages.

2.2 The Eye

A brief look on the human eye is presented here, to give a better understanding behind its structure and movements, which are an essential part of this research and eye tracking in general. The eye tracking is discussed in the Methodology part of the thesis, in the sub-chapter 3.1.1. According to Rogers et al., (2018) the only mammal species that has developed an eye that has a white sclera surrounding the iris and pupil, is homo sapiens. The human eye has developed uniquely, signifying the importance of our gaze in different social settings, for example in negotiation situations or expressing different emotions.

The human eye works so that it lets light go through the pupil part of the eye and the image is turned upside down. From here the image is projected to the retina, which is in the back of the eyeball, working as it would be a silver screen of the eye. There are light-sensitive cells inside the retina, that are called rods and cones. Their role is to convert the light into electrical signals and these signals then travel to the visual cortex through the optic nerve, in order to be further processed. There is a small pit composed of multiple cone cells in the center of the matula part of the retina, called fovea. This is the reason why humans have such a limited ability to see selected objectives sharply, e.g. reading a text requires the moving of eyes in order for the light to fall straight to the fovea from particular words. Three pairs of muscles are controlling the movements of the eye inside the head, with vertical (pitch), horizontal (yaw) and torsional (roll) movements, in a three-dimensional way. (Holmqvist *et al.*, 2011)

2.2.1 Fixations & saccades in eye tracking

Saccades and fixations are the two classes dividing the movements of an eye (Zurawicki, 2010). When data is being collected with an eye tracker, the most immanent event has to

do with the eye remaining still, instead of movement. This is called fixation and it happens when the eye stops between movements and stays still for a period of time, e.g. when the eye stops during reading and temporarily stays still at a word. Saccade is a term to describe the change of the gaze from the previous location to another one, e.g. a movement to a new word in a sentence (Zurawicki, 2010). Fixation and saccade sequence forms a scan path. The scan path shows the gaze movement and is used for analyzing visual attention and behaviour. Fixations made by the human eye can last from tens of milliseconds up to many seconds. The measuring of a fixation is widely considered to also measure the attention given to that certain position, but there are exceptions that are separating these two. (Holmqvist *et al.*, 2011)

In order to get fixations in an eye tracking study, gaze points are needed, because they work as the raw material. Gaze points are visualized with (x, y) coordinates and a timestamp related to its measurement, showing the instantaneous locations of the gaze on the stimuli, e.g. a magazine advertisement. Fixations are then constructed from these sequences of raw gaze points, by a mathematical algorithm, to produce periods of looking made by the visual system, which can provide insightful information. Fixations are revealing important episodes of looking at visual stimuli, making them an essential part of an eye tracking study. (Tobii.com, 2019)

2.3 Neuromarketing research

Neuromarketing research tries to connect the attention given to visual stimuli, with the cognitive side of humans. Researches in this field go beyond the edges of classic and conventional marketing studies, by generating different data and demanding considerably less subjects (10% of the amount needed for conventional methods) (Bercea, 2013). In the past years, neuromarketing has proven its possibilities in the field of marketing, as before it was as an expensive and experimental field. As Harrell (2019) puts it, neuromarketing observes and collects the neural and physiological signals. This data can show what interests the consumers and it can be used to the advantage of different marketing actions. Eye tracking falls under the physiological measuring of signals and is one of the most used tools in this field.

2.3.1 Skimming & scanning versus deep reading

Neuroscience researches have indicated differences between the reading of print and digital magazines. According to McDonald (2015), reading on paper is a deeper experience and commits more information to the long-term memory. Skimming is a way of going through the text quickly and getting an overview of the entirety. In scanning, the reader goes though the material quickly again, but this time in order to find certain clearly defined information (Skimming and Scanning - Butte College, n.d.).

The majority of studies regarding online and print reading are leaning towards the conclusion that people tend to read online material more quickly and cursory than print. Reading of digital media is more easily done in skimming or scanning mode, while reading on paper falls more often under the deep reading mode, which immerses the reader into the material for a longer period of time. It is said by some of the researchers in the field of neuroscience, that people are subjugated to such vast amounts of information on a daily basis, that they have adjusted to skimming and scanning (Turner, 2019). By this view, the brain of a modern reader is increasingly being programmed for a faster approach, instead of getting a deeper grasp of the message. This brings out the question that if reading printed text is more immersive experience then reading digital text for most of the people, are there similar indicators when it comes to advertisement on printed material?

3   METHODOLOGY

The methodology part presents the research methods that were chosen for the studying differences in the attention given to the advertisement in Juoksija magazine's print and online versions. It also examines the research sample and presents the reasons why it was chosen. Overall, the choices made regarding methodology are explained and motivated, in order to give a clear picture why they were deemed important for this study.

3.1 Research methods

This thesis combines quantitative and qualitative research methods. The quantitative data is being provided by the eye tracking part of the research and the qualitative data by the in-depth interviews. As Kothari (2004, p. 5) puts it, a qualitative research works around the qualities of a certain phenomenon, with opinions, attitudes and behaviours, as quantitative research provides data that can be analysed in a formal way.

The reason why eye tracking was chosen as the main research tool for this study, is that it has the potential of providing interesting data about the way people view Juoksija magazine's different versions and the commercials in them. The eye tracker showcases with analysable results, where the participants are actually looking at, which can differ from their own opinions or thoughts. The potential of eye tracking in marketing and consumer research lies in its abilities to seek out spontaneous responses that people have, when they see visual stimuli (Tobiipro.com, 2019). In order to work, visual marketing messages need to be seen by people.

The thesis showcases hard data that is being provided by the eye tracking. The eye tracking data that was collected includes heat maps, gaze plots (these terms are explained in the next chapter 3.1.1) and the viewing time of different sections of the magazine spreads and advertisement. The conducted in-depth interviews work in order to give explanations for the eye tracking data, as the tracking itself, according to Breeze and Conomos (2013), gives scarce answers to the question why.

3.1.1 Eye tracking

Eye tracker is an example of a modern technological research equipment, that allows the marketing researchers to have specific observations about viewing. Eye tracking itself has been done since the late 1800s, when the earliest primitive trackers were built (Holmqvist et al., 2011). The tracking of an eye can reveal the user's attention and focus, but also provide perceptions to the behaviour of humans (Tobii.com). Eye tracking is a tool used in neuromarketing studies, a field that is more closely observed earlier in the thesis.

Bercea (2013) explains that the method of eye tracking enables the researchers to study human cognition and behaviour, while leaving out the actual following of brain functions.

Eye tracking is a technology, that uses sensors and allows a computer, tablet or other device to know where the user is looking at and collect the data. The Tobii eye tracker captures the movement of the participant's eyes on a screen or alternatively on a surface, with the use of NIR (Near-Infrared) light, that creates a pattern on the subject's eyes that is captured by cameras. Algorithms then process these images, in order to calculate the eye's and gaze points of the participant. The captured data includes e.g. heat maps, with colours indicating the attention given to different parts of the stimulus and gaze plots, that show in which locations the gaze is focused, in which order are they viewed in a chronical order and what is the duration of viewing. (Tobii.com, 2019)

The eye tracking glasses have a camera on the front that is capturing the objects that are being viewed at, as a difference to a stationary eye tracking device mounted under a computer screen. The stationary eye tracker sends NIR to the participant's eyes as well but it does not need a camera to film the viewed object as the program has this information straight from the computer itself.

Eye tracking is used for studying a variety of disciplines, that include e.g. usability analysis and cognitive psychology, which hold different reasons for interest towards the field of eye tracking (Holmqvist et al., 2011). Eye tracking research potentially provides useful insights for marketing as it picks up the most essential parts of the advertisements.

3.2 Sample

The selection of the research sample was discussed with representatives from the Juoksija magazine. Their desire was that the sample would consist of people who are already readers of this particular magazine. It was seen that the people who are already readers of the magazine could possibly provide valuable insights into the viewing habits of experienced readers. When the eye tracking data collection had been started, decisions were made that the other half of the sample would be changed to non-readers of Juoksija magazine. This decision took place because of the time consumption of finding and recruiting magazine

readers. It was also seen that the non-readers would provide an interesting baseline for comparison and answer to research question 3.

The original sample size was set at 14, but later it was reduced to 12 participants, six magazine readers (subscribers) and six non-readers. One of the major reasons that dictated the sample size, was the challenge of gathering readers of Juoksija magazine for the study and the amount of time that each research session would take (reading the print and online versions of the magazine, with the eye tracking glasses and conducting an interview afterwards). With a larger sample, the recruiting of participants and the management and analysis of the data would grow increasingly harder. According to Bercea (2013) the sample sizes for neuromarketing researches are generally tiny and the participants are purposefully selected. This is because of the expensiveness and complexities that are involved with these types of studies.

The sampling types that were chosen for this study are purposive sampling and convenience sampling. They both fall under non-probability sampling (one of two major types of sampling, the other one being probability sampling), meaning that all of the population subjects do not have a possibility to be included in the sample. Purposive sampling is used when there is a group that can provide the best data (Juoksija's readers) and the whole population cannot be used. It was chosen as the method to get readers of the Juoksija magazine for the sample, as there is a clear objective of studying readers of this particular magazine. This sample was formed from contacts provided by the members of the Juoksija magazine. The six magazine readers were approached by email with some basic information first and couple of them were also approached by phone, as it was more convenient to them. The information sent to the participants via email did not reveal the aim or the research questions for this study, as it could have affected the study and its results. It was only stated that the eye tracking research would study Juoksija magazine and its print version. The email also presented the commissioner of the thesis (Juoksija magazine), the learning institute of the researcher (Arcada UAS) and the data protection and confidentiality aspects regarding the study.

Convenience sampling was used as the sampling method of the other half of the sample, consisting of six non-readers of Juoksija. This method is used to conveniently and accessibly get participants for a study, e.g. the researchers can conduct the study in an organization (company, university). In these types of circles it is easier to reach participants, saving time and costs (Sampling and its Types - Social Research, 2020). The participants for this sample where gathered from different circles near to the researcher; students, friends & relatives. This sampling method saved time, made communications and the data collection easier and made the timetable more flexible for both sides. The participants of this sample were given the same amount of information beforehand as the readers. All of the respondents from both groups had normal or corrected vision.

3.3 Collection of data with eye tracking & interview

The eye tracking was done with mobile eye tracking glasses (model: Tobii Pro Glasses 2, presented in Figure 1), that were taken into different locations, in order to conduct the research with participants in locations that were convenient and comfortable to them. The date and place for the data collection session was decided individually with all of the 12 participants. The places of data collection had a varying nature as the participants were given the chance to decide it. Data collections were conducted in various locations as mentioned; four private homes, Picnic Pasila (a café), Itäkeskus library, Viikki university researcher facilities, Holiday Inn Tampere (a hotel) and Kustannus Oy Juoksija's office. All of the locations except Holiday Inn Tampere were located in the Helsinki Metropolitan Area.
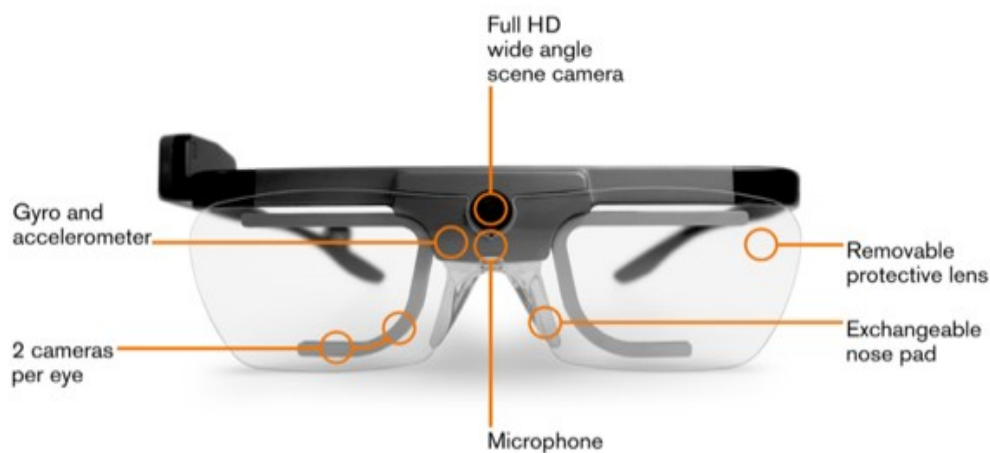
Figure 1 Tobii Pro Glasses 2.

The task itself consisted of six viewing/reading sessions of three different magazine spreads that all have one or more ads on them. The participants viewed all of the three spreads twice, each article once on the print magazine and once on the digital version. Both the print and digital magazine have identical layouts. The actual design and content of the tasks is examined in the next chapter (3.3.1). The digital version of the magazine (4/2019) was viewed on a MacBook Pro –laptop from www.juoksija-lehti.fi website's magazine archive and the print version was viewed from the print magazine. Participants used the eye tracking glasses during all of these sessions. The positioning of participants from the magazine/laptop was monitored in a way that the distance would be approximately similar for everyone and so that they were able to see the text on the magazine. The magazine was on a reading stand in order for it to be in the right angle for the participant's eyes and the eye trackers camera. The laptop screen's angle was set to match the angle of the reading stand. The angle was set the same for every data collection session. It was important that all of the eye tracking videos would be captured from as similar angle as possible, that the data would be of good quality. This can have an effect on the amount and quality of the mapping points, that the eye tracking software finds and analyses. Mapping points are needed in order to see afterwards where the participants have

looked at. All of the viewing sessions were recorded and stored on a memory stick in the main device of the eye tracker.

After the participants had viewed both magazine forms, all of the 12 respondents filled a basic information form and they were verbally interviewed about the viewing sessions. The objective of the interview was to provide insights behind the collected eye tracking data and to help in the answering of the research questions. The survey was done with the Google Forms, which is an online tool, used for creating forms and surveys. The information form that was filled by the respondents included e.g. age, gender, sports they practice etc. The amount and type of endurance sports practiced by readers was considered interesting by the commissioner. The actual verbal interview consisted of five questions. These questions were discussed and designed with two members of the Juoksija magazine. The discussions with the participants were captured on a recorder and transcribed on a Microsoft Word document for the analysis.

Along with the eye tracking device and glasses, the research equipment included; a reading stand for print, a laptop, a mouse, a mousepad, a reading lamp (to provide extra light for reading if needed) and a measuring tape (to measure the distance of the participants from the magazine/laptop). The reading stand and laptop are shown in Figure 2.

Figure 2. The two compared versions.

3.3.1 Study design

The eye movements of the respondents were measured and recorded by using Tobii eye tracking glasses. The tasks were carried out in varying locations as mentioned earlier. This had an effect on the study environment, as there were differences e.g. in the lighting, noise levels etc. between locations. The goal of the tasks was to see how the subjects view certain commercials in selected magazine spreads in print and digital versions of Juoksija magazine 4/2019 and to find out if different viewing patterns can be found. The tasks with the eye tracking glasses were designed to be simple in order to make the data collection and analysis easier. This is the reason for choosing just three magazine spreads for individual tasks and for leaving out broader and more general viewing tasks from the research.

The participants were divided into groups A and B, in the order they happened to participate in the study. The groups were simply divided in the order the data was collected, meaning that the first participant was automatically in Group A and the second participant was in Group B, resulting in six members in each group. The two groups defined the order of completing the given tasks. The order of completion by group can be seen in Figure 6. In Figure 6 the arrows show in which order the groups completed the three tasks. The orange arrows track the order of Group A and the olive-green arrows present the order for Group B. Both groups started with the opposite platforms of Task 1. and finished with Task 3. Group A viewed the print magazine first and Group B started with the digital magazine. The reasoning behind these two groups was to even out the impacts on the research, that would result from a possible learning effect. Every respondent saw the selected magazine pages twice, once in print and once in digital. The second viewing session of the same article could be affected by the learning effect. The two groups allow the research to compare first time views on a magazine spread with two different platforms (print and online). Naturally, there is a possibility that some of the respondents in the reader sample had seen the magazine spreads and articles before.

3.3.2 Task 1. Lappu rinnassa

The task was to find the article Lappu rinnassa (spread 60-61) from the magazine and get an overview of the article/spread, wearing the eye tracking glasses the whole time. This particular spread has three different ads altogether, two on page 60 (Mikkeli juoksu and Vantaa Triathlon) and one on page 61 (Espoo Rantamaraton). The particular magazine spread is presented in Figure 3. The duration for the whole test was 40-60 seconds, with 30-35 seconds of viewing time on the magazine spread under investigation. The participants were divided into groups A and B, as mentioned earlier, in order to avoid the influence that learning effect could cause on the results.

Figure 3. Task 1. Print version.

3.3.3 Task 2. Poweria pinaatista

The participants were given the task of finding an article about spinach as a nutrient (the article's name is Poweria pinaatista) and getting an overview of the article/spread, wearing the eye tracking glasses throughout the whole session. The article is located on page 43 and the idea was to monitor and record the eye movements of the participants on the

whole magazine spread, main focus being on the ads (Ruissalojuoksut & Tampere Puoli-maraton) on page 42. The magazine spread used in Task 2. is shown in Figure 4. Group A started with the viewing of the print magazine and Group B started with the online magazine. The duration for the whole test was 40-60 seconds, with 30-35 seconds of viewing time on the certain magazine spread.
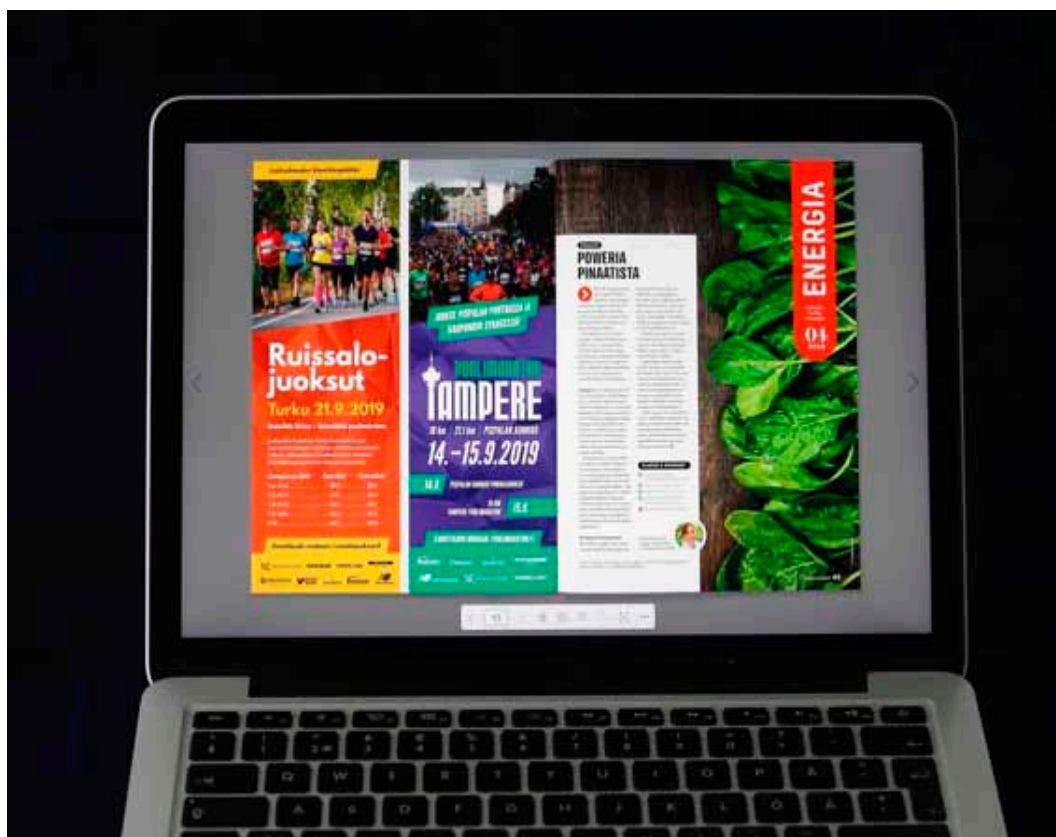
Figure 4. Task 2. Digital version.

3.3.4 Task 3. Valmentaja

The task was to open the pages 22-23 and to get an overview of the spread. There is a part of a coaching article located on the right side of the page, but the main focus for the study in this task was the Adria recreational vehicle commercial, placed on the left page (22). Pages from 22 to 23 are shown in Figure 5. The viewing order was the same for this test as well; Group A started with the print version and Group B with the digital version. The duration for the whole test was 40-60 seconds, with 30-35 seconds of viewing time on the certain magazine spread.

Figure 5. Task 3. Digital version.

Figure 6. The order of task completion by groups A & B.

3.4 Data analysis

Tobii eye tracker and verbal interview were the tools used for collecting the data for this research. Eye tracking data was stored on a memory stick and the interviews were recorded and stored with a recorder. Google forms was used to gather basic demographic

information from the participants and a couple of questions about their involvement in endurance sports and about the ads in the magazines.

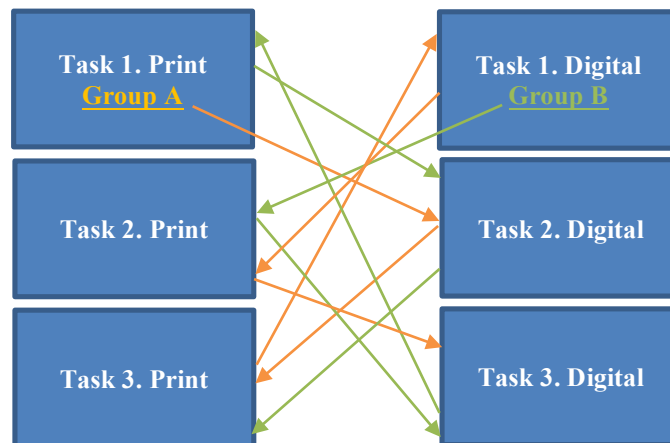The interviews were all transcribed, written and stored in Microsoft Word format. The eye tracking data included heat maps (the most focused areas on the magazine, displayed by colours) from all of the participants, gaze plots (showing the individual fixations in the form of fixation circles and the order of the eye movement of an individual subject) and viewing time of every magazine spread.

Tobii Pro Lab -software was used to analyse the material. Pictures were taken from the magazine spreads that the participants were looking at. These pictures were uploaded to the software, which created heat maps and gaze plots on the pictures, using the recorded eye tracking video material. The program's algorithms created visual presentations about the most viewed spots on the magazine and in which order the participants had viewed them. Screenshots were then taken of these heat maps and gaze plots for analysis and comparison. Microsoft Excel was used to categorize data of the participants and to calculate how many fixations each individual subject had on the advertisements. These fixations were then summed to an aggregated total. The number of fixations on ads was compared between print- and digital magazines and between readers and non-readers.

4 RESULTS

The results of the eye tracking study and interviews are presented in this chapter. Overall 12 participants completed the eye tracking tasks and were interviewed. The quality of the eye tracking data from one of the respondents in the reader sample group was not adequate. The software did not find enough mapping points to create proper gaze plots or heat maps for this individual subject. The interview of this subject was recorded successfully and used in the study nevertheless.

The average age of all the 12 participants was 43. All of the participants were inhabitants of the Uusimaa region in Southern Finland. The gender distribution of the participants was 5 men (41,7%) and 7 (51,3%) females. The reader sample had four women and two men, and the non-reader sample had three women and three men.

4.1 Eye tracking results

The algorithms of Tobii Pro Lab -software created two types of visual material for this study from the collected eye tracking videos. Screenshots of the gaze plots and heatmaps are presented here along with tables showing the amount of fixation circles (gaze plots) on the tasks. The amount of time that is spent looking at the ads is also presented in the tables.

4.1.1 Gaze plots

Gaze plots show the time, place and order of how the object is viewed. The fixation circles are numbered in the viewing order and locations that have been viewed for a longer period have larger circles. This study uses gaze plots to find the individual fixations on the magazine advertisement. The individual fixation circles were counted from the gaze plots of every participant, in order to find out how many fixations were made on the magazine advertisement in both formats.

4.1.2 Task 1. Gaze plots & fixation circles

Task 1. had a magazine spread with the article (Lappu rinnassa) on the right-hand page. This was the only one of the three tasks that had a magazine spread that featured ads on both pages. There were three ads in total, two on the left page (Mikkeli Juoksu, Vantaa+Helsinki Triathlon) and one on the right (Espoo Rantamaraton). The total amount of fixations on the ads was calculated and in addition the separate amount that the ads on different pages received was calculated as well. The gaze plots from all of the participants on Task 1. are shown in Figure 7. The picture on the left presents fixation circles on the digital magazine and the picture on the right shows fixation circles on the print magazine.

Figure 7. Gaze plots of all respondents from Task 1.

The number of fixation circles in Task 1 are presented in Table 1 by group and magazine format. The table also separates the fixations on the ads on different pages; left and right. The digital version gained 67 fixation circles in total from all of the respondents and the print version gained 96. The ads in the print version gained 30% more fixations than the digital version in Task 1. The viewing time of ads was 17% longer in the print magazine by the whole sample group.

Table 1. Task 1. Fixation circles in ads

Respondents	Digital magazine Task 1.	Print magazine Task 1.
Readers (5)	36 (7,2 average); left page: 18 right page: 18	23 (4,6 average); left page: 10 right page: 13
Non-readers (6)	31 (5,17 average); left page: 19 right page: 12	73 (12,17 average); left page 20 right page: 53
All	**67 fixation circles;** left page: 37 right page: 30	**96 fixation circles;** left page: 30 right page: 67
Time of ads viewed altogether	26,59 seconds	32,02 seconds

4.1.3 Task 2. Gaze plots & fixation circles

The magazine spread in Task 2. had an article (Poweria pinaatista) on the right-hand page. The two ads in this task appeared on the left page. The ads were about running events Ruissalojuoksut and Tampere Puolimaraton. Figure 8 presents gaze plots of the reader sample group from Task 2. The picture on the left shows fixation circles on the digital magazine and the picture on the right shows them on the print magazine.

Figure 8. Gaze plots from Task 2.

Fixations by every respondent were counted and the print version gained more fixation circles. The amount of fixation circles in Task 2 are shown in Table 2 by group and magazine format. The print version gained 171 fixation circles in total from all of the respondents and the digital version gained 114. In other words, the ads in the print version gained 33% more fixations than the digital version in Task 2. The ads were viewed 19,7% longer in the print magazine by the whole sample group.

Table 2. Task 2. Fixation circles in ads

Respondents	Digital magazine Task 2.	Print magazine Task 2.
Readers (5)	55 (11 average)	114 (22,8 average)
Non-readers (6)	59 (9,83 average)	57 (9,5 average)
All	**114 fixation circles**	**171 fixation circles**

Time of ads viewed alto-gether	42,07 seconds	52,39 seconds

4.1.4 Task 3. Gaze plots & fixation circles

The third task featured an article (Valmentaja) on the right-hand page. This task had the largest single ad of this study with a one full page ad on the left (Adria recreational vehicle). Figure 9 shows the print magazine gaze plots from Task 3. The picture on the left presents fixation circles of the non-readers. The one on the right shows fixation circles of the readers.

Figure 9. Print magazine gaze plots from Task 3.

The print magazine gaze plot of the non-readers gained more fixations. The average amount of fixation circles in Task 3 for the print version by non-readers was 20,83. The equivalent number for readers was 12. On the digital version non-reader average was 14,33 and reader average was 14,6. Table 3. presents the amounts of fixation circles in Task 3. Overall the print magazine gained more fixation circles in Task 3 than the digital version with a difference of 14,1%. This difference is lesser than in the first task (30%) and in the second task (33%). The ads were viewed 3,7% longer in the print magazine by the whole sample group.

Table 3. Task 3. Fixation circles in ads

Respondents	Digital magazine Task 3.	Print magazine Task 3.
Readers (5)	73 (14,6 average)	60 (12 average)
Non-readers (6)	86 (14,33 average)	125 (20,83 average)
All	**159 fixation circles**	**185 fixation circles**
Time of ads viewed altogether	54,33 seconds	56,43 seconds

4.1.5 Fixation circle summary & average amount of fixation circles

The total amount of fixation circles from the three tasks was summed together in order to compare the two magazine formats and groups. Table 4 shows the sum of fixation circles in all of the tasks by group and by magazine format.

Table 4. Aggregated totals of fixation circles in ads

Respondents	Digital magazine tasks	Print magazine tasks	Digital + Print tasks
Readers (5)	164	197	361
Non-readers (6)	176	255	431
All	**340 fixation circles**	**452 fixation circles**	

The eye tracking data of one participant from the reader sample group was corrupted. This affects the study in a way that the average number of fixation circles per respondent in the reader sample group is counted from 5 respondents. For non-readers the average of fixation circles is counted from 6 respondents. Table 5 presents the average amount of fixation circles per respondent in different magazine versions and by the different groups.

Table 5. The average amount of fixation circles

Respondents	Digital magazine tasks	Print magazine tasks	Digital + Print tasks
Readers (5)	164/5 = 32,8	197/5 = 39,4	361/5 = 72,2
Non-readers (6)	176/6 = 29,33	255/6 = 42,5	431/6 = 71,83
All	**340/11 = 30,91**	**452/11 = 41,1**	

The ads in all of the print magazine tasks gained 24,8% more fixation circles from all the respondents than the ads in all of the digital magazine tasks. There was a 30% difference in the first task, 33% in the second task and 14,1% in the third task. The respondents of the reader group had on average 10,93 fixation circles on ads per digital magazine spread. The non-reader group had an average of 9,78 fixation circles on ads per digital magazine spread. The average amount of fixation circles on ads per reader group respondent on a single print magazine task was 13,13. The equivalent number for non-readers on print tasks was 14,17. The ads in the print version had a longer total fixation time, they were viewed 13% longer.

4.1.6 Heat maps

Heat map is created from the collected eye tracking data by the analyzing software. It uses different colors to visualize the general distribution of looking on the stimuli. Heat maps do not show where the gaze has traveled as precisely as gaze plots. This is because they do not show individual fixations on the visual stimuli. The colors range from light green to bright red, with yellow in the middle. The colors are indicating the amount of attention to the areas. Green means that the spot has been viewed but not for as long as the yellow or red areas. Yellow dots have gained more viewing time then the green one and the red parts have been viewed for the longest periods of time. (Tobii.com)

An example of the heat maps in this study can be seen in Figure 10. It shows four heat maps from Task 3. The picture A on the upper left corner shows the print magazine heat map from the non-readers. Below it is the print magazine heat map from the readers,

picture C. The picture B on the upper right corner is a digital magazine heat map from the non-readers. The digital heat map from the readers is in the lower right, picture D.

The focus area of the non-readers on the print magazine is in the main title of the article and on the article itself. The same group's digital heat map had the red dots in the same area, most focus was concentrated on the article text just under the main title. The reader group's attention on the digital stimuli is also on the main title and article but the main attention area can be seen lower on the left. This part features a training tip related to the main article about lactic acid and picture of an exhausted runner's leg. The largest cluster of red dots is located between these too. The Reader groups print heat map has the most widely spread attention areas, which can be seen in picture C. The areas cover the title, most of the article and the workout hint. The heat maps altogether do not have clear red dots or areas in the left page advertisement. The green and yellow dots/areas are showing where the respondents have looked in the ad. Few clusters on the advertisement can be found e.g. from the left part of the description text of Adria RV in picture A.

Picture A non-readers

Picture B non-readers

Picture C readers   *Picture D readers*

Figure 10. Heat maps from Task 3.

4.2 Interview results

All 12 respondents were interviewed straight after the completion of the eye tracking tasks. The five questions included in the interview addressed the magazine and its ads in digital and print formats.

When asked of what things draw their attention seven respondents mentioned pictures. Six respondents mentioned their focus was drawn to titles. An example citation from one of the respondents from the reader sample group:

"Pictures just inevitably attract the eye; pictures first and titles. These summary boxes in the articles worked surprisingly well… You could notice that at first you looked at the picture, title and then the summary and only after that you start to read the actual article…"

The ads were not considered to be disruptive by any respondent. Seven respondents stated that they experienced ads similarly in both print and digital magazines. There were a few mentions about the identical layout of both magazines. One respondent from the reader group mentioned that there is a possibility that he does not pay as much attention to ads in the digital version. This citation is from him:

"Perhaps I view those (ads) a little bit longer in that (print magazine) than in the digital version, I somehow 'jump' those digital version commercials because they give you the feeling that they are dropped right into your face, 'bam', on the front and everywhere."

Another respondent mentioned that there might be a chance that he moves past digital ads with more ease, but he still felt that he usually goes through them with the same attention as they are relating to running.

The whole sample group of readers, six respondents found the ads to be at least somewhat of interest. The ads were seen as possibly useful means to find information relating to their hobbies, e.g. sports equipment or running events. The most popular answers for the attributes that make ads interesting were; the subject matter and attracting pictures. The subject matter in this case could be e.g. running backpacks which are interesting to the readers who do running as a hobby.

When asked which magazine version they prefer, 10 out of 12 stated clearly that they like the print version over the digital. One respondent from the reader group stated that he technically prefers the print version more but that he has started to lean towards digital platforms as he can have all of the magazines etc. in one place on his tablet. Some respondents felt like the text was too small on the digital version on the laptop screen and the zooming was seen as unpractical. One respondent from the non-readers sample group stated that she preferred the digital version:

"I liked that digital version, I´m pretty surprised because usually like, study books that are e-books, I don´t dig them. Somehow the colors were more intense in this one. It´s possible that it´s because of that Mac screen, but somehow it was more pleasant."

The print magazine was considered by several respondents to be a pleasant experience comprehensively. A couple of respondents mentioned that they like that the print magazine is tangible and you are able to leaf through it. One respondent from the non-reader group mentioned that she stumbles across random articles and content more easily when reading a print magazine.

"Well I like print more, I personally read more print just because I sit so much by a computer, that it feels like it´s calming in a certain way…"

"I like a traditional magazine, a paper magazine, even now when they are practically identical it doesn´t matter that much… And basically you find quicker what you´re looking for (in digital magazine) but you´ll find them from a normal magazine as well. Usually when you are reading a magazine, there is no rush."

The respondents filled in a summary after the eye tracking tasks. One of the questions asked was about how they would prefer to subscribe with Juoksija magazine. 41,7% (5) chose only the print magazine and 8,3% (1) chose only the digital magazine. The results are shown in Figure 11. The readers of Juoksija magazine were generally not very familiar with the digital version of the magazine.
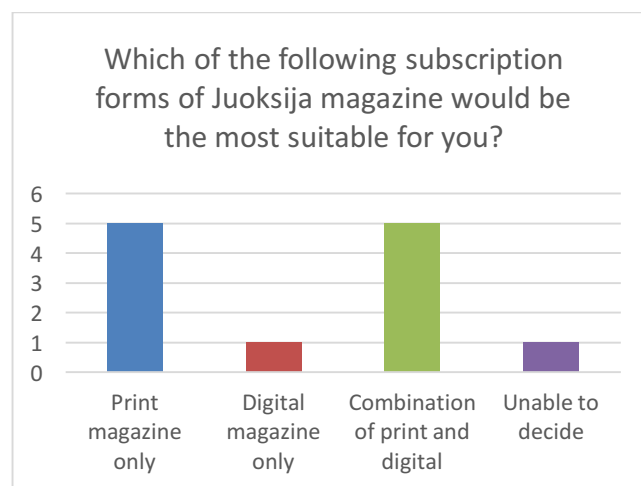
Figure 11. Preference of subscription form of Juoksija magazine.

5   DISCUSSION AND CONCLUSIONS

The main purpose of this study was to find out if there are differences in the attention value of advertisement between the print magazine and the digital version, with the help of eye tracking and interviews. The reasons behind this were the declining advertisement sales on print magazines and the future development of Juoksija magazine. The mentioned decline in the sales of magazine advertisement is a global trend, which can be seen

from the statistics. The global amount of money spent on magazine advertisement has declined 49,2% over the past 20 years (2000-2019). It has dropped from 48,22 billion U.S. dollars to 24,51 billion (Guttmann, 2019). Additional aims were set to support the main question of this study; to find out which version the respondents prefer over the other and to see if there are differences in the attention value of ads between readers and non-readers.

The findings are discussed in this chapter in the light of the three research questions. Managerial implications are formed to give Juoksija magazine concrete suggestions and ideas for the next steps regarding their print and digital advertising. Limitations of the study are opened and the possibilities for future studies on this subject are presented. The conclusions weave the study and results together, bringing the thesis to a natural finale.

5.1 Research questions

5.1.1 RQ1: In which version (print or digital) are the viewers paying more attention to the advertisement?

The first research question was the basis for this study and where the main focus was directed. This was the topic that came up initially when the possibility of an eye tracking study was discussed between the commissioner and the author. It is important to keep in mind that in this study the digital magazine is a digital copy version of the print magazine, meaning it does not feature links, interactive content, banner ads etc., but the exact same layout and content as the print version. The conclusions made by the author are regarding the digital facsimile and print versions of Juoksija magazine.

It was indicated by the eye tracking results of this study that there is some difference in attention given to the print and digital versions of ads. The total time and amount of individual eye fixations (gaze plots) clearly indicated a stronger focus on the ads in the print version. This is interesting as it seems like the print version could be more valuable from an advertiser's perspective. In the experience of the commissioner advertisers have been increasingly more reluctant about putting their ads in print magazines in the wake of the digital rupture. The commissioner had expected this type of result regarding the attention

value and now the study gave some evidence to this assumption. On the other hand, the interview results did not bring considerable differences to the table. Perhaps not too long drawn conclusions can be made but at least it seems clear and safe to state that the ads in the print version are not less valuable than digital ads in terms of visual attention.

The heat maps did not show mentionable differences in the attention patterns towards ads as the gaze plots did. The main areas of focus in the heat maps, marked with red color, were located mainly on the article text and headlines. The gaze plots from the eye tracking data brought out results with visible differences. The ads in the print magazine's three spreads gained 24,8% more fixation circles than the similar spreads in the digital version. In each of the three tasks the print versions ads gained more fixation time.

Several studies comparing the reading of online and print materials have arrived at the conclusion that print is more immersive. This study did not seek out the difference in the way that text was looked at but the time and number of fixations on the ads are supporting the notion of a stronger engagement with the print version. As McDonald (2015) stated, reading printed text is a deeper experience than reading digital text, the eye tracking data of this study indicates that the viewing of ads in Juoksija's print version is a deeper experience in terms of attention value. National Media Study (2019) showed that print magazines are still read more than digital ones in Finland and this is the case with Juoksija as well.

5.1.2 RQ2: Which version do the respondents prefer and why?

The respondents were asked in the interview about which versions they preferred and the reason for this. 10 respondents (83,3%) answered clearly that they prefer the print version. One respondent from the reader group said that he has started to prefer the digital magazine over print versions but he did also mention that he prefers print magazines in principal. One respondent from the non-reader group preferred the digital version. The reasons behind the liking towards print magazine were the better usability, more relaxing experience, better size (no need to zoom on the small print) and the tangibility of the print magazine. The digital magazine might have been a bit tricky to use with a laptop for some of

the participants. A couple of respondents mentioned that they like it that you can leaf through the print magazine. One respondent mentioned that with a print magazine you can come across things randomly more than you would in a digital version. These can be strengths for the print magazine.

The national magazine study (N=1171) conducted by Aikakausmedia (2017) showed results that magazines which are read for the longest time are subscribed magazines that contain purposely chosen content by the reader. Juoksija is strongly in this category thanks to its hobby related topic. The 2019 National Media Study (KMT by Media Audit Finland, 2019) showed that magazines were still more popular in print format than in digital. The results of this study are in line with the KMT study as the print version of Juoksija magazine was preferred by a clear majority of the respondents and the readers have a strong engagement towards the topic of Juoksija. There was an equal number of respondents in the study who stated that they would prefer to subscribe to both versions (5) and who would prefer just the print version (5). One respondent chose the digital version solely. These results are speaking on behalf of conserving the print magazine and offering both formats for the readers as the digital options are affecting journalism world widely.

5.1.3 RQ3: Are there differences in the attention towards the ads between the readers of Juoksija magazine and non-readers?

The eye tracking data did not bring out results that would indicate a difference in the amount of attention given to all of the ads between the two groups. There were minor differences between the two sample groups in the different magazine versions. The digital version got 11% more fixations from the reader group and the print version got 7% more fixations from the non-readers. These are not very considerable differences for drawing conclusions about the effectiveness of the formats regarding a certain sample group. A possible explanation for the slightly larger number of fixations made on the digital version by the readers is that they have usually just read the print version of Juoksija magazine. The digital version is a more unfamiliar way to view the 'familiar' content and for that reason attracted their attention slightly more in this study.

The heat maps showed some differences between the two groups but they were mainly in the text. The heat maps from the reader group showed more widely spread and stronger attention areas in the article text in the form of the red dots. The ads in either form did not get proper red attention areas. The tasks advised the respondent to get an overview of the magazine spread and article, which could have affected that the text gained a lot of attention.

All in all, the differences between the two groups were minimal. Most respondents from both groups felt that they experienced the ads in a similar way in both versions. The interviews showed that neither of the two groups found the advertisement to be distracting in digital or print. There was a natural interest towards the content of the ads from the respondents of the reader group, which did not surface from the non-reader group. The readers are interested in the ads because of their endurance sport hobbies, running in particular.

Perhaps the most interesting thing that came up regarding this research question was from the interviews. Two respondents from the non-readers group said that they felt that the digital version of the magazine brought out the pictures in a more captivating way. This is possibly an indicator that the pictures could be used as an advantage in the digital magazine by placing or shaping the ads around them. Vivid and ambitious pictures could work as an effective way to lure the gaze of a reader to the ads placed carefully around them. The special shaping that could be done in digital format is of course not possible in the digital copy version of Juoksija as the layout is identical to the print magazine. Nevertheless, the upcoming new digital magazine could take the advantage of this and be designed with these observations in mind.

Like mentioned earlier, Burke *et al.* (2005) suggested that banner ads can get more attention when they are in the right context and are connected to the goal of the viewers. The advertisements that are presented in Juoksija are mostly connected to running and this was appreciated by the reader respondents. Advertising focused on specialized audiences is an effective way to increase the company's ROI (AcuityAds Inc., 2017) and Juoksija

offers a large segment of endurance sport hobbyists and professionals for these advertisers.

5.2 Managerial implications

The discussions with the commissioner revealed that during the Spring of 2020 the company has started the developing of a new digital magazine and website (juoksija.fi). The digital magazine will not be a copy of the Juoksija print magazine, but it will feature digital content relating to their other magazines as well (Juoksija, Hiihto, Pyöräily+Triathlon, Suunnistus). In addition to running the digital product will feature content about cross-country skiing, cycling+triathlon and orienteering. Some of the content about these subjects will possibly be chargeable with a monthly fee. Most of the content on the website will be free for all endurance sport enthusiasts and this will generate traffic to the site. This digital platform will enable better product presentations and content co-operations with partners.

An actual digital magazine will offer the advertisers versatile and flexible solutions compared to the print magazine or the digital copy version. This will make campaigns more effective and gives possibilities to direct readers straight to homepages of the advertisers, which will increase their visits and conversion.

The results of this study indicate that people pay more attention to the advertisement in the print version of Juoksija magazine than in the digital copy version. The print magazine was also the preferred version in the sample group, amongst the seasoned readers of Juoksija and people who had never read or subscribed it. This information can be used as an argumentation in the discussions with advertisers. It can be presented that engaged readers are possibly also engaging more with printed ads. This can potentially help in the process of closing a deal to sell advertisement spots.

The circulation of the print magazine generates a lion's share of the company's income, 70%. The readers of hobby magazines are devoted and the study made about the readers of Juoksija magazine showed that readers above 40 years especially appreciate print magazines (Aikakausmedia.fi, 2017). These are clear signs that the print magazine is a strong

asset and Juoksija should still develop further its print magazine content along with the new digital platform. Digital and print are complementing each other as was presented by Barreto (2013). Even though the estimation of the commissioner is that there is not going to be a quick change for the worse regarding the reading of their print magazine, the creation and development of effective digital services are still vital in terms of the future aspects of the company.

As an additional observation, not a primary objective to study in the thesis, was that the current digital copy version from the Juoksija's website does not work properly on tablet devices. The original plan for the data collection was that the respondents will view the digital magazine from a tablet. The viewing of the digital magazine was tested before data collection with four different tablets from three different manufacturers. The magazine viewing was slow, even with a fast internet connection. It was only possible to read the magazine in a mode that showed one page at a time. When the magazine was set for the full spread mode and tilted on the side for a better viewing experience, the website crashed. It happened every time at some point of the viewing session with all of the different tablets. This should be fixed by the commissioner so the digital magazine would work and scale properly on different mobile devices. The maintaining of this feature is not a great burden to the company. The mobile device problems should be fixed and the magazine should be kept available in the digital selection as an additional feature.

5.3 Limitations and future studies

As mentioned in the previous chapter there were insurmountable problems with viewing of the digital magazine on a tablet device. These problems resulted in the using of a laptop in the data collection. It was not a desirable outcome, but the laptop worked well. Nevertheless, this problem could have affected the attention and perception of the ads in the digital version of the magazine. The print magazine had to be kept in a reading stand to gain accurate results and this potentially affected the results, as magazines are usually kept freely at both hands during reading. The data collection time was very limited which likely affected the way the respondents viewed the magazine.

The interview questions could have been more structured to get more insightful answers out of the respondents. This could have brought out differences and opinions better.

There seems to be quite few recent studies comparing print and digital advertisement which lead to difficulties in finding relevant and up to date eye tracking studies. Therefore, this study can be seen as one of the first attempts to explore the differences in more detail, by applying eye tracking technology as a tool of comparison. Future studies should dig into this topic much deeper using different methodological approaches and larger samples.

The authors suggestion for future studies specifically, to the commissioner, is that the eye tracking technology would be used to study the new website and the digital magazine. This would be a user experience (UX) study on the website and digital magazine. The attention value would also be studied from the digital contents. This study would help in the optimizing of the digital platform and ad placement. The company produces three magazines besides Juoksija and there could be possibilities for studies regarding them as well. There would also be possibilities to do eye tracking studies regarding the ads of particular advertisers and to create tailor made solutions for them, e.g. in the upcoming digital platform.

5.4 Conclusions

The gathered eye tracking data had some contradictions but nevertheless it indicates that the viewers are paying more attention to the ads in Juoksija magazine's print version. This result is in-line with assumptions made by the commissioner prior to this study. The print version was preferred by a clear majority of the respondents. Although the company is in the process of developing a new digital product and platform, this study has strengthened the commissioner's perception of taking good care of the print magazine and developing it further. The results of this study support the idea that the original print magazine works well in terms of reader preference and usability and from the advertiser's point of view. Devoted readers who find the commercials relating to their endurance sport hobbies interesting make for a good target audience for the sport event organizers and running equipment manufacturers.

The results indicated that the digital copy version is less affective in terms of the attention directed to ads. This does not rule out its usefulness as an extra feature for readers that can view it online when they do not have the print version available. Or it can be used when they want to read a certain article again. The eye tracking data itself did not contain any major differences between the visual attention towards ads between the reader and non-readers. The interviews brought out logical results that the readers find the ads to be more interesting and useful, as the non-readers felt they were neutral.

The advertisement sales and single copy sales have decreased over the years in the magazine field. At the same time the share of the revenues generated by circulation has grown. People are still ordering home the magazines that are important to them and amongst them is Juoksija magazine. Compared to the global figures, the circulation numbers of print magazines are exceptionally large in Finland (Aikakausmedia.fi, 2017). This could also mean that the Finnish market is in for a bigger change, therefore, it is important that Juoksija applies a hybrid strategy, for both print and digital media.

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APPENDICES

Appendix 1

The interview questions

1. Estimate where you looked at/what caught your attention while you were viewing Juoksija (both formats)?
2. How did you experience the ads in the print version?
3. How did you experience the ads in the digital version?
4. What are the factors that make you interested in an advertisement?
5. Which reading experience did you prefer/which magazine version did you prefer? Why?