Tampere University

Veera Eiste

INTERACTIVE NEWS EXPERIENCES WITH VIRTUAL NEWS ANCHORS

Exploring the Presentation and the Use of Virtual News Anchors with Finnish News Consumers

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Supervisors: Thomas Olsson and Anna Rantasila
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ABSTRACT

Veera Eiste: Interactive News Experiences with Virtual News Anchors: Exploring the Presentation and the Use of Virtual News Anchors with Finnish News Consumers
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Distribution of news content is shifting from traditional media to online platforms as society digitalises. Engaging news consumers is more difficult because media companies must compete for consumers' attention and time with a vast amount of increasingly compelling and interactive content. Therefore, media companies could consider offering news consumers engaging and interactive news content with emerging technologies, such as virtual news anchors. In this thesis, virtual news anchors are perceived as an engaging and interactive form of virtualised news distribution.

The thesis aims to explore the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. The presentation refers to how the virtual news anchors appear, interact, and in which environment. The use refers to the kind of news the virtual news anchors could deliver, and the additional features they could offer. The concept is yet to emerge in Finland, and prior research in the field of Human-Technology Interaction does not exist on the presentation and the use. Therefore, this thesis explores the news consumers' first reactions, expectations, and ideas towards such technology.

The research aim was approached with three focus group interviews with Finnish news consumers. Five visual simulation videos of varying virtual news anchor presentations were created for the study participants to evaluate and discuss. The findings of the study suggest that the virtual news anchors could be customisable virtual characters of any form. They would not have to mimic the traditional human news anchors in studio settings, except for neutral and professional verbal and non-verbal interaction, and attire. The virtual news anchors could be an additional service that offers more elaborated and personalised content and gamified and stimulating experiences. The virtual news anchors could be used either for lighter news or for the news consumers to experience general topics of discussion. The thesis offers novel information and perspectives on the concept of virtual news anchors. Based on the findings, more elaborated concepts and prototypes can be established for news consumers and media companies to evaluate further.

Keywords and terms: Virtual News Anchors, Virtual Character, Presentation, News Distribution.

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Contents

1 Introduction

News hold a central role in society as they are a reliable source of information, maintaining transparent democracy. As society digitalises and consumers are offered a vast amount of content online and on social media daily, the news distribution and storytelling must also develop. Media companies need to adjust the news content to online platforms and social media. Additionally, they need to compete for consumers' attention and time with other social media content and entertainment industry, which offer fast-paced, stimulating, and versatile content. Many consumers desire for experiences, which news distribution could respond to with emerging technologies. This chapter starts with discussing the background and motivation for the study of virtual news anchors in the context of news distribution. First, the new demands and forms of news distribution are discussed, followed by presenting the concept of virtual news anchors and virtual characters in media. Second, the chapter presents the research objectives, including the research aim, the research approach and contribution. Finally, the thesis outline is introduced.

1.1 Background

The forms of news distribution and storytelling are changing, and the news consumption is shifting from consuming news from traditional media to consuming information on online platforms and social media. Media companies must compete with a large amount of other content and find new ways to engage the consumers when the interest in news content is declining (Reuters Institution, 2019). Media companies are seeking new ways to produce news content cost- and time-effectively, and the production must respond to the constant demand for content. Additionally, the content online and on social media is increasingly stimulating and interactive. Media companies are exploring the use of technology to create engaging and interactive experiences to accompany daily news. Innovations, such as immersive journalism and news games, have already been explored. Immersive journalism refers to 360-degree videos and virtual reality where the news consumer can experience stories in the first person (de la Peña et al., 2010; Jones, 2017). News games are video games that illustrate a news story with meaningful, immersive, interactive, and engaging experiences (Ferrer Conill, 2016; Magdi Fawzy, 2019). Such innovations allow the news consumer experience topics of discussion from a different perspective, which can bring them added value.

The concept of virtual news anchors could be explored in regard to creating interactive and engaging experiences and bringing added value to news consumers. Virtual news anchors can be defined as virtual characters of any form that distribute news stories on online platforms. The virtual news anchors have been explored to a certain extent in the past. The first virtual news anchor attempt was Ananova in 2000 by the UK Press Association news agency (Wiederhold, 2019), and the latest example is the AI-powered virtual news anchors by China's state news agency Xinhua from 2018 (Baraniuk, 2018). Both instances represent the traditional setting of news anchors. Despite the previous trials of virtual news anchors, the concept of virtualising the traditional news broadcasts is yet to gain international success or interest, especially when

news broadcasts are reaching less audience (Reuters Institution, 2020). Therefore, in this thesis, the virtual news anchors are placed in the same category with immersive journalism and news games as innovative forms of offering engaging news experiences. The virtual news anchors have an opportunity to provide experiences that traditional news broadcasts are unable to achieve.

Virtual news anchors are virtual characters that embody humans, cartoonish characters, or animals. The virtual characters can be either embodied agents or avatars. Embodied agents are usually controlled by pre-programmed algorithms, whereas avatars represent individual users (Bailenson and Blascovich, 2004). Virtual characters have emerged in media, such as social media, entertainment, and fashion advertising. It is now possible to create highly realistic virtual characters as social media influencers, such as Lil Miquela[1] on Instagram, virtual Youtubers, such as Kizuna Ai[2], or virtual fashion models, such as Balmain's Virtual Army[3]. The trend of implementing virtual characters in different contexts shows that technology has developed. Furthermore, people's interest in virtual characters has increased in the past years, which may create a welcoming basis for further exploration of the virtual characters in the context of news distribution.

The virtual characters' presentation has been researched in the field of Human-Technology Interaction in contexts, such as e-commerce, education, and e-health. Presentation refers to the appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction, and the communication environment of the virtual character. However, the virtual character's presentation has not been a subject of interest in previous journalism scholarship. Suppose the concept of virtual news anchors were to emerge again in the future, research would be required to explore how virtual news anchors could appear, interact, and in which environment to correspond to news consumers' needs, preferences, and expectations. News distribution has particular cultural and societal norms and traditions, and the news consumers have expectations for news anchors. Therefore, research should be conducted in the context of news distribution rather than merely applying elements from previous research in other fields. The current news anchors in Finland are relatively homogeneous representations of the traditional Finnish culture. They are white, middle-class men and women who interact neutrally, professionally, and in quite a serious manner. With the virtual news anchors, there are different possibilities for the presentation.

1.2 Research Objectives

This thesis aims to explore the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. The use refers to how the virtual news anchors could be utilised in news distribution like the kind of news they could deliver, and the additional features they could offer. No prior research in the field of Human-

[1] Miquela [@lilmiquela], *Posts* [Instagram profile], from https://www.instagram.com/lilmiquela/?hl=fi, (accessed 17 September 2020).

[2] A.I. Channel, *Home* [Youtube channel], from https://www.youtube.com/aichannel, (accessed 23 October 2020).

[3] Balmain, *Balmain's new virtual army* [website], from https://www.balmain.com/us/balmain/balmains-new-virtual-army, (accessed 6 July 2020).

Technology Interaction exists for the virtual news anchor presentation or the use. Therefore, the study explores the initial possibilities on how the virtual news anchors could be introduced to the Finnish news consumers, and the news consumers' first reactions, expectations, perceptions, and ideas towards such technology. Based on the findings, it is possible to create more elaborated concepts and prototypes of the virtual news anchors for the news consumers and news media organisations to understand and evaluate further.

1.3 Research Approach and Contribution

The research aim was approached with qualitative user research. Five visual simulation videos of varying presentations were created to demonstrate the concept of virtual news anchors. In each simulation video, the virtual character delivered the same news story. Three focus group interviews with three Finnish participants in each were conducted to evaluate the simulation videos and to discuss and ideate themes related to the virtual news anchor presentation and the use. The participants represented regular news consumers.

The findings of the study suggest that the virtual news anchors could be customisable virtual characters of any form. They do not have to mimic the traditional real-life news anchors in studio settings, except for neutral and professional verbal and non-verbal interaction, and attire. The virtual news anchors could move around in immersive, virtualised news scenes, and interact with the news consumers. The virtual news anchors could be an additional service that offers more elaborated and personalised content and gamified and stimulating experiences. The virtual news anchors could be used either for lighter news or for the news consumers to experience more general topics of discussion from different perspectives. The thesis provides valuable and novel information and views on the concept of virtual news anchors and their possibilities as a new form of interactive and engaging news distribution in the fields of Human-Technology Interaction and journalism.

1.4 Thesis Outline

The thesis contains eight chapters. Chapter 2 provides an overview of the news distribution attributes and practices, and news consumption in Finland, and reviews the concepts of immersive journalism and news games. Chapter 3 starts with the definitions of an embodied agent and avatar and proceeds to discuss the presentation of virtual characters, including the previous research on the appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction, and the communication environment. The chapter finishes with the discussion on virtual characters in media. Chapter 4 describes the creation of the virtual news anchor simulations, the selection of the news story, and the FaceRig software for visual simulations and its limitations. Chapter 5 describes the methodology, including focus group interviews, the participants and recruitment, and the data-driven content analysis. Chapter 6 presents the research findings, and chapter 7 is the discussion on the main findings. The thesis finishes with chapter 8, which concludes the thesis and discusses the study limitation and future work, and the reflection of the learning experience. The appendices can be found at the end of the thesis.

2 News Distribution, Consumption, and Innovations in Finland

When exploring the opportunity of introducing the concept of virtual news anchors for the Finnish news market, it is essential to be aware of the market in general and consumers' news consumption habits. Journalistic practices, values, interests, and trends in Finland should be considered because the news forms of storytelling should not hinder the primary purpose, transparency, or reliability of news. The most prominent news sources in Finland nationwide are *Yleisradio* (Yle hereafter), *Helsingin Sanomat*, *MTV*, and *the Finnish News Agency STT*. Yle is the national public broadcasting company, which is funded by tax revenues. Helsingin Sanomat is the most distributed newspaper. MTV is one of the most prominent media companies, which broadcasts news on television and online. Furthermore, the Finnish News Agency STT is the only news agency in Finland. Additionally, the tabloids *Ilta-Sanomat* and *Iltalehti* reach a vast audience nationally. It is relevant to be aware of the news distribution attributes and practices, and news consumption habits in Finland because they create the context for exploring the concept of virtual news anchors with Finnish news consumers.

The media companies in Finland and internationally have been exploring innovative and engaging forms of storytelling, such as *immersive journalism* and *news games*, which utilise technology to allow consumers to experience news topics interactively. Moreover, such innovations can be relevant to the concept of virtual news anchors. It may be beneficial to offer the news consumers immersive, interactive, and stimulating experiences with the virtual news anchors, rather than to copy current news broadcasts in a virtual form. Experiences can engage consumers' interest in the time of constant stimulation and interactive content online and on social media. Therefore, immersive journalism and news games may have similar attributes as the virtual news anchor presentation and the use.

First, the chapter reviews the news distribution attributes and practices, and news consumption in Finland to understand aspects of the context in which the virtual news anchors would emerge. The first subsection discusses the attributes and practices of how news is distributed in Finland, and the second subsection presents the relevant news consumption habits. Second, the chapter presents the concepts of immersive journalism and news games, and their features that could also be relevant to the virtual news anchors.

2.1 News Distribution Attributes and Practices in Finland

The news media's primary purpose is to be a reliable source of topical and societal information to the citizens and to ensure transparent democracy and equal opportunities to receive unbiased news. According to Deuze (2005), western journalism is about public service, autonomy, ethicality, objectivity, and topicality. In Finland, journalism and news distribution are perceived to be advocates for the freedom of speech[4], and the media must follow strict journalistic practices. For example, Helsingin Sanomat is committed to strengthening democracy, societal equity, and freedom of expression with their

[4]Council for Mass Media, *Guidelines for journalists and an annex* [website], https://www.jsn.fi/en/guidelines_for_journalists/, (accessed 23 October 2020).

journalism[5]. The media landscape and the forms of storytelling are changing, but the values and practices remain similar.

Distributing news content is in a turning point as the traditional media like the television, radio, and newspaper are losing their reach, especially among the younger consumers. The online platforms have become more critical news sources, and consumers are less inclined to pay for the news as a plethora of free information is available. The media companies share news stories online 24/7 for high demand. News stories must be suitable to be consumed quickly on a mobile device and to compete with the consumers' time and attention with other content. (Reuters Institution, 2019; 2020.) Suppose news stories were produced for the virtual news anchors, they should either share the information in an effortless but stimulating manner or concentrate on giving the consumers experiences that deepen their knowledge in the news topics.

The concept of virtual news anchors does not have to follow the same idea as current news broadcasts because they are no longer the main form of news distribution. According to the Reuters Institution's Digital News Report (2020), the role of television broadcasts has diminished, and the news can now be watched from the news media's streaming services when suitable. Furthermore, consumers consume information by quickly browsing online sources, and the content is increasingly personalised[6]. Nevertheless, nationwide television broadcasts are still very popular among older generations. However, the media companies must update the news broadcasts for them to remain reliable and to become more attractive, memorable, and visualising (Hakola, 2013). Additionally, the news anchors in Finland are relatively homogeneous, and the news broadcasts lack diversity. The virtual news anchors could hold opportunities to diversify news broadcasting, create experiences that news consumers want, and support the digitalisation and automation of news production and distribution.

Use of innovative technology has started to emerge in the news distribution to support the production process. For example, automated journalism refers to utilising algorithms or software to generate news stories on topics with well-defined and reliable data, such as sports and financial news (Graefe, 2016). For example, the Finnish News Agency STT's *Scoopmatic*[7] generates text automatically from data sources, and previous news content. News stories are also increasingly personalised to consumers. For instance, Yle uses news personification and recommendations for the audience to consume interesting content[3]. The personalisation is also relevant to the concept of virtual news anchors because they would have an excellent opportunity to share information based on the consumer's interests.

Especially the younger news consumers consume news more on social media (Reuters Institution, 2019), which has become a powerful platform for distributing

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[5]Helsingin Sanomat, *Helsingin Sanomien periaatelinja* [website], https://www.hs.fi/info/art-2000006390609.html, (accessed 12 November 2020).

[6] Yleisradio, *Ylen palvelujen personointi ja uutisautomaatio* [website], https://yle.fi/aihe/sivu/yleisradio/ylen-palvelujen-personointi-ja-uutisautomaatio, (accessed 15 October 2020).

[7] Finnish News Agency STT, *News robotics: Robotics projects and tools* [website], https://stt.fi/en/product/news-robotics/, (accessed 12 November 2020).

information. The virtual news anchors could be suitable for social media because virtual characters are already becoming more popular, for example, on Instagram, Youtube, and TikTok. The virtual social media influencers are discussed in section *3.3.1*. Additionally, experiences and interactivity are trends that have started to emerge in the news market. The use of 360-degree videos, virtual reality, and news games shows that there is increasing interest in stimulating experiences and, thus, there could be interest for experiences that the virtual news anchors could offer.

2.2 News Consumption in Finland

For the concept of virtual news anchors, the relevant aspects of news consumption habits are the interest in news content, preferred news platforms and devices, paid content, and the forms of storytelling. Reuters Institution's Digital News Reports in 2019 and 2020 present the Finnish news consumers' habits, especially regarding online news consumption. The findings were retrieved from online surveys. According to the reports (2019; 2020), the trend is that news consumption is increasingly centralised on online platforms, and the most popular sources for news content in Finland are newspapers' websites and applications. Most of the Finnish news consumers consume news content weekly. Still, the reach is declining, especially in traditional media, which is likely due to the endless supply of media content, and decreased interest in news content (Reuters Institution, 2019). The constant information flow and stimulation online and on social media require the media companies to stand out and adapt to the digitalisation and innovations while still maintaining credibility and reliability.

The televised news broadcasts are still established in Finnish news consumption habits, and the Yle and MTV news broadcasts are the most popular news sources in traditional media (Reuters Institution, 2019). Televised news broadcasts with credible and recognisable news anchors are a strong tradition, especially among older generations, and they have remained relatively unchanged. Innovations in news distribution, such as virtual environments, interactivity, and gamification, could fit especially the younger generations' media landscape. The *Yle News Lab* manager, Jukka Niva suggests on the Reuter Institution's Digital News Report (2019) that especially the younger consumers desire for in-depth and analytical content but in rapidly consumable form because the news content competes with other media content. Niva discusses the emergence of interactive AI assistants, which also may become more common in journalism. Nevertheless, media consumption becomes more engaging, interactive, and immersive. Therefore, the changes in news consumption habits act as a suitable basis for exploring innovations and technologies to share news content, such as the virtual news anchors.

Furthermore, the corresponding editor-in-chief Susanna Landor from *Hufvudstadsbladet*, the most distributed Swedish newspaper in Finland, discusses the impact of the COVID-19 pandemic on the digital advancements and suggests there will be new ways and needs to consume journalistic content. The media needs to mainly focus on reliability, reasonable discretion, storytelling, and innovation (Reuter Institution, 2020), which could be explored with virtuality, personalisation, and experiences.

The Reuters Institution's Digital News Reports (2019; 2020) propose that a minority of the Finnish news consumers pay for the news content. Consumers are less

inclined to pay for the content when free content is available online. The immersive and interactive innovations and additional news services are costly and time-consuming to create; therefore, it could be considered whether the services, such as the virtual news anchors, were free or not. However, based on the current habits regarding paid content, the news consumers are not necessarily willing to pay for the experiences, either. At the same time, additional services could bring added value to the consumers and offer elements worth the fee. Merely offering regular news stories as a virtual experience does not necessarily motivate consumers to pay.

In the future, storytelling is shifting more towards video and audio content. According to the corresponding editor-in-chief Erja Yläjärvi from Iltalehti (Reuters Institution, 2019), such content is currently mainly used to complement written news. Nevertheless, the video and audio content will become more common, and media companies need to develop such forms of storytelling. A little more than half of the Finnish survey respondents watched news videos mostly from social media like Facebook and Youtube, but reading news was more common (Reuters Institution, 2019). Younger generations consume video content on social media like TikTok and are accustomed to watching short and stimulating videos. New forms of storytelling, immersive journalism, news gamification, and virtual news anchors could utilise the video format more, and some consumers could be open-minded for such innovations when they are already consuming video content regularly.

2.3 Immersive Journalism

Immersive journalism is an advanced form of news distribution that engages audiences into a news story to experience events in the first person (de la Peña et al., 2010; Jones, 2017). For example, media companies, such as *the BBC*, *the New York Times,* and *the ABC News*, have produced immersive content, mainly 360-degree videos (Baía Reis and Coelho, 2018). Virtual reality and 360-degree videos are used for the news consumers to immerse themselves in a virtual scenario of a news event through the eyes of a reporter, a character in a story, or themselves as an avatar (de la Peña et al., 2010; Jones, 2017). Immersive journalism brings added value to the consumers with the multimodal news experience, which holds a similar purpose as the possible use of virtual news anchors. Virtual news anchors could be placed in an immersive environment where the news consumer interacts with the virtual character in person.

Jones (2017) suggests that reporter-led stories are found authentic because they maintain the focus on the story, whereas character-led narratives are more engaging, and the information flows better. When the consumer experiences the news events as a character, they can fully immerse themselves into the situation (Jones, 2015). In contrast, a reporter can be seen as a barrier between the topic at hand and the consumer (Jones, 2017). However, the news consumers are generally used to consuming news from a journalist or a news anchor, and a news story may be perceived as more credible if it is communicated by an intermediate. Then again, news stories that are turned into 360-degree videos and virtual reality are not necessarily introducing a specific news story, but rather general and current topics of discussion. For example, Yle has created 360-degree

videos, but the subjects have not been about particular news events. In that case, it may be more immersive to experience the news events from the character's perspective.

According to Jones (2017), immersive journalism could be a stimulating way of distributing news events to news consumers. It can elicit emotions, personalise news, and catch the consumers' attention better when they can immerse themselves in a story with a VR headset. Immersive news stories also give freedom and autonomy to the consumers as they can become the reporter and decide what to see and hear. The consumers are offered to experience the views, sounds, and possibly the feelings and emotions associated with the news story (de la Peña et al., 2010). Additionally, immersion can increase news objectivity because consumers can watch, hear, read, and experience news from reliable sources (Graham, 2016).

Using immersive tools like VR headsets and 360-degree videos in journalistic purposes is yet to be widely spread, partly because of its cost and the need for an expensive headset (Jones, 2017). It would also be laborious to create immersive experiences of specific news stories. Similarly, virtual news anchors would require some technological advancements to deliver compelling and engaging news stories; thus, it could be more reasonable to consider virtual news anchors for more general discussions. Experimentation of immersive journalism shows that news distribution is advancing with virtual environments and immersive experiences, which shows that the use of virtual news anchors could be explored further in news distribution.

2.4 News games

Gamification is increasingly used in different contexts, including news. According to Yohannis et al. (2014, 284), gamification, in general, refers to "a process that integrates game elements into gameless objects in order to have gameful characteristics", and it is used to engage and motivate the target users. In the context of news distribution, gamification can be seen as a new form of expression that utilises interactivity and participation to engage the audiences (García-Ortega and Garcia-Avilés, 2020). Additionally, the emergence of news gamification can be perceived as a consequence of declining news consumption (Magdi Fawzy, 2019). *News games* adapt the expressiveness of video games to illustrate a piece of news and to distribute notions about the news events without steering the discussion (Sicart, 2008). Furthermore, news games reformulate traditional news into meaningful, immersive, interactional, and engaging experiences (Ferrer Conill, 2016; Magdi Fawzy, 2019). Especially the younger news consumers are less interested in news and, therefore, the news games can allow them to engage to news events and be more aware of relevant issues (Ferrer Conill and Karlsson, 2016; Lai, 2015). Moreover, younger consumers could be interested in the concept of virtual news anchors that could offer a similarly immersive and engaging experience as news games.

Recent news games include *Scholarship Tycoon* by *Vox*, *The Amazon Game* by *ABC*, *American Mall Game* by *Bloomberg*, and *Dodging Trump's Tariffs* by *Financial Times* (Cabales, 2019). The games are browser-based games that engage the consumer

into topics like college scholarship inequality in the United States[8], working in an Amazon warehouse[9], dying shopping malls in the United States[10], and the US-China trade war[11]. The games are an interplay of user participation and storytelling, and the player can experience news stories as a character by playing the game. In Finland, Yle has used new games for sharing current affairs from the character's perspective. For example, S*inut on käännytetty* (*You have been deported*)[12] lets the player experience the decisions that asylum seekers with an adverse verdict have to make. The news game consists of text, narration, and pictures. A more recent news game from Yle News Lab is *the Troll Factory*[13], which teaches the player how fake news is spread and why. The player experiences the topic from a professional troll's perspective, and the game combines personalised game-like simulation and authentic social media content.

The news games are not created based on specific news stories; instead, they are about relevant and current social discussions and affairs. News games require more time to make than a regular news story; therefore, it would not be efficient to create news games to specific news stories. Virtual news anchors could follow a similar practice and possibly share more general news content. The primary purpose of news games is to offer an immersive, engaging, and playful experience. Similarly, virtual news anchors could offer added value to the news consumers rather than copy current news broadcasts. The news games described previously do not contribute 3D digital characters, which are typical for video games in entertainment. The virtual news anchors could upgrade the news games with more lifelike and immersive experiences where a virtual character tells the story.

Journalists have differing views on news gamification. According to Ferrer Conill and Karlsson (2016), journalists may experience news games as threats to creative journalism because the primary values of journalism are sold to the entertainment industry. Nevertheless, the authors suggest that one of the main aspects of gamification is audience engagement, which is also relevant to journalistic practices. Therefore, news gamification offers more than mere entertainment and economic value (Vos and Perreault, 2020). Prior research about the journalists' and editors' perspectives on news games suggests that gamification may improve engagement (Albeanu, 2016) and encourage participation (Edge, 2014). Still, some journalists are concerned that the gamification of investigative and more severe news may compromise their credibility (Foxman, 2015). The gamification or the presentation of virtual news anchors should not hinder the credibility of the information. Nonetheless, it is worth contemplating whether

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[8] Vox, *College Scholarship Tycoon Game* [website], https://www.vox.com/policy-and-politics/2017/11/1/16526202/college-scholarship-tycoon-game, (accessed 15 October 2020).

[9] ABC News Story Lab, *The Amazon Race* [website], https://www.abc.net.au/news/2019-02-27/amazon-warehouse-workers-game-race/10803346?nw=0, (accessed 15 October 2020).

[10] Bloomberg, *American Mall Game* [website], https://www.bloomberg.com/features/american-mall-game/, (accessed 15 October 2020).

[11] Financial Times, Dodging Trump's Tariffs [website], https://ig.ft.com/trump-china-tariffs/, (accessed 15 October 2020).

[12] Yleisradio, *Sinut on käännytetty* [website], https://yle.fi/uutiset/3-9136482, (accessed 15 October 2020).

[13] Yle News Lab, *Troll Factory* [website], https://trollfactory.yle.fi/, (accessed 15 October 2020).

such news experiences are more suitable for lighter news or discussing some current topics in general.

3 Virtual Characters in User Interfaces

This chapter discusses virtual characters in user interfaces, their presentation, and emergence in media. Virtual characters can be either embodied agents or avatars depending on their source of control. This chapter discusses the two options, and the term *virtual character* is used as an umbrella term for both. First, this chapter describes the definitions of embodied agents and avatars. Second, the presentation of virtual characters is discussed, including appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction, and communication environment. Finally, the chapter reviews the use of virtual characters on social media, entertainment, and fashion, followed by previous experiments on virtual news anchors.

3.1 Definitions of Embodied Agents and Avatars

Embodied agents are generally controlled by pre-programmed algorithms, whereas avatars represent and are controlled by individual users (Bailenson and Blascovich, 2004). Embodied agents can be defined as pre-programmed virtual representations that utilise human-like verbal and non-verbal interaction to inform, persuade, and interact with users on digital platforms (Bente et al., 2008; Fox et al., 2009; Fox et al., 2015). With artificial intelligence, embodied agents can pursue tasks independently from users and, thus, they can appear as independent decision-makers (Dehn and van Mulken, 2000; Foner, 1993; Griffith, 2020).

Avatars are used in virtual environments, such as social networking sites, video games, and virtual worlds (Blascovich and Bailenson, 2011) to interact with the environment and other users (Bailenson et al., 2006; Biocca, 2014). Embodied agents and avatars are 2D or 3D graphic visualisations of humans (Image 1), cartoon-like characters, or animals (Image 2) (Nowak and Rauh, 2008). Avatars can be customised to represent a real user (Holzwarth et al., 2006) regarding appearance and skills, or the user can create an ideal version of themselves (Schrader, 2019). The embodied agents and avatars simulate human-to-human interaction with speech and non-verbal interaction, such as gestures, intonation, and posture (Diesbach and Galan, 2006, as cited in Ben Mimoun and Poncin, 2015). They are, along with the appearance, age, ethnicity and gender, and the communication environment, a part of the virtual news anchors' presentation that is discussed in this thesis.

Image 1. Human virtual character.

Image 2. Animal virtual character.

3.2 Presentation of Virtual Characters

Virtual characters like embodied agents and avatars have been used on different domains for various tasks. Embodied agents and avatars have been studied, for example, in e-commerce, education, and e-health. They have been portrayed as, for instance, nurses (Bickmore et al., 2009), therapists (DeVault et al., 2014), museum guides (Bickmore et al., 2013), and online product specialists (Tan and Liew, 2020). Virtual characters have also been trialled as news anchors (*Section 3.3.2*); however, previous scholarship in the field of Human-Technology Interaction does not exist. The virtual characters ease the use of technology as they enhance the perception of social presence, and support more versatile, direct, and intuitive use of interaction (Draude, 2011; Moon et al., 2013). They are *anthropomorphic*, which refers to a non-human agent's or object's human-like embodied and disembodied features, attributes, behaviour, characteristics, and emotions (Epley et al., 2007).

Anthropomorphic social cues include, for instance, appearance, verbal interaction and voice, and non-verbal interaction (Nass and Moon, 2000). Therefore, the presentation of virtual news anchors consists of the appearance, including age, ethnicity and gender, verbal interaction and voice, non-verbal interaction like facial expressions, gestures, and posture. Additionally, Knapp et al. (2013) suggest that the non-verbal cues include the context or the communication environment. In this thesis, the context is referred to as the communication environment of the virtual news anchor. This subsection reviews previous research on the presentation of virtual characters, which could also be applied to the design of virtual news anchors. First, appearance is discussed. Second, the literature on

age, ethnicity and gender is reviewed. Third, the subsection proceeds to discuss the verbal interaction and voice of virtual characters, and then the non-verbal interaction, including the display of emotions. Finally, previous research on the communication environment is presented.

3.2.1 Appearance

Appearance affects users' perceptions of a virtual character (Parmar et al., 2018). According to Knapp and Hall (2013), the appearance includes characteristics that remain relatively unchanged during the interaction. These are, for example, the physique, general attractiveness, hair, and skin colour, but also artefacts, such as clothes and accessories. The appearance of the virtual news anchors includes the characteristics mentioned, but also the veracity of the characters. The virtual characters are graphically either two-dimensional or three-dimensional (Russell and Norvig, 2003), and they can either be realistic human representations or cartoonish, such as anime-style characters or animals. The virtual news anchors could represent real human news anchors, which has been the case previously (*Section 3.3.2*). However, this thesis does not exclude the possibility of creating virtual news anchors that are less realistic or cartoonish characters.

Previously, the realistic characters have been suggested to be more likeable, engaging, intelligent, appropriate, and trustworthy than cartoonish characters (Koda and Maes, 1996; Luo et al., 2006). Furthermore, realistic characters have shown to increase the motivation of students (Baylor and Kim, 2004). However, human-like realism can inflict more judgment towards the character, especially if it is not quite as realistic as the viewer expects. In that case, the character falls into the *Uncanny Valley* (Mori, 1970).

The Uncanny Valley phenomenon refers to virtual characters and physical robots being highly realistic without reaching the full human resemblance, which causes disturbing emotions and declined reliability (Draude, 2011; Mori, 1970). For example, in animation movies, it is safer to design characters that do not fully resemble humans, but rather have a unique style of appearance to avoid eeriness (Draude, 2011). Nevertheless, as technology has advanced, it is now possible to create highly realistic virtual characters that are hard to distinguish from real human beings (Khan and Sutcliffe, 2014). Examples of such virtual characters are discussed in section *3.3.1.*

Previous research suggests that the perceived similarity of the virtual characters' appearance and the user can affect the perception of the character and the quality of the interaction (Gulz and Haake, 2006). Furthermore, Bailenson et al. (2008) suggest that the similarity of the virtual character and a learner can increase the learner's motivation. With virtual news anchors, the similarity could be created with the possibility of personalising the character. Currently, the real news anchors in Finland are a relatively homogeneous representation of the people who are traditionally perceived Finnish or western regarding their appearance and ethnicity. However, not all news consumers can relate to that. Perhaps, the virtual news anchors could positively increase the perception of the character, the quality of the interaction, and the motivation by ensuring that there is a possibility of similarity between the virtual news anchor and the consumer.

Appearance also includes the attractiveness of the virtual characters. Khan and Sutcliffe (2014) suggest that attractiveness is more relevant regarding realistic characters than cartoonish characters. Visually attractive interfaces or virtual characters are proposed to be more persuasive (Fogg, 2003; Khan and Sutcliffe, 2014). The effects of attractiveness have also been seen in the context of e-commerce. For example, Holzwarth et al. (2006) suggest that attractive agents are more persuasive and effective than unattractive agents. Moreover, attractiveness has been found to increase the likeability of the agent (Khan and Sutcliffe, 2014). Additionally, attractive virtual characters are perceived to be more human-like, realistic, and credible, and their advice is favoured more (Khan and Sutcliffe, 2014; Nowak and Rauh, 2005). It has been suggested that users tend to create more attractive avatars for dating purposes and create a more intellectual appearance for gaming (Vasalou and Joinson, 2009). These findings are supported by the concept of *the attractiveness stereotype*, which refers to people displaying more positive attitudes and behaviour towards attractive individuals (Dion et al., 1972). In Finland, the news anchors are mainly journalists, and the attractiveness is not as relevant as it is, for example, in the United States. However, attractiveness affects the selection of the news anchors to a certain extent also in Finland. Nevertheless, the Finnish news anchors' appearance is quite homogeneous, and in this thesis, it is suggested that more diversity in appearance could be promoted with the virtual news anchors.

Previous studies have researched virtual character attire. According to Lunardo et al. (2016), clothing conveys non-verbal cues about the character, influencing people's behaviour. The research on e-health and e-commerce have shown that particularly professional and corporate attire, such as a white coat on a health counsellor or the brand name on the e-commerce agent's clothing, evoke positive effects and attractiveness (Cardon and Okoro, 2009; Lunardo et al., 2016; Parmar et al., 2018; Rafaeli et al., 1997). Furthermore, a white coat on a health counsellor increases the perception of credibility, trustworthiness, appropriateness for the job, reassurance, caring, and likeability (Parmar et al., 2018). Moreover, agents with corporate clothing can enhance social presence and reliability in companies online (Lunardo et al., 2016). Usually, professional attire is connected to expertise, knowledge, attractiveness, sympathy, trustworthiness, credibility, and friendliness (Dacy and Brodsky, 1992). Although news anchors do not have specific professional attire, they usually wear appropriate and professional clothing, such as suits and business casual outfits. However, this does not necessarily apply to the virtual news anchors, especially if they are cartoonish characters or animals.

3.2.2 Age, Ethnicity and Gender

Previous research suggests that people prefer an agent with a certain age (ter Stal et al., 2020). For example, the preference for a young virtual character has been proposed (Cowell and Stanney, 2003; Rosenberg-Kima et al., 2008), although, more recently it has been suggested that people favour an agent similar to their age (Alsharbi and Richards, 2017; Lee et al., 2018). In e-health, younger agents have been evaluated to be more experts and reliable and their advice is generally followed more, whereas older agents are seen as more authoritative (ter Stal et al., 2020). News anchors in Finland have often been

middle-aged or older, albeit younger anchors have also started to emerge. Therefore, in this context, the cultural and societal norms may affect the preferences for the virtual news anchor's age.

Regarding the ethnicity of embodied agents, it has been suggested that an agent with a similar ethnic background as the user is more persuasive, and their advice has a more substantial impact (Pratt et al., 2007). Nass et al. (2000) have suggested based on an evaluation of Korean and Caucasian agents that the user's ethnicity on the agent is perceived to be more trustworthy, attractive, and competent. However, the research focused only on the appearance of the agents. Moreover, designing the ethnicity of a virtual character should not only be relying on cultural stereotypes, but also acknowledge cultural sensitivity. Besides, the homogeneous ethnic background does not promote diversity, which has been a topic of discussion in recent years. The variety is not very visible, for example, in video games where the majority of the human-like characters are usually western and white (e.g. the Sims and Fortnite). A similar issue is also present in the virtual news anchor simulations, which were created for the study because the software (*Section 4.3*) used does not provide pre-made characters with other than white skin.

Previous scholarship states that gender stereotypes may apply to agents (Lunardo et al., 2016). For instance, male agents have been perceived as more knowledgeable and intelligent (Baylor and Kim, 2004), and more powerful, whereas female agents have been experienced to be more appealing (Nunamaker et al., 2011). Furthermore, a female's voice is said to correspond better to topics related to love and relationship, whereas a male's voice is more suitable for technical issues (Nass et al., 1997). It has also been suggested that people prefer agents with the same gender (Bailenson et al., 2008; Guadagno et al., 2007), although, it has been proposed that female agents are preferred in e-health and education (Rosenberg-Kima et al., 2008; ter Stal et al., 2020). However, relying on gender stereotypes or selecting genders for different purposes are starting to be outdated and should not affect the design of virtual characters. For example, news anchors are presented by both genders in Finland; thus, it is logical to offer both genders with virtual news anchors. The virtual news anchor could also be genderless. Genderless voice for AI assistants has already been created to avoid bias[14].

3.2.3 Verbal Interaction and Voice

Verbal interaction is an integral part of anthropomorphic virtual characters' capabilities because it elicits a feeling of social presence for users who will treat the agent similarly to humans (Chattaraman et al., 2019). The verbal interaction of the virtual characters can be either bidirectional or unidirectional. Bidirectional interaction includes input and output from both the virtual character and the user, whereas unidirectional interaction is passive (Zoric et al., 2007). According to Cassell et al. (2000), agents can recognize and respond to verbal and non-verbal input, generate verbal and non-verbal output, and implement essential elements of dialogue. The virtual news anchors could be either

[14] Meet Q: The first genderless voice, *About* [website], https://www.genderlessvoice.com/about, (accessed 30 October 2020).

bidirectional or unidirectional, depending on their purpose. If the intention is to merely communicate news stories that the news consumers can consume passively, there is no need for bidirectional interaction. However, the virtual news anchors could be created to have conversations with the news consumers, making the experience more interactive.

The verbal interaction includes interaction style, which can be either task-oriented or social-oriented. Task-oriented interaction style is more formal, aiming to achieve tasks (Chattaraman et al., 2019). Social-oriented interaction style is informal and casual, including the exchange of socio-emotional and affective information, such as greetings (Gustafson and Bell, 2000; Kreijns et al., 2003). In the educational context, including social comments in a task-related environment has shown to positively affect attention and imagination (Veletsianos and Doering, 2010). Then again, such remarks have also been perceived to be distracting and artificial (Veletsianos, 2012).

According to Chattaraman et al. (2019), the social-oriented interaction style could be beneficial in task-oriented environments, provided that the amount of comments is limited. The authors suggest that users use both interaction styles when interacting with virtual characters. News anchors' interaction style in Finland is usually task-oriented, but social-oriented remarks are made when suitable. Generally, the norm is that news anchors have a neutral interaction style and use of language. The articulation is often unambiguous. The news anchors should not voice their own opinions or emotions with their verbal interaction, such as tone of voice, intonation, or word choices.

Previous research shows that voice should be consistent with an agent's appearance. For example, an agent with a synthetic appearance should have an artificial voice, whereas a human-like appearance should be matched with a human voice (Gong and Nass, 2007; Nass and Brave, 2005). People are used to a consistent face and voice, and inconsistency, such as a human face and an artificial voice, can lead to longer processing time and decrease in trust (Gong and Nass, 2007). For example, the voice should be compatible with the overall habitus, age, and gender of the character. Then again, people are used to seeing animated characters with a human voice on cartoons and video games without experiencing contradiction, which indicates that a virtual character could have a human voice.

3.2.4 Non-Verbal Interaction

Non-verbal interaction of a virtual character should be compatible with the character's verbal interaction. Non-verbal interaction includes, for example, facial expressions, gestures, and posture (Knapp et al., 2013). The non-verbal interaction can be simulated with virtual characters, providing a more anthropomorphic and realistic experience for users. Facial expressions are the most commonly used form of non-verbal interaction for virtual characters to display their emotional states, such as anger, happiness, sadness, or surprise (Cassell et al., 2000; Knapp et al., 2013). Furthermore, it has been suggested that facial expressions provide 55% of a message's meaning (Mehrabian, 1967). Facial expressions are formed, for example, with mouth and eye movement, gaze, and the movement of eyebrows (Zoric et al., 2007). Facial expressions can be used for virtual characters to facilitate social interaction and expression of emotional states, to provide

feedback, and to manage the flow of conversation and, therefore, they need to be recognizable and effective (Beer et al., 2015; Knapp et al., 2013).

Facial expressions have been suggested to increase the trustworthiness and credibility of an embodied agent (Cowell and Stanney, 2005), and to enhance the believability that the agent can care for its surroundings (Bates, 1994). The virtual character's facial expressions can be informed by how humans express emotions (Beer et al., 2015). It has been proposed that the virtual characters should express positive emotional expressions, such as happiness and interest, rather than negative emotional expressions like anger (Leathers, 1997). The facial expressions should be animated and, for example, include regular blinking (Clayman, 2001), which conveys liveliness and human-likeness. A good eye contact is also a compelling form of non-verbal interaction with its directness (Leathers, 1997). News anchors generally have neutral facial expressions, and it is not suitable to show one's emotional state extensively because it can affect how the news stories are perceived. To appear more credible, the virtual news anchors should convey the messages with similar neutral manner while avoiding being too robot-like

Gestures, such as hand gestures, are the second most apparent and expressive form of non-verbal interaction after facial expressions (Leathers, 1997). According to Knapp and Hall (2013), gestures are either speech-independent or speech-related. Speech-independent gestures indicate a word or a phrase independently and have individual verbal translations, such as an "okay"-sign. Speech-related gestures are directly connected to or accompany speech, and they often illustrate the speech, such as emphasise a word, point at an object, or depict a spatial relationship. Gestures are connected to culture, and some hand gestures have different meanings in different cultures. Although hand gestures are not often consciously produced (Jacobs and Garnham, 2006), the virtual characters' gestures should appear as natural as possible and be aligned with speech with the right timing (Ravenet et al., 2018).

If the gestures do not seem spontaneous and relaxed (Exline and Winters, 1965), they may hinder the trustworthiness of the virtual character (Cowell and Stanney, 2005), which may be a challenge for creating the characters. Nevertheless, news anchors do not use many expressive gestures with hands. If the virtual news anchors imitated the settings of traditional news broadcasts, spontaneous hand gestures would not be as essential. However, if the concept of virtual news anchors were more immersive and interactive, the hand gestures could make the experience feel more authentic.

Posture and facial expressions of a virtual character should simultaneously convey the same message (Visschedijk et al., 2012). Knapp et al. (2013) suggest that the posture is used with other non-verbal cues to communicate the degree of attention or involvement, status, and emotional state. For instance, a forward-leaning posture has been associated with lower status, more liking, and higher involvement. Cowell and Stanney (2005) propose that agents should have an open posture, which communicates an open and willing attitude. Posture is a subtle communication channel but can convey messages effectively. For instance, an upright posture expresses confidence (Cowell and Stanney, 2005). News anchors communicate trust in the subject matter and openness with a proper and open posture, which are considered to be the norm in the field. A more relaxed posture

could hinder the credibility of the news anchors. Cultural differences can exist regarding the posture of news anchors.

3.2.5 Communication Environment

The communication environment refers to the environment where the virtual news anchor is located and where the communication takes place. According to Knapp et al. (2013), the communication environment includes not only the physical environment, but also noises, lighting conditions, and colours. Therefore, the communication environment also involves background noises. Additionally, the authors suggest that the communication environment covers the perception of time and when and how frequently something occurs. A communication environment could be replicated in virtual settings to a certain extent, although, it may not be as realistic. Parmar et al. (2018) propose that the virtual environment can affect the perception of the virtual character and its perceived believability and usefulness. For instance, a virtual news anchor could be located in a studio to appear more believable. Then again, a more immersive environment, such as placing the virtual news anchor on the scene, could bring added value to the experience. However, it has also been suggested that empty space could be a practical option and less time- and effort-consuming to create (Parmar et al., 2018).

3.3 Virtual Characters in Media

Virtual characters have started to emerge in the media context, and high-quality social media influencers and music idols can be created with developed technologies. Furthermore, such virtual characters are yet to occur in the context of news distribution worldwide, but attempts have been made to develop human-like virtual news anchors. First, this subsection discusses virtual characters on social media, entertainment, and fashion industry. Second, the subsection reviews previous experiments of virtual characters as news anchors.

3.3.1 Virtual Characters on Social Media, Entertainment, and Fashion

Virtual characters have started to appear more on different media and social media platforms, such as Instagram and Youtube, which indicates that the interest in pre-programmed characters is increasing. Now, it is a trend to create *virtual idols*, such as pop stars and *virtual YouTubers*, and *virtual social media influencers*, which are gaining tens of thousands of consumers and followers on various platforms (Alpeyev and Furukawa, 2019; Robinson, 2020). The virtual idols refer to an originally Japanese phenomenon of pre-programmed pop stars and virtual YouTubers (VTubers) that represent an ideal perception of an idol (Apleyev and Furukawa, 2019; Black, 2008; Zaborowski, 2018). Virtual pop stars are Vocaloid avatars with a synthesised voice. Vocaloid[15] is Yamaha's voice synthesizer program that Crypton Future Media utilises to create the performing avatars.

[15] Vocaloid, *Home* [website], http://www.vocaloid.com/en/, (accessed 13 November 2020).

According to Zaborowski (2018), the virtual pop stars started to emerge in Japan in 2007, and the most successful Vocaloid is Hatsune Miku (Image 3), a young woman character. She has gained worldwide popularity and has appeared in commercials, movies, music tours, and games. Although the voice of the Vocaloid is often generic, they are popular because the audience can contribute to the evolution of the Vocaloid's personality, which evokes emotions and the feeling of authenticity. The audience has an interest in participating in the presentations of the Vocaloid, which makes the character feel more personal. The personalisation of the presentation in the form of customisation is also discussed in the study (*Sections 6* and *7*).

Image 3. Hatsune Miku.[16]

Vtubers, including streamers, are especially Japanese pre-programmed characters that operate on Youtube. According to Apleyev and Furukawa (2019), one of the most popular virtual streamers in Japan is Kizuna Ai (Image 4) with 2.86 million subscribers on Youtube. Kizuna Ai debuted on Youtube in 2016 and has since appeared in exhibitions, live TV, and concerts in real-time. She is a virtual avatar that uses human-like movements, gestures, and facial expressions to appear interactive. The authors suggest that the phenomenon of Vtubers became popular in Japan because of the long history of anime and virtual idols like Hatsune Miku. There is potential for VTubers and virtual idols to become more popular outside Japan, especially if the characters are more realistic. They further argue that technology can be localised to other cultures, and the interest in interactivity and virtual characters is increasing. Although the trend is currently popular in the Asian market, with proper localisation, the virtual characters could gain more popularity also, for example, in western cultures.

[16] Crypton Future Media Inc, *Hatsune Miku* [image], *https://ec.crypton.co.jp/pages/prod/virtualsinger/cv01_us*, (accessed 30 October 2020).

Image 4. Kizuna Ai.[17]

Virtual characters have also started to emerge on social media platforms like Instagram and TikTok in the form of highly realistic human representations. These representations represent not only the Asian cultures but also the western cultures. The most well-known virtual social media influencer is Miquela Sousa (Image 5), often known as Lil Miquela, who is a fully pre-programmed character created in 2016. According to Robinson (2020), Lil Miquela has a personality, an identity, and a life story. The character has gained a large following, having 2.7 million followers on Instagram[1], and 2.1 million followers on TikTok[18] in September 2020. Lil Miquela is used for advertising, influencing the followers' consumption habits, and entertainment. In 2018, TIME magazine listed Lil Miquela among the 25 most influential people online (TIME Staff, 2018). Robinson suggests that despite being pre-programmed, virtual influencers can be treated similarly as human social media influencers because they both share content and interact with their followers. Lil Miquela's content is thought to be created by humans.

[17] Kizuna Ai Inc., *Kizuna Ai* [image], https://kizunaai.com/, (accessed 30 October 2020).

[18] Miquela [@lilmiquela], *19 / Robot / FULL PERFORMANCE /bio link)* [TikTok profile], https://www.tiktok.com/@lilmiquela?lang=en, (accessed 15 September 2020).

Image 5. Lil Miquela.[19]

Robinson (2020) proposes that the transparency and responsibility of Lil Miquela have been topics of concern in the past. It is not transparent who creates the content that the virtual influencers share and, therefore, who is responsible for their actions. The virtual news anchors could raise similar concerns because the news content has to be transparent for it to be perceived trustworthy. The author suggests that the virtual influencers are treated as real online personas by the younger followers, and the transparency does not necessarily concern them. Especially when the virtual character is highly realistic, it is easier to perceive them as real. However, virtual influencers are found to be problematic because they can be used as companies' tool to manipulate the young consumers' habits and views (Booth, 2019).

The virtual influencers are seemingly perfect looking, which is controversial in terms of diversity and beauty standards (Tiffany, 2019). Fashion brands have started to experiment with virtual models who are representations of quite perfect human beings. For example, Balmain has a "Virtual Army"[3] of pre-programmed models (Image 6) that they use for advertising campaigns. Furthermore, Lil Miquela has appeared in a Calvin Klein advertisement (Tiffany, 2019). Virtual characters hold an opportunity to show varying appearances and diversity on social media, and entertainment and fashion industries, but thus far, the characters represent very high beauty standards. Albeit ethnic backgrounds are quite diverse. The perfect appearances make the characters less relatable and can harm the consumers' perceptions of themselves. However, Paper Magazine created magazine covers with virtual representations of seven individuals for Pride Month 2020[20]. The representations included, for example, a transgender person and different body sizes. Although the representations were digitalised versions of real humans, they still advocated diversity in the virtual environment. Diversity and the possibility of altering appearances are also relevant to designing the virtual news anchor presentations because they are nowadays discussed more and, therefore, cannot be dismissed.

[19] The Guardian, *Fake online influencers a danger to children, say campaigners* [image], https://www.theguardian.com/media/2019/nov/04/fake-online-influencers-a-danger-to-children-say-campaigners, (accessed 30 October 2020).

[20] Paper Magazine, *NikkieTutorials: Guiding the next generation* [website], https://www.papermag.com/nikkietutorials-pride-2646270437.html?rebelltitem=1#rebelltitem1, (accessed 15 September 2020).

Image 6. Balmain's Virtual Army.[21]

3.3.2 Previous experiments of Virtual news anchors

Previous trials of virtual news anchors have occurred occasionally in news distribution since the early 2000s, but they are yet to be gaining worldwide success or implementation. For example, large news media organisations in Finland (e.g. Yle and MTV) have not experimented with virtual news anchors. However, other forms of interactive, stimulating, and immersive news storytelling has been explored, as discussed in sections *2.3* and *2.4.* Yet, the virtual news anchors have been experimented internationally, but the experiments have been seldom, and they have not started a trend of virtual news anchors.

According to Wiederhold (2019), the first virtual news anchor was *Ananova* (Image 7), an avatar created by the UK Press Association news agency's new media division in 2000. Ananova was a successful representation of a human-like 3D avatar in news broadcasting at the time. Bode (2001) explains that Ananova was a 28-year-old green-haired woman who read headlines from global news services with facial expressions and tone that would roughly match appropriate emotions to the stories. Ananova received both positive and negative feedback; she was described life-like and natural, but also creepy, and she lacked natural movement and sound due to still developing technologies. Despite the reasonably successful introduction of Ananova in news broadcasting, it did not lead to other virtual news anchors for several years.

[21] Balmain Paris, *Balmain's new virtual army* [image], https://www.balmain.com/us/balmain/balmains-new-virtual-army, (accessed 30 October 2020).

Image 7. Ananova.[22]

Mason reported in an article in 2006 that BBC's Newsnight programme broadcasted an avatar-mediated newscast from a virtual studio in Second Life game. Second Life[23] is an online 3D world where users interact with each other via self-representing avatars. The article stated that the reporters were represented by lookalike realistic 3D avatars in the newscast. Unlike with Ananova, in this experiment, the purpose was to place a real-life newscast into a virtual environment rather than to create a new concept of virtual news anchors.

Hamburger (2013) stated that the next experiment to develop the concept of virtual news anchors was in 2013 with *Guide*, an American application with an avatar news anchor for tablets. The purpose of the 3D avatar was to read news articles and blog posts aloud, accompanying the speech with images and videos. The user could select an avatar from a range of realistic human-like characters to animal and anime characters. Guide's goal was to allow the users to consume news content passively. The application was discontinued in 2014[24].

In a BBC news article, Baraniuk (2018) reported that the latest virtual news anchor experiment is China's *Xinhua* news agency's AI news anchors (Image 8) that were announced in 2018. The virtual news anchors are realistic representations of real Xinhua news anchors. They can deliver news 24 hours a day on the news agency's website and social media, which decreases production costs. The virtual news anchors were designed using artificial intelligence to synthesise the real news anchors' voices, lip movements and appearances. The characters are simultaneously realistic and unrealistic, which leads to the danger of the Uncanny Valley phenomenon (Mori, 1970). The author suggests that the characters lack liveliness and, therefore, can appear flat and disconnected. The Chinese virtual news anchors are practically copies of the real news anchors, generating news content automatically. The full resemblance can result in the audience being more judgmental towards the concept, and it not necessarily bring added value to the news

[22] Computer Graphics World, *Animated Anchors* [image], https://www.cgw.com/images/Media/PublicationsArticle/ANA_RIGHsm.jpg, (accessed 13 November 2020).

[23] Linden Lab, *Second Life* [website], https://secondlife.com/, (accessed 1 July 2020).

[24] Crunchbase, *Guide* [website], https://www.crunchbase.com/organization/guide#section-overview, (accessed 1 July 2020).

consumers. The consumers will inevitably compare the virtual news anchors to the real ones, which can result in unacceptance towards such technology. If the virtual news anchors were an independent concept without copying the traditional news settings and with more unrealistic characters, they might be easier to accept.

Image 8. Chinese AI-powered news anchor.[25]

News production has also trialled the use of physical robots as news anchors. According to Zeveleva and Mirumyan (2019), the Russian state news channel *Rossiya 24* presented a physical robot news anchor on television in 2019. At the time of the release, the male robot was only able to move his facial features and neck, but the goal was also to develop its limbs to function. The news distributed by the robot was related to agriculture and nuclear technology, among other topics. However, some perceived the Russian robot news anchor as propaganda. It may be hard to distinguish the source of information that virtual news anchors would share if the process were not transparent. Therefore, it is easy to believe that the virtual news anchors were propaganda, or they have hidden motives. If virtual news anchors were to emerge in news distribution, these are challenges that would have to be solved for successful and ethical implementation.

4 Visual Simulations for Virtual News Anchor Presentations

Because the concept of virtual news anchors is new to many, it may be challenging to picture the virtual characters' possible appearances and verbal and non-verbal interaction. Therefore, five visual simulations of varying virtual news anchor presentations were created for the study participants to evaluate. The visual simulations were used as a tool to conceptualise the virtual characters that distribute a news story and to explore the study participants' opinions and perceptions on the kinds of presentations the virtual news anchors could have. This chapter describes the creation of five visual simulations of virtual news anchor presentations. First, the five visual simulations are introduced, followed by the news story in the simulation videos. Finally, FaceRig software is presented, including its limitations.

[25] BBC News, *China's Xinhua news agency unveils AI news presenter* [image], https://ichef.bbci.co.uk/news/1024/branded_news/EAA8/production/_104227006_cn1.jpg, (accessed 30 October 2020).

4.1 Visual Presentations

The visual simulation videos[26] were 49–58 seconds long, and each showed a 3D virtual character with an altering appearance, tone on voice, and non-verbal interaction. The virtual characters were pre-made virtual characters from *FaceRig* software (*Section 4.3*). The visual simulations could not show hand gestures or many different facial expressions, and the attire could not be changed to fit the more traditional perception of news anchor dressing style. The visual simulations were a method to arouse discussion related to how virtual news anchors could be presented, rather than fixed options for presentations. Furthermore, not all visual simulations looked like traditional news anchors, which could also bring new perspectives to the discussions. The background of the visual simulation videos was grey; thus, it did not demonstrate different communication environments. However, the topic was discussed with the study participants.

The five virtual news anchor presentations included two male characters (Images 9 and 11) and three female characters (Images 10, 12 and 13). Genderless characters were not included. The first three characters represented realistic humans, although, they were not graphically highly realistic. The last two characters represented anime-style characters. Animal characters were not included. Appearance-wise, the human-like presentations represented the idea of traditional and typical news anchors, which news consumers are exposed to on Finnish news broadcasts. Some of the presentations were more traditional than others; for example, the first presentation was more traditional than the third. The realistic presentations represented different age groups and genders, and all the presentations varied in the tone of voice and non-verbal interaction. The anime-style characters represented the less realistic virtual characters. As discussed in section *3.3.1*, anime-style virtual characters have become increasingly popular in, for example, the Japanese culture with virtual idols and Youtubers gaining a large number of following. Although the Finnish culture is different from the Japanese culture, the anime-style presentations were present in the study to arouse discussion. The following images and descriptions introduce the five virtual news anchor presentations:

Image 9. Presentation 1.

[26] Simulation videos of virtual news anchor presentations, *https://drive.google.com/drive/folders/12BJOOX-Y00i_OM0CvNNxkfYKRKRH05Ds?usp=sharing*.

Presentation 1. The first presentation (Image 9) represented the perception of current news anchors with his appearance and attire. Typically, the male news anchors in Finland wear a suit, and they often are or have been middle-aged. The presentation's tone of voice was monotonous and did not show emotions, and the presentation did not greet the audience. The presentation represented humans with a relatively realistic appearance. The non-verbal interaction was subtle, and the facial expressions were limited. However, due to the limitations on the software (*Section 4.3*), sometimes the virtual character made subtle facial expressions that were not made on purpose. The character had a human male's voice, although, the voice sounded younger than what the appearance implied. The mismatch was due to the lack of resources.

Image 10. Presentation 2.

Presentation 2. The second presentation (Image 10) represented a human with a relatively realistic appearance. She also represented news anchors that can be seen on Finnish news broadcasts with its youthful but professional appearance. The presentation's tone of voice was relatively upbeat, and she smiled and expressed emotions with her face. The presentation greeted the study participants, which indicated socialness. The voice was a female human voice, which sounded somewhat young but did not contradict with the appearance of the presentation.

Image 11. Presentation 3.

Presentation 3. The third presentation (Image 11) represented a realistic human. The appearance of the presentation was relaxed, and the attire was atypical for news

anchors on main news broadcasts. The presentation's tone of voice was upbeat, and it showed emotions by emphasizing some words and greeting the study participants in a relaxed manner. The character expressed himself more with nodding and facial expressions, however, some expressions were unnatural due to the limitations of FaceRig. The voice of the presentation was a human male voice that matched the presentation's perceived age.

Image 12. Presentation 4.

Presentation 4. The fourth presentation (Image 12) represented anime-style characters that were typical in, for example, the virtual idol and Youtuber culture. This kind of appearance and attire is not usually associated with news anchors; therefore, this character represented an altering option for a virtual news anchor. The age of the presentation was also younger than what is typically seen. The goal was that these factors evoked new perspectives and ideas in conversations and, thus, resulted in richer material. The tone of voice was upbeat, and the presentation showed some emotions with smiling, nodding, and greeting. The young female human voice matched the presentation's appearance.

Image 13. Presentation 5.

Presentation 5. The fifth presentation (Image 13) represented anime-style and less realistic characters. However, the appearance of the presentation was more subtle than the previous, fourth anime-style presentation. The attire was atypical to news anchors. The tone of voice was monotonous, and the character did not show any emotions. The

voice was a slightly lower female human voice. This presentation defied the perception of typical news anchors, which could stimulate conversation during the focus group interviews.

All the presentations delivered the same piece of news in Finnish. The next subsection describes the process of selecting the news story and shows the story that was used in the presentations.

4.2 News Story

A short piece of news in Finnish was selected from Yle for the visual simulation videos. Each presentation delivered the same news story, but with different tones of voice. The story was related to berry picking equipment. The story was neutral; therefore, the study participants could concentrate on the presentations, rather than the content of the news story. Although it was likely that the study participants also listened to the story to some extent, it should not have evoked emotions in them. Another option would have been to create an invented news story; however, that could have hindered the perceived credibility of the visual simulation videos if the story were noticeably untrue. The following piece of news was recorded in both male and female human voices, and attached to the visual simulation videos:

" Suomalaiset juoksevat taas ämpäreiden perässä – tällä kertaa hyvän marjakesän takia. Ämpäreiden ja marjastustarvikkeiden kysyntä on ollut niin suurta, että tuotteet ovat paikoin loppuneet kaupoista kesken. Poikkeuksellisen hyvä marjakesä on aiheuttanut kuhinaa kauppojen ämpäriosastoilla. Ämpäreiden lisäksi myös muiden marjastustarvikkeiden, kuten poimureiden, pakasterasioiden ja pakastimien myynti on kasvanut merkittävästi ympäri Suomen. Yllättävä suosion kasvu on aiheuttanut joissain kaupoissa myös tyhjänä notkuvia ämpärihyllyjä. - - Marjastustarvikkeiden suosion kasvuun on kuitenkin reagoitu kaupassa nopeasti ja tavarantoimittajilta on tilattu lisää tuotteita tarpeen mukaan. Valikoimaa on pitänyt täydentää aktiivisesti, jotta kysyntä ja tarjonta olisivat tasapainossa." (Pakkala, 28.7.2020)

4.3 FaceRig Software for Visual Simulations

The virtual characters of the visual simulations were created with FaceRig[27], which is a computer-based software that utilises a web-camera to create interactive virtual characters. The software can be used to make videos, stream, broadcast, make gifs, and comic books, and to create 2D or 3D virtual characters. FaceRig also allows the making of characters, backgrounds, and props. Alternatively, the user can select different pre-made characters and environments, and take pictures, or record a video. The pre-made virtual characters include human representations, animals, and anime- and fantasy-style characters. The image below (Image 14) shows that the user can choose the character from a gallery. To move the character's face and head, FaceRig tracks the user's facial movements through the web camera, which creates expressions on the character's face. With some virtual characters, the user can choose whether the facial expressions are

[27] Holotech Studios, *FaceRig* [computer software], San Francisco: Holotech Studios.

animated or retargeted. Animated facial expressions track the movement of the face while maintaining the basic animated expressions, whereas the retargeted mode tracks every movement on the user's face.

Image 14. Character gallery on FaceRig.

FaceRig was selected for the study because it was easy enough to use with available resources and capabilities as it provided pre-made virtual characters. The simulation videos were recorded first on FaceRig, and the pre-recorded speech was attached afterwards. Other possible software's were CrazyTalk8 and Mixamo, however, these software's required more time and skills to create well-made virtual characters. On the other hand, the software's offered more freedom to create different and more established characters.

Even though FaceRig provided suitable virtual characters that fit the visual simulations, and the software was easy to use, it had several limitations. First, the selection of the pre-made virtual characters was limited, and the human-like characters mostly had white skin. The virtual characters on FaceRig are like video game characters. It is worth to note that video game characters with white skin seem to be more common than characters with darker skin tones. This is visible, for example, when advertising video games like the Sims or Fortnite which use human-like virtual characters. FaceRig does not include different skin tones; thus, the presentations in this study were not inclusive regarding the presentation's ethnicity. Consequently, the study participants could have thought that the five presentations did not suggest by default that the virtual news anchors could represent any ethnicity and culture. As this was due to the limitations of the software, the ethnicity of the virtual news anchor simulations was not included in the focus group interview script (Appendix 1). However, the topic was discussed during the interviews. Furthermore, another limitation was that the appearance of the pre-made virtual characters could not be changed.

Second, the facial expressions and the lip-syncing of the virtual characters were not elaborated, and the characters were not graphically high quality, which was especially apparent when the characters represented humans. When the virtual character was on the retargeted mode, the software did not detect the user's facial expressions accurately, resulting in unrealistic, uncontrollable, and angry-looking facial expressions on the character. On the contrary, when the character was on the animated mode, the mouth

movement was not detailed; therefore, lip-syncing was not accurate. The issue was relevant regarding the visual simulations because their quality could affect how the participants perceived them. All the simulations were made using the animated mode because it made them look more neutral. Regardless, the participants were aware that the visual simulations were not technologically advanced. The movement of the pre-made virtual characters was limited to facial expressions and nodding, and only the torso of the character was displayed. Therefore, there was a limited opportunity to create presentations with different non-verbal interaction.

5 Methodology

This chapter discusses the empirical study that was conducted for the thesis. First, the method of focus group interviews is presented, including the description of the procedure and the pilot interview. Second, the study participants and their recruitment is discussed. The chapter finishes with the description of the data-driven content analysis method and the analysis process.

5.1 Focus Group Interviews

The method of semi-structured focus group interviews was selected for reaching the aim of exploring the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. The method was a suitable choice for the study because it was an effective way to explore a wide range of in-depth and versatile insights simultaneously with multiple participants (Lazar et al., 2017). The interviews were conducted in Finnish to avoid the language barrier. The method of focus group interviews was chosen over individual interviews because the concept of virtual news anchors is new to many as it is yet to emerge in Finland. The study participants could support each other and share different perspectives, resulting in more diverse conversations. Additionally, possible similarities and differences in viewpoints could be revealed when the participants heard each other's thoughts (Lazar et al., 2017). The interviews were conducted remotely via Zoom video conferencing platform due to the COVID-19 situation in the summer and autumn 2020 to ensure the safety of the study participants. Consequently, the study structure was designed for remote implementation.

As limitations of focus group interviews, conflicts could have arisen, or participants could have been unwilling to respond in the company of other participants, particularly if the topic were sensitive (Lazar et al., 2017). However, the subject of virtual news anchors was generally neutral, thus, having multiple participants in one interview was expected to have a positive impact rather than negative. The interviews being conducted remotely could have brought additional challenges regarding the connection, turn-taking, and motivating the participants. Hence, the focus group interview method required skilled facilitation. Nevertheless, such problems were not faced during the focus group interviews.

Before conducting the focus group interviews, an interview script (Appendix 1) was created for the interview process. The questions in the interview script were semi-structured. Themes and questions were formed in advance, but the actual interviews could proceed freely with follow-up questions and discussions if they were related to the topic. The script had five parts: 1. Introduction, 2. Warm-up questions about Finnish news anchors, 3. Simulation videos and a discussion, 4. an Ideation task related to the virtual news anchor presentation and the use, and 5. a Wrap-up. The themes for the warm-up questions and simulation video discussions were chosen based on how the presentation was defined in this thesis, and to explore opinions and perceptions on the virtual news anchor presentation and the use comprehensively. The first questions regarding current news anchors in Finland could prepare the participants for the context of news anchors. The focus group interviews should have followed the general structure of the interview script, although, the topics discussed could differ between groups.

The interview script was pilot tested with one participant before the focus group interviews to ensure that the structure and the interview questions were clear, unambiguous, and aligned with the research aim and the interview themes. The purpose was also to test the timing and examine the duration of each section. As there was only one participant, the timing of the focus group interviews could not be thoroughly tested. Only a time estimate could be made of each section. Additionally, the pilot interview was used to adjust the technical details, such as recording the sessions on Zoom and screen sharing the visual simulation videos. Based on the pilot interview, the interview script was adjusted. The number of questions was reduced, rephrased, and reorganised, but the overall structure remained unchanged.

Three focus group interviews were conducted over three days in August 2020. Each focus group lasted between an hour and a half to two hours, and the overall duration of the interviews was five hours and twenty-four minutes. The focus group interviews were recorded for the analysis purposes. Oral consent for recording was required from the participants at the beginning of the session. The participants were also informed about their rights. The role of the facilitator was to ensure a natural conversation between the participants with questions, the simulation videos, and the ideation task. The discussion could proceed freely within the topic, and the questions could vary. However, generally, most subjects were similar throughout the focus group interviews. Some new topics emerged that were not included in the interview script. The group dynamics worked well, and the participants were willing to express their opinions and perceptions. The participants generated new ideas quite creatively, even though they did not have prior experience with virtual news anchors. As an incentive, each participant received a movie ticket voucher after the interview.

The study participants' rights and privacy were cared for, and the focus group interviews followed the ethical research practices informed by the procedures discussed in Research Methods in Human Computer Interaction –book by Lazar et al. (2017). The nature of the study did not require distinguished practices for the participants' health or safety. The participants were ensured to make an independent and informed decision to participate by providing the necessary information throughout the process. The participants enrolled in the study voluntarily via an enrolment survey (Appendix 2). All the participants were aware of their rights before the actual interviews started, and oral consent was required for participation and recording. The participants' information was treated confidentially. The study material was treated and reported anonymously, and the participants were unidentifiable in the reporting. Furthermore, the research topic was not sensitive. The selected news story was neutral, and sensitive topics were avoided. (Lazar et al., 2017.)

5.2 Participants and Recruitment

The focus group interviews had nine study participants with three participants in each group. The participants were recruited via social media by posting the enrolment survey (Appendix 2) on local Facebook groups and a group dedicated to news, and on Instagram. The criteria for participating was to consume news regularly and to have watched Finnish news broadcasts. The survey reviewed whether the participants met the participation

criteria, and collected data of the participants' gender, age, and how frequently they consume news and watch Finnish news broadcasts. Based on the data, focus groups with participants that have different news consumption habits could be created to encourage more varied perspectives during the interviews, and richer research material.

The study participants were from four different age groups. Three participants were between 21 to 30 years old, four participants were between 31 to 40 years old, one participant was between the ages of 51 to 60, and one participant was between 61 to 70 years old. Four participants were male, four participants were female, and one participant selected "other" as their gender. Six participants responded that they consumed news several times a day, and three participants consumed news daily. In this thesis, consuming news several times a day is referred to as frequent news consumption, whereas daily news consumption is referred to as regular. The form of news was not specified. Four participants responded that they watched Finnish news broadcasts on television less than weekly, three participants watched Finnish news broadcasts several times a week, and two participants watched Finnish news broadcasts on television daily.

The first focus group consisted of two males and one female, two of which were between 21–30 of age and one was in the 31–40 age group. The second focus group consisted of two females and one male. Two participants were 31–40 years old, and one participant was 21–30 years old. The third focus group included one male, one female, and one other. All the participants were from the different age groups as one was 31–40 years old, the second was 51–60 years old, and the third participant was 61–70 years old.

5.3 Data-Driven Content Analysis

The recorded research material from the focus group interviews was analysed with the qualitative data-driven content analysis method. According to Tuomi and Sarajärvi (2018), content analysis is a systematic and objective method to analyse written research material and to create a written and accurate description of the research topic. The research material has to be organised into a compact and straightforward form without excluding relevant information to make clear and reliable conclusions. The content analysis process requires logical thinking and interpretation. In data-driven content analysis, the outcome is derived from the research material. The relevant research material is simplified and clustered into categories by combining concepts and creating main concepts from the data (Miles and Huberman, 1994). The main concepts should answer the research question or aim (Tuomi and Sarajärvi, 2018). The data-driven content analysis method was selected because the nature of this study was explorative; therefore, it was essential to remain open for concepts emerging from the research material. The idea of virtual news anchors is relatively novel; thus, it did not seem beneficial to restrict the analysis process with existing theories.

The analysis process was started by transcribing the interview recordings manually from voice to text. The tapes produced in a total of 80 pages of text. Filler words, such as "um" and "like", were omitted, but otherwise the dialogue was transcribed word for word. The units of analysis were either one utterance, or a set of utterances when they were related to the same subject. The analysis material was organised into themes related to the presentation and the use. The presentation themes included appearance, age, ethnicity

and gender, verbal interaction and voice, non-verbal interaction and the display of emotions, and communication environment. Additionally, the themes involved topics related to the customisation of the virtual news anchor presentation and other ideas regarding the character. Use themes included the type of news, personalised news, topics related to the concept being an additional service, and experiences. Within the themes, the units of analysis were organised to the sections of five simulation videos and general utterances in case different simulations were discussed within the theme. The analysis was not conducted based on a pre-defined framework from the previous scholarship.

First, the original utterances were reduced into simplified concepts and phrases. Some simplifications were rephrased to include all the relevant information. Second, the simplifications were clustered into subcategories based on similarity. Third, the subcategories were clustered into broader categories based on similarity, and the categories were named to describe its contents. Finally, the broader categories were clustered into the main categories and named based on the contents. In the following chapter *6*, the findings are reported according to the themes and the main categories. During the analysis process, the aspiration was to be objective and not to exclude relevant information, but the clustering was also done using interpretation. The findings were translated from Finnish to English for reporting, which may have affected the interpretations to some extent. With the data-driven content analysis, the material could be organised to answer the research aim of exploring the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use.

6 Findings

This chapter presents the main findings acquired from the data-driven content analysis to answer the research aim of exploring the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. The analysis process is described in the previous section *5.3*. This chapter is organised into the main findings related to the virtual news anchor presentation, and the main findings related to the use of virtual news anchors. Such division was also used in the analysis phase. The presentation includes appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction, and communication environment. Additionally, the customisation of virtual news anchor presentation and other ideas are presented. The use of virtual news anchors includes the type of news, personalised news, additional service, and experience. The findings are demonstrated with example quotes from the study participants, which were translated into English freely. The original Finnish quotes were not included in the report.

6.1 Virtual News Anchor's Presentation

This subsection presents the findings regarding the virtual news anchor presentation, including appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction and the display of emotions, and communication environment. Finally, the subsection presents findings regarding the customisation of the virtual news anchor presentation and other ideas that emerged from the research material. Generally, the findings suggest that the virtual news anchors could be customisable virtual characters of any form. They do not have to mimic the traditional real-life news anchors in studio settings, except for neutral and professional verbal and non-verbal interaction, and attire. The virtual news anchors could move around in immersive, virtualised news scenes, and interact with the news consumers.

6.1.1 Appearance of Virtual News Anchors

Appearance. The findings suggest that the appearance of virtual news anchors is less restricted than with human news anchors. Virtual news anchors have more freedom to be different, and the participants were not bothered by the appearance of virtual news anchor simulations. Virtual news anchors and human news anchors are not comparable. According to the participants, the appearance does not matter if the entirety functions well. The following example quote from Participant 7 demonstrates the participant's thoughts on the freedom that virtuality allows and the functioning entirety over the appearance:

> ”This virtualisation gives much more freedom to be different…" (Participant 7, male, 61–70, frequent news consumer)

The participants paid attention to some of the visual simulations' faces. It is suggested that the appearance on the face should be relatively neutral and natural. The

participants found the first simulation's appearance too tired with unnatural eyes, but with natural wrinkles. The participants described the second simulation's makeup both too strong for a news anchor and suitable for the overall look. The third simulation was found scary and threatening because of the raised eyebrows and big eyes, but it was also described to look the least creepy. The participants described the appearance of the fifth simulation unrealistic, eerie, and too pale with sad eyes. The quotes below discuss the second simulation's makeup concerning the real Finnish news anchors and the threatening appearance of the third simulation:

> " -- her, for example, eye makeup is quite dark. I'm somewhat, maybe it's a custom of what news anchors usually have is quite natural, not very strong or dark makeup, as far as I'm concerned." (Participant 4, female, 21–30, frequent news consumer)
>
> "-- how threatening and scary the character looked when it had eyebrows so raised and big eyes all the time… " (Participant 1, male, 21–30, frequent news consumer)

Attire. The findings suggest that appropriate clothing is credible. Male news anchor should wear a collared shirt or a stylish jumper, whereas female news anchors should wear a business casual dress without a deep neckline to be credible. Several participants agreed that the first simulation should be dressed differently and wearing only a collared shirt is a better option than wearing a suit. Additionally, the attire was described as appropriate. The participants found the neckline of the second simulation too deep for a Finnish news anchor, and it did not exude professionalism. Then again, the second simulation's attire was also described as appropriate, traditional, and tidy. Some participants did not consider the third simulation's jumper suitable for a news anchor, and a collared shirt would be more convincing, and the attire of the fifth simulation was inappropriate.

Veracity. The participants considered too realistic virtual characters scary, and human-like characters in danger of the "Uncanny Valley" -phenomenon if they are not detailed enough. Less realistic characters were considered to be more forgiving, less creepy, and easier to watch. The fourth simulation was found less creepy because it is less realistic, and the participants compared the cartoonish characters to real news anchors less. Some participants wished for something else than human characters to be virtual news anchors, but such characters were also seen unfit for the real world news. The following example quotes show that the unrealistic presentation is more forgiving, and unrealistic characters do not fit the real world:

> " -- the presentation would be so forgiving if it was a thing or an animal…" (Participant 6, male, 31–40, frequent news consumer)
>
> "-- I maybe dislike it a little that it would be an animal or something else because news is related to the real world, and if some tiger or something would tell me about what has happened in the US politics, there would be something weird about it. I wouldn't want it to be an animal." (Participant 4)

6.1.2 Age, Ethnicity and Gender of Virtual News Anchors

Age. The findings propose that the participants paid attention to the visual simulations' age only with the first simulation who looked the oldest and with the fourth simulation who looked the youngest. The participants had different views on the age of virtual news anchors. Some participants said that the news anchor should be older because they are more credible and familiar. The virtual news anchor could also be middle-aged. Some participants thought that the virtual news anchors could be young and, therefore, be more relatable to the younger consumers. According to some participants, the age did not matter, or the consumer could select it. The example quotes below demonstrate the different views on the virtual news anchors' age:

> "-- I don't know, would it be the viewer's own age plus ten years or something like that. I don't know would I watch my own age. it needs to be maybe a bit older after all, or maybe that's what the news anchors have been throughout the childhood and youth and maybe even today. So maybe being a bit older than oneself…" (Participant 2, female, 31–40, regular news consumer)

> "-- news are mostly serious, so it shouldn't be too young in this case either. It's contradicting if a character who's an 8-year-old or looks four, fifteen speaks about Syria… it doesn't feel right." (Participant 7)

> "[The age] shouldn't matter if it's a virtual character." (Participant 1)

Ethnicity. The participants believed that there is no variation in the appearance and ethnicity of Finnish news anchors as most of them are white. Consumers could be more used to different presentations, such as the fourth simulation if there were more variation in real life. The current Finnish news anchors are not necessarily relatable to all consumers. One participant mentioned that the less familiar cultural background draws attention away from the news. The second simulation was considered to look Finnish, which was found more typical in the news settings. However, the second simulation was also associated with American news. The following quote from Participant 4 discusses the ethnicity of Finnish news anchors related to looking different like the fourth simulation:

> "-- if I think about what these Finnish news anchors look like, they all look quite similar, also the most are white, and there isn't much difference in the ethnic background. Maybe that raises thoughts that would we be more accustomed to a person looking like this if the humans looked different." (Participant 4)

Gender. The gender of the virtual news anchors did not evoke discussion. The gender did not matter because it does not indicate how capable the news anchors are. Additionally, the participants said that they are used to seeing both male and female news anchors in Finland.

6.1.3 Verbal Interaction and Voice of Virtual News Anchors

Style of speech. The participants described the first simulation's style of speech monotonic, hard to comprehend, and boring. The participants had differing opinions on the third simulation's style of speech. It was described as friendly, neutral, appropriate, and relaxed, but also unprepared, and abrupt. The third simulation also emphasized specific words like "again" too much. The participants described the fourth simulation's style of speech as neutral as it was the least editorialised, and charismatic, which was interesting to listen. The fifth simulation's style of speech was dragging and serious.

Voice. The participants preferred a human voice instead of an artificial voice because the human voice is more pleasant to listen. The voice should change based on the news topic and the character. A charismatic voice creates more interest. The participants described the second simulation's voice livelily and convincing, and the fourth simulation had an appropriate, pleasing, and happy voice. The participants highlighted the importance of corresponding the virtual news anchor's voice with its appearance. The first simulation's voice contradicted with its appearance, whereas the other simulations had compatible voices and appearances. The example quotes below demonstrate the opinions on the human voice and the correspondence of the virtual news anchor's voice and appearance:

> "-- definitely authentic voices. What I didn't like about the Chinese news anchor was that the voice was so robotic. It's not clear." (Participant 1)

> "-- it's probably been a younger person reading this than what the character is portraying. The voice should match the picture." (Participant 2)

Articulation. The findings show the relevance of clear articulation on virtual news anchors. Most of the simulations were considered to articulate clearly, but the third simulation was said to have both unclear articulation and clarity.

6.1.4 Non-Verbal Interaction of Virtual News Anchors

Facial expressions. The virtual news anchors should have animated but neutral facial expressions. For example, the eyes should blink. The first simulation should have more neutral facial expressions, and it was too serious. Also, the facial expressions should correspond to the overall habitus better. The third simulation had too many facial expressions, and it looked too surprised. The fifth simulation had sad eyes. The following quote shows Participant 1's views on the virtual news anchors' facial expressions:

> " Eyes blink and… there would be a pleasant basic expression. Not scary, not shocked, not too happy, not depressed, but… it's interesting to know what a pleasant basic expression actually is, but stable that is not too related to the news." (Participant 1)

Synchronisation. The participants highlighted the relevance of synchronised speech and lip movement. The third simulation's speech and lip movement were not synchronised, which was considered distracting. However, the participants did not think that the synchronisation was as important with cartoonish characters, and for animal characters, the mouth movement does not have to sync with speech. The following quote from Participant 6 discusses the need for lip-syncing on an animal character:

> "-- it wouldn't matter if the lips didn't sync on an animal character. You could expect that from it." (Participant 6)

Movement and posture. The participants wished more movement from the virtual news anchors. The virtual news anchors could start moving and do something more than to stand. The too uncontrolled movement was not desired as the third simulation was seen to move restlessly. The first and fifth simulations were considered too stiff, and the first simulation should have had a better posture. The participants thought that a good posture indicates confidence and charisma. The example quote below shows Participant 4's thoughts on the virtual news anchor movement:

> "-- I would like it to start moving and do something else than just stand still. Maybe it would be more entertaining to watch if there was some other stimulation." (Participant 4)

Display of emotions. The findings suggest that virtual news anchors should display emotions neutrally. Only the fourth simulation was considered to be neutral. The first and fifth simulations looked sad, the second simulation seemed happy and falsely perky, and the third simulation showed too much emotion. Additionally, the third simulation showed their own opinions too much. The emotions displayed should correspond to the nature of the news story. The next quote from Participant 2 shows that a news anchor needs to be neutral:

> "-- a news anchor should be neutral and not indicate that "oh well Finland is out of these" … it's always bad news to someone, always good. It doesn't matter what kind of catastrophe it is; one should present it neutrally." (Participant 2)

6.1.5 Communication Environment of Virtual News Anchors

The findings propose that the communication environment of virtual news anchors could be immersive and untraditional. The participants suggested nature, such as forest or seaside, calm environment, game- and fantasy world, and being on the scene for the communication environment. The virtual news anchor being and moving on the scene could make the news feel more authentic. The communication environment should be related to the news story. The participants also suggested more traditional settings like screens on the background that show video material. The grey background was found

both nicely minimalist and boring. The following quotes discuss the participants' views on the communication environment of virtual news anchors:

> "-- and as it's virtual news, why should it be sitting behind a desk like a traditional news anchor. I wouldn't repeat that." (Participant 5, female, 31–40, regular news consumer)

> "-- if it's news about Mars, it could stand there, or it would at least be shown on the background. The topic would determine it." (Participant 8, female, 51–60, frequent news consumer)

6.1.6 Customisation of Virtual News Anchor Presentation and Other Ideas

Customisation. The findings propose that the virtual news anchors should be fully customisable by the consumers, which includes fully customising or changing the character, changing the voice, selecting the background and the background noises. It was also suggested that consumers could select the virtual news anchor to be surprising, and the consumer would not be fully responsible for what the virtual news anchor looks like or does. The example quotes below demonstrate opinions on the customisation of virtual news anchors:

> "I think that it would be the best ever if one could select and make the news anchor to look personal…" (Participant 9, other, 31–40, regular news consumer)

> "It could have an emotion filter, so you could select, for example, that it presents the information theatrically or sadly, or happily or something." (Participant 6)

Some participants said that it could be fun to play with the customisation, whereas some would not bother to play with it. The findings show that a pleasant news anchor could motivate to watch the news, but the focus on the news anchor can also direct attention away from the news story.

Character. The participants proposed additional ideas for the virtual news anchor characters. The virtual news anchors could be a fairy tale or game characters, celebrities, old news anchors, or realistic characters. The importance of good graphics was highlighted in regard to creating the virtual news anchor characters. Participants also discussed diversity and the possibility of untraditional news anchors. The virtual news anchor could be, for example, transgender, and different sizes, ages, and ethnicities. The following quote from Participant 9 discusses the possibility of showing diversity with virtual news anchors:

> "-- I think it would be really cool to have those people who are never on media. Like presented on media. Are they… there would be virtual news anchors that are transgender, plus size, tall people, little people. Why couldn't a virtual news anchor be that 85-90-year-old granny or granpa who has issues with memory but wants to present the news in their own style. But sort of, would enable that kind of image… or if we talk about this

> kind of realistic idea of a person virtual news anchor. So would show different ethnicities…" (Participant 9)

6.2 Use of Virtual News Anchors

This subsection presents the main findings regarding the use of virtual news anchors. Generally, it is suggested that the virtual news anchors could be used for lighter news rather than serious news, and the news content could be personalised to the consumer. The concept of virtual news anchors could be an optional and additional service that offers more elaborated and personalised content, and gamified and stimulating experiences.

Type of news. The findings suggest that virtual news anchors could be more suitable for lighter news, such as entertainment, culture, or sports. However, the first simulation was considered to fit serious news, and the second and the third simulations could be suitable for all news. The second simulation could also present entertainment news, and the third simulation could fit sports and finance news. The fourth simulation could be suitable for gaming, fashion, and music news.

Personalised news. The findings propose that the news content could be personalised to the news consumers. The personalisation could involve selecting interesting news, receiving only new information, and profiling the consumers. However, the participants highlighted the danger of epistemic bubbles (Thi Nguyen, 2019) that may be caused by the personalised news. It was also suggested that the virtual news anchors could be interactive by asking questions and informing the consumer about new information. The following example quotes from Participant 4 show ideas for news content personalisation and discusses the danger of epistemic bubbles:

> "-- they would ask questions or would know already what news you have watched from the beginning to end, so it wouldn't be repetitive or… they could ask if you remember this piece of news you watched yesterday at five o'clock, and yes I remember, and they would go from there." (Participant 4)

> "-- could one enter, for example, some own, like we discussed, interests or values… on the other hand, would you be building your own news bubble where you're only told information that you like and is it news anymore…" (Participant 4)

Additional service. The participants would see virtual news anchors as an additional service to traditional news. The service could bring added value to news, such as gamified or stimulating experiences. The virtual news anchor could deepen the main news broadcast by, for example, showing statistics or providing more information. The example quotes below demonstrate the participants' views on how the virtual news anchors could be used as an additional service:

> ”-- if it would be made entertaining, maybe a little humoristic or like a memorable news or news broadcast where these characters could do whatever, I could see it as an addition…” (Participant 4)
>
> “-- this could fit a situation where you read news online and you can choose whether you read the news story yourself or some virtual character reads it for you.” (Participant 3, male, 21–30, frequent news consumer)

Experience. The findings show that the concept of virtual news anchors could a stimulating experience. The virtual news anchor could highlight information by changing colours, pointing, or underlining words. The virtual news anchor experience could also be gamified, or there could be theme news, such as rap music news. Virtual news anchors should provide different languages, dialects, and sign languages to the consumers. The participants also proposed opportunities for interaction. The virtual news anchor could ask insights and background information from the consumer or give unfocused consumers nudges. The consumers could ask the virtual news anchor for more information.

The main findings presented in this chapter give an idea of the Finnish news consumers’ opinions and perceptions of the virtual news anchor presentation and the use. The findings are discussed further in the next chapter *7*.

7 Discussion

This master's thesis study explored the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. In this chapter, the main findings are discussed further with the previous research discussed in chapters *2* and *3*. First, the chapter starts with summarizing the main findings of chapter *6*. Second, the findings are discussed in depth in the subsection about the virtual news anchor presentation, followed by the subsection about the use. The subsections are organised similarly to the findings in chapter *6.*

7.1 Summary of the Main Findings

The main findings suggest that virtual news anchors could be customisable characters, which are either realistic human representations or cartoonish or animal-like characters. The study participants preferred unrealistic characters because they are more forgiving and more comfortable to watch, and realistic visual simulations fell into the Uncanny Valley. The virtual news anchors have more freedom than human news anchors, but appropriate and professional attire was also expected from the realistic virtual characters. Similar to human news anchors; neutral, professional, and animated verbal and non-verbal interaction was expected from virtual news anchors. Otherwise, the virtual news anchors do not have to mimic the concept of human news anchors in a studio setting. The virtual news anchors could be designed to move around in immersive and virtualised news scenes and interact with the news consumer.

The findings show that the study participants preferred a human voice on the virtual character instead of an artificial voice, and the voice should correspond to the character's appearance. The consumer could be able to customise the virtual character fully, including the appearance, the interaction style, the voice, and the background. The virtual news anchors could also promote diversity with characters with varying appearances, ages, ethnicities, and genders.

The findings propose that the virtual news anchors could be used for lighter news, and the news content could be personalised with recommendations, questions, and interest selection. However, the personalisation of news can lead to epistemic bubbles (Thi Nguyen, 2019), which was a concern of some study participants. The concept of virtual news anchors could be an optional and additional service that offers more elaborated and personalised content and gamified and stimulating experiences.

7.2 Thoughts on the Virtual News Anchor's Presentation

Appearance. The findings suggest that virtual news anchors could be an independent concept in the sense that they do not have to copy how the human news anchors are presented. The virtual news anchors are freer to have varying appearances and, interestingly, the study participants seemed to prefer cartoonish or animal characters as virtual news anchors. Such characters were perceived to be more forgiving and more comfortable to watch. Previous research has suggested that realistic and human-like characters are trustworthy, likeable, appropriate, and engaging (Koda and Maes, 1996; Luo et al., 2006). However, in this study, the realistic characters were not evaluated as positively, although, these factors were not specifically studied. The preference for less

real characters could be partly due to the shortcomings of the visual simulations, which were not realistic enough. Realistic characters are more inclined to judgement as they can be compared to humans more. In this case, the visual simulations fell into the Uncanny Valley, which refers to the human-like virtual characters not reaching the full resemblance of real humans, causing eeriness and decline in trust (Draude, 2011; Mori, 1970).

It is possible that if the realistic visual simulations had been more high quality like the virtual characters discussed in section *3.3.1*, the study participants could have had other opinions on the realistic characters. Therefore, it cannot be assumed that the cartoonish or animal characters are preferred in reality. However, unless the technology is very advanced, it may be safer to create unrealistic virtual news anchors with unique appearances like in many animation movies (Draude, 2011). It was also discussed during the focus group interviews that the virtual news anchors could be fairy tale characters, game- or fantasy world characters, or represent specific people. It may be challenging to create cartoonish or unrealistic virtual news anchors that do not hinder the credibility of the information as the news consumers are used to the cultural and societal norms that are associated with news and news anchors. Then again, if the virtual news anchor's appearance was highly realistic, it should still be recognizable to have been pre-programmed. It was discussed during the interviews that highly realistic virtual characters could be scary because they are harder to distinguish from real humans. In the context of news distribution, unrealistic characters could more easily pass as a new form of experiencing and gamifying news.

The virtual news anchor appearance was associated with human news anchors in the sense that the study participants preferred professional and appropriate clothing on the virtual news anchors. Suits, collared shirts, and business-casual dresses were suggested. The reasoning for this could be that the professional and proper attire would be more credible, which is relevant and an accustom in the context of news distribution. These findings are consistent with the previous research in e-commerce and e-health where a professional and corporate attire has been found to enhance the feeling trust, and credibility and such clothing is more appropriate, reassuring, and likeable (Lunardo et al., 2016; Parmar et al., 2018). Although news anchors in Finland do not have a specific corporate or professional attire, there are cultural norms and traditions about how news anchors dress. These norms also seem to affect the virtual news anchor presentation, especially if the virtual news anchor is a human representation. On the contrary, this may not apply if the virtual news anchor is a cartoon character or an animal. In that case, it was discussed that the virtual character could dress representatively to the cartoon character's style.

Age, ethnicity and gender. The news anchors in Finland have been mostly middle-aged or older, although nowadays there is a little more variation in age. Similarly, the study participants seemed to prefer the virtual news anchors to be middle-aged or older because that is the cultural norm, and more senior news anchors feel more experienced. The preference for the virtual character's age in the context of news distribution may originate from the expectations of human news anchors. According to ter Stal et al. (2020), in e-health, younger characters have been rated higher in expertise and reliability, but older

characters have been suggested to be more authoritative. News anchors could be perceived authoritative because their role is to ensure democracy and to serve the public reliably and transparently, which can affect the preference for experienced news anchors. Contrastingly, some participants thought that the virtual news anchors could be younger and, therefore, more relatable to the younger news consumers. Furthermore, it has been suggested that people favour a character of the same age (Alsharbi and Richards, 2017; Lee et al., 2018); therefore, young virtual news anchor could be preferred by the young news consumers. However, this study did not include adolescent or young adult participants. Nevertheless, it was discussed that the virtual news anchors should not be too young either because that could be contradictory if the virtual news anchors discussed serious topics.

There could be an opportunity to promote diversity of ethnicity with virtual news anchors. Currently, the news anchors in Finland are relatively homogeneous representations of western culture, and almost all are white, which may not be relatable to everyone when the society is diversifying. Furthermore, it has been suggested that a character with a similar ethnic background with the user is more persuasive (Pratt et al., 2007), trustworthy, attractive, and competent (Nass et al., 2000). The ethnicity was not included in the visual simulations because of the limitations of the FaceRig software discussed in section *4.3*. Still, the study participants suggested that the virtual character's ethnicity could be selected. In that case, more consumers could potentially find the virtual news anchors more appealing, although, this would require more research. In many video games like the Sims and Fornite, the majority of the characters seem to be white. However, the virtual characters on social media (*Section 3.3.1*) have started to promote diversity. Nevertheless, it is essential not to rely on stereotypes.

The main findings propose that the gender of the virtual news anchors does not matter because both genders represent the human news anchors. That would mean that the gender stereotypes presented for virtual agents do not necessarily apply to the virtual news anchors in Finland. Previously, it has been suggested that male characters are more knowledgeable, intelligent, and powerful (Baylor and Kim, 2004; Nunamaker et al., 2011), and female characters are more pleasant (Nunamaker et al., 2011). Moreover, some studies have suggested that the user prefers a character with the same gender (Bailenson et al., 2008; Guadagno et al., 2007). However, such gender stereotypes did not occur in this study. It was suggested in the interviews that the virtual news anchor could also be transgender because they are less represented in media. Experiments on the genderless voice[14] for AI assistants already exist, which could also be an opportunity for the virtual news anchors.

Verbal interaction and voice. All the study participants agreed that the virtual news anchor's voice should be a real human voice, and an artificial voice could be unpleasant to listen. The participants also highlighted the importance of the voice being compatible with the character's appearance. The first virtual news anchor simulation represented a middle-aged man but had a younger voice, which the participants found contradicting. The previous research has proposed that a virtual character with a synthetic appearance should have an artificial voice, and a virtual character with a human-like appearance

should have a human voice (Gong and Nass, 2007; Nass and Brave, 2005). However, in this study, the participants seemed to prefer the human voice for a cartoonish character, as well, because it is more pleasant to listen. Furthermore, people are used to seeing animated characters with a human voice in movies and video games. Nonetheless, the voice synthesizers have not developed well enough for the Finnish language to create a well-made human voice for the virtual news anchors. Generally, the verbal interaction and voice of the virtual news anchors should be neutral, natural, charismatic, and well-articulated, which is consistent with the verbal interaction and voices of human news anchors.

Non-verbal interaction. The findings suggest that the virtual news anchors' facial expressions should be neutral but animated and lively. Similar to what has been found in the previous scholarship (Clayman, 2001), the virtual character's eyes should blink. For example, the Chinese AI-powered news anchors (Baraniuk, 2018) had too little facial expressions. Furthermore, it has been proposed that facial expressions increase the trustworthiness and credibility of the character (Cowell and Stanney, 2005), and they become more believable (Bates, 1994). Therefore, some facial expressions would be necessary for virtual news anchors. However, the facial expressions of virtual news anchors should be neutral and not convey emotions or opinions because they can affect how the news story is perceived. Nevertheless, it may be easier to create virtual news anchors with neutral facial expressions. Some of the visual simulations made accidental facial expressions due to the software. It would be crucial to avoid such expressions in reality because they could affect the credibility and perceived reliability of the news.

The virtual news anchors' gestures were not extensively discussed because the simulations could not show, for example, hand gestures. However, the study participants wished that the virtual news anchor would move around more. If the virtual news anchors used hand gestures, they should appear naturally and be aligned with the speech (Ravenet et al., 2018). Being too stiff could hinder the trustworthiness of the virtual character (Cowell and Stanney, 2005). If the virtual news anchors appeared in a more traditional setting, the hand gestures would not necessarily be as crucial. The virtual news anchors should, however, have an upright posture because, according to the participants, it indicates confidence and charisma, which is consistent with Cowell and Stanney's (2005) suggestion that a proper posture communicates confidence. If the virtual news anchors appeared in a more untraditional communication environment, the gestures would be more relevant.

Communication environment. The findings propose that the virtual news anchors would not have to appear in a traditional studio setting, but the communication environment could be more stimulating, immersive, and interactive. Such idea would follow the similar concept of immersive journalism, which uses 360-degree videos and virtual reality to immerse the consumers into a news story from the first person's or the reporter's perspective with virtual scenarios (de la Peña et al., 2010; Jones, 2017). According to the study participants, the virtual news anchor moving around on the scene could make the news feel more realistic, and Jones (2017) suggests that reporter-lead story feels more

authentic because it maintains the focus on the story. The virtual news anchors could be a reporter-led experience, rather than a virtualised copy of traditional news broadcasts. However, the standard setting of a studio with screens on the background was also suggested, and the virtual news anchors in a studio environment could be perceived as more believable (Parmar et al., 2018). Nonetheless, there could also be a possibility to bring added value to the news consumers with an immersive experience. In that case, the virtual news anchors would not be suitable for daily news because creating the virtual scenarios would not be cost- or time-effective. With the experience approach, the virtual news anchors could discuss more general topics of discussion.

Customisation. The findings propose that the news consumer could customise the virtual news anchors' presentation. This topic emerged in all three focus group interview discussions. It was suggested that the presentation could be either fully customisable or the consumer could select a character from pre-made options. The concept of customisation is familiar from video games where the user can choose the character themselves. With the opportunity to customise the virtual news anchor, the news consumer could create a character that they could relate to if they wished or a character that is pleasant for them to view and listen. The experience could also feel more personal. However, the findings indicate that an excessive focus on the virtual news anchor presentation could result in a diminished significance of the news content if the consumer merely played with the virtual character.

7.3 Thoughts on the Use of Virtual News Anchors

Type of news. The findings suggest that the concept of virtual news anchors could be more suitable for the lighter rather than serious news. The virtual characters, in general, can be easily associated with video games, movies, and entertainment. Therefore, it may be harder to place them in serious settings like evening news broadcasts. However, it was proposed that the more traditional simulations (the first and the second) could be suitable for serious news because they are aligned with the cultural and societal norms of being neutral and formal, with appropriate and professional attire. Similar to immersive journalism and news games (*Sections 2.3* and *2.4*), the virtual news anchors could discuss more general news topics where the news consumer can experience the issue at hand in the first person. In that case, the virtual news anchor could guide the news consumer through the topic. It would also be more cost- and time-effective because, unless technology advances enough, the virtual news anchors could not offer gamified or immersive experiences of specific and topical news stories. 360-degree videos, virtual reality, and news games also present more general topics of discussion.

News personalisation. The news content, which is already personalised with recommendations, could be further personalised with the virtual news anchors. By personalising content, the news consumer can encounter content that they would not otherwise consume[6]. The virtual news anchors could provide similar features of content personalisation as news media offers now. However, the virtual news anchors could also detect the content that the news consumer has already consumed and provide either

complementary or new information. They could also allow the news consumer to select interesting news topics. It was suggested that the virtual news anchor could be interactive in the sense that it could ask consumer questions to personalise the content. Nevertheless, the personalised content can result in epistemic bubbles, which happen when the person is not exposed to opposite perspectives (Thi Nguyen, 2019). If the virtual news anchors were equivalent to news broadcasts, the personalised news would contradict with the purpose of the news because not all news consumers were offered the same information. As an additional service, the personalisation could bring added value to consumers.

Additional service. The findings suggest that the virtual news anchors could be used as an additional service to accompany the news distribution in Finland. The study participants did not want the virtual news anchors to replace news broadcasts; thus, it is not necessary to copy and virtualise the setting of traditional news broadcasts. The virtual news anchors could bring added value to the news consumers with stimulating experiences and additional information. They could highlight important information, making it easier to comprehend. It was also proposed that the virtual news anchors could be a potential service for people with hearing impairment. Furthermore, the sign language avatars have been previously acknowledged (Kipp et al., 2011), where the 3D avatar produces animations of the sign language sentences (Lombardo et al., 2011). Therefore, technology-wise it could be possible. Nevertheless, consumers should have the choice to use the service.

The virtual news anchors could deepen the news topic after televised news broadcasts by showing statistics or additional information, or the consumer could select the virtual news anchor to read a news article. The virtual news anchor application Guide was trialled in 2013, and it had similar features as this concept of virtual news anchors. In Guide, the virtual news anchor character read news articles and blog posts aloud, accompanying the information with videos and images (Hamburger, 2013). The concept itself could have had potential, but perhaps it was not the right time, or the application needed more development. Now, while the virtual characters are becoming more common online, the concept could have potential again.

This study suggests that there is no need for the concept of virtual news anchors being a virtualised copy of human news anchors and news broadcasts because it does not necessarily bring added value to the news consumers. Additionally, the realistic characters need to be highly developed to avoid the Uncanny Valley -phenomenon and unnecessary judgement. The concept of virtual news anchors could be an experience-based additional service that allows the news consumers to consume more personalised and stimulating content and to comprehend news more in-depth. The concept could be suitable for offering news consumers a chance to experience topics of discussion from an interactive perspective. Similar concepts have been introduced in Finland in the form of 360-degree videos and virtual reality. The virtual news anchors could be another way to engage news consumers with innovative technology.

8 Conclusions

This master's thesis aimed to explore the Finnish news consumers' opinions and perceptions on the virtual news anchor presentation and the use. The presentation included the appearance, age, ethnicity and gender, verbal interaction and voice, non-verbal interaction, and the communication environment of the virtual news anchors. The use referred to how the virtual news anchors could be utilised in news distribution, including the kind of news they could deliver, and the additional features they could offer. The study explored the participants' first reactions to the concept because it is yet to emerge in Finland. The aim was approached with three focus group interviews with visual simulation videos of varying virtual news anchor presentations. This chapter summarizes the main findings and the conclusions of the study, followed by the study limitations and future work. The chapter finishes with a reflection on the learning experience.

8.1 Summary

The study suggested that the concept of virtual news anchors does not need to mimic traditional news broadcasts, but instead offer news consumers an additional service that focuses on distributing personalised content and relevant news topics via stimulating and interactive experiences. The virtual news anchors were associated with human news anchors in the sense that appropriate attire, neutral and professional verbal and non-verbal interaction, and mature age were expected from the virtual characters. Furthermore, it was suggested that the virtual news anchor presentation could be freely customisable. The virtual news anchors do not have to be human representations. In fact, the study participants seemed to prefer cartoonish and animal-like characters, which may have been partly due to the realistic presentations falling into the Uncanny Valley. The virtual news anchors could promote diversity in news distribution by presenting virtual characters from varying groups of people and ethnicities. The findings corresponded to the study aim with suggestions on the Finnish news consumers' opinions and perceptions, which gives an initial idea of how the concept of virtual news anchors could be introduced in Finland.

8.2 Study Limitations and Future Work

The study has its limitations. Based on this master's thesis study, it is not possible to make general suggestions for the virtual news anchor presentation and the use in Finland because the number of study participants was small. Therefore, it cannot be assumed that the findings correspond to the interests of most Finnish news consumers. Additionally, the participation criteria were rather general and vague. The study participants did not have prior knowledge of the concept of virtual news anchors, which was partly beneficial. However, the novelty of the concept may have also made it harder for the participants to comprehend and visualise it, which may have affected the opinions and perceptions. The participants could generate ideas for the presentation and the use freely because the task was quite general; thus, not all ideas are necessarily realistic or executable. Even though the ideation task was fruitful, it could have been more focused on features that are technologically possible.

The visual simulation videos were not high quality, and the presentations were quite similar to each other due to the limitations of FaceRig software (*Section 4.3*). The low quality of the realistic visual simulations may have hindered the study participants' opinions and perceptions of realistic virtual characters; therefore, it cannot be guaranteed that the participants would prefer the unrealistic characters as virtual news anchors. The visual simulations did not include animal characters or fantasy characters, and the participants did not have the chance to evaluate such presentations in the context of news distribution. Thus, the visual simulation presentations should have been more diverse. For example, the study could have also included a genderless character. Finally, due to the limitations of FaceRig, the visual simulations showed unintended facial expressions, and the lip-syncing was not accurate. Such flaws may have affected the participants' opinions and perceptions of the virtual characters' non-verbal interaction.

Future work would be required to create a more established concept, and to evaluate it on the Finnish news market in general. More work is necessary to develop feasible prototypes for the news consumers to gain a more concrete comprehension of the ideas. Additionally, more research is needed with unrealistic characters to understand whether Finnish news consumers preferred them in practice. The virtual news anchors should also be evaluated with media companies to explore whether there is interest in the concept and possibilities to implement it. Finally, future research would be needed to examine how the virtual news anchors are technologically feasible while being cost- and time-effective.

8.3 Reflection on the Learning Experience

The process of conducting research has required perseverance and learning new competencies to design and execute a study that corresponds to the research objectives. The master's thesis journey is indeed a process, and although occasionally the target was unclear, everything tended to clarify with progress. Finding a research gap and constructing focused and clear research aim and objectives were challenging because the concept of virtual news anchors has not been subject to scientific studies. Therefore, the theoretical background of the study had to be constructed without a pre-existing framework. However, making independent decisions regarding what knowledge is relevant to the study had a significant effect on the learning experience.

Writing the master's thesis enhanced organisation and scheduling capabilities, critical and analytical thinking, and ability to operate large entities while also focusing on the details. Moreover, identifying the study limitations was essential for the learning experience. Before starting to write the master's thesis, the process was expected to be stressful and laborious. Ultimately, the whole process was rather pleasant, and with good organisation, not as arduous as anticipated. Overall, writing the master's thesis helped to gain several useful competencies and learning outcomes for the future.

References

A.I.Channel [Youtube channel]. (n.d.). Youtube. https://www.youtube.com/aichannel. (Accessed 23 October 2020).

Albeanu, C. (2016, Jun 16). The case for newsgames: Why newsrooms should 'gain a fluency in games and play'. *Journalism.co.uk*. https://www.journalism.co.uk/news/the-case-for-newsgames-why-newsrooms-should-gain-a-fluency-in-games-and-play-/s2/a647188/. (Accessed 10 September 2020).

Alpeyev, P., & Furukawa, Y. (2019, Sep 18). How virtual streamers became Japan's biggest YouTube attraction. *Bloomberg*. https://www.bloomberg.com/news/articles/2019-09-17/how-virtual-streamers-became-japan-s-biggest-youtube-attraction. (Accessed 10 August 2020).

Alsharbi, B., & Richards, D. (2017). Using virtual reality technology to improve reality for young people with chronic health conditions. In *Proceedings of the 9th international conference on computer and automation engineering*. ACM, 11–15.

American Mall Game [website]. (n.d.). Bloomberg. https://www.bloomberg.com/features/american-mall-game/. (Accessed 15 October 2020).

Animated anchors [image]. (n.d.). Computer Graphics World. https://www.cgw.com/images/Media/PublicationsArticle/ANA_RIGHsm.jpg. (Accessed 13 November 2020).

Baía Reis, A., & Coelho, A. (2018). Virtual reality and journalism: A gateway to conceptualizing immersive journalism. *Digital Journalism*, *6*(8), 1090–1100.

Bailenson, J. N., & Blascovich, J. (2004). Avatars. *Encyclopedia of Human-Computer Interaction*. Berkshire Publishing Group, 64–68.

Bailenson, J. N., Blascovich, J., & Guadagno, R. E. (2008). Self-representations in immersive virtual environments. *Journal of Applied Social Psychology*, *38*(11), 2673–2690.

Bailenson, J., Yee, N., Merget, D., & Schroeder, R. (2006). The effect of behavioral realism and form realism of real-time avatar faces on verbal disclosure, nonverbal disclosure, emotion recognition, and copresence in dyadic interaction. *PRESENCE: Teleoperators and Virtual Environments*, *15*(4), 359–372.

Balmain's new virtual army [website]. (n.d.a). Balmain. https://www.balmain.com/us/balmain/balmains-new-virtual-army. (Accessed 6 July 2020).

Balmain's new virtual army [image]. (n.d.b). Balmain. https://www.balmain.com/us/balmain/balmains-new-virtual-army. (Accessed 30 October 2020).

Baraniuk, C. (2018, Nov 8). China's Xinhua agency unveils AI news presenter. *BBC News*. https://www.bbc.com/news/technology-46136504. (Accessed 7 July 2020).

Bates, J. (1994). The role of emotion in believable agents. *Communication of the ACM*, *37*(7), 122–125.

Baylor, A. L., & Kim, Y. (2004). Pedagogical agent design: The impact of agent realism, gender, ethnicity, and instructional role. In *Paper presented at the intelligent tutoring systems*, 593–603.

Beer, J. M., Smarr, C.-A., Fisk, A. D., & Rogers, W. A. (2015). Younger and older users' recognition of virtual agent facial expressions. *International Journal of Human-Computer Studies*, *75*, 1–20.

Ben Mimoun, M. S., & Poncin, I. (2015). A valued agent: How ECAs affect website customers' satisfaction and behaviors. *Journal of Retailing and Consumer Services*, *26*, 70–82.

Bente, G., Rüggenberg, S., Krämer, N. C., & Eschenburg, F. (2008). Avatar-mediated networking: Increasing social presence and interpersonal trust in net-based collaborations. *Human Communication Research*, *34*, 287–318.

Bickmore, T. W., Pfeifer, L. M., & Jack, B. W. (2009). Taking the time to care: Empowering low health literacy hospital patients with virtual nurse agents. In *Proceedings of the SIGCHI conference on human factors in computing systems*. ACM, 1265–1274.

Bickmore, T. W., Vardoulakis, L., & Schulman, D. (2013). Tinker: a relational agent museum guide. *Autonomous Agents and Multi-Agent Systems*, *27*(2), 254–276.

Biocca, F. (2014). Connected to my avatar. In Meiselwitz, G. (eds.), *Social Computing and Social Media*, *Lecture Notes in Computer Science*, *vol 8531*, (421–429). Cham, Switzerland: Springer.

Black, D. (2008). The virtual ideal: Virtual idols, cute technology and unclean biology. *Continuum: Journal of Media & Cultural Studies*, *22*(1), 37–50.

Blascovich, J., & Bailenson, J. N. (2011). *Infinite reality: Avatars, eternal life, new worlds, and the dawn of the virtual revolution.* New York, NY: HarperCollins.

Bode, L. (2001). Ananova in "the Kingdom of Shadows". *Convergence: The International Journal of Research into New Media Technologies*, *7*(1), 10–16.

Booth, R. (2019, Nov 4). Fake online influencers a danger to children, say campaigners. *The Guardian*. https://www.theguardian.com/media/2019/nov/04/fake-online-influencers-a-danger-to-children-say-campaigners. (Accessed 10 August 2020).

Cabales, V. (2019, Jun 10). A brief introduction to newsgames: Can video games be used to tell the news? *Knight lab*. https://knightlab.northwestern.edu/2019/06/10/newsgames-intro/. (Accessed 15 October 2020).

Cardon, P. W., & Okoro, E. (2009). Professional characteristics communicated by formal versus casual workplace attire. *Business Communication Quarterly*, *72*(3), 355–360.

Cassell, J., Bickmore, T. Bickmore, Campbell, L., Vilhjálmsson, H., & Yan, H. (2000). Human conversation as a system framework: Designing embodied conversational agents. In Cassell, J., Sullivan, J., Prevost, S., & Churchill, E. (eds.), *Embodied Conversational Agents*, (29–63). Cambridge, Massachusetts: MIT Press.

Chattaraman, V., Kwon, W.-S., Gilbert, J. E., & Ross, K. (2019). Should AI-based, conversational digital assistants employ social- or task-oriented interaction style? A task-competency and reciprocity perspective for older adults. *Computers in Human Behavior*, *90*, 315–330.

China's Xinhua agency unveils AI news presenter [image]. (2018, Nov 8). BBC News. https://ichef.bbci.co.uk/news/1024/branded_news/EAA8/production/_104227006_cn1.jpg. (Accessed 30 October 2020).

Clayman, S. E. (2001). Answers and evasions. *Language in Society*, *30*, 403–442.

College scholarship tycoon [website]. (n.d.). Vox. https://www.vox.com/policy-and-politics/2017/11/1/16526202/college-scholarship-tycoon-game. (Accessed 15 October 2020).

Council for Mass Media. (n.d.). *Guidelines for journalists and an annex* [website]. https://www.jsn.fi/en/guidelines_for_journalists/. (Accessed 23 October 2020).

Cowell, A., & Stanney, K. (2003). Embodiment and interaction guidelines for designing credible, trustworthy embodied conversational agents. In *International workshop on intelligent virtual agents*, 301–309. Berlin, Heidelberg: Springer.

Cowell, A. J., & Stanney, K. M. (2005). Manipulation of non-verbal interaction style and demographic embodiment to increase anthropomorphic computer character credibility. *International Journal of Human-Computer Studies*, *62*, 281–306.

Dacy, J. M., & Brodsky, S. L. (1992). Effects of therapist attire and gender. *Psychotherapy: Theory, Research, Practice, Training*, *29*(3), 486.

Dehn, D. M., & van Mulken, S. (2000). The impact of animated interface agents: A review of empirical research. *International Journal of Human-Computer Studies*, *52*, 1–22.

DeVault, D., Artstein, R., Benn, G., Dey, T., Fast, E., Gainer, A., Georgila, K., Gratch, J., Hartholt, A., Lhommet, M., et al. (2014). Sim Sensei Kiosk: A virtual human interviewer for healthcare decision support. In *Proceedings of the 2014 international conference on Autonomous agents and multiagent systems*. International Foundation for Autonomous Agents and Multiagent Systems, 1061–1068.

Deuze, M. (2005). What is journalism? Professional identity and ideology of journalists reconsidered. *Journalism. Theory, Practice & Criticism*, *6*(4), 442–464.

Diesbach, P.B., &, Galan, J.P. (2006). L'agent virtuel incarné dans la distribution en ligne: cadre théorique et revue de littérature. In *Proceedings of the 6th Day ofE-Marketing Research, Nantes*.

Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology*, *24*, 285–290.

Dodging Trump's Tariffs [website]. (n.d.). Financial Times. *https://ig.ft.com/trump-china-tariffs/*. (Accessed 15 October 2020).

Draude, C. (2011). Intermediaries: reflections on virtual humans, gender, and the Uncanny Valley. *AI & Society*, *26*(4), 319–327.

Edge, A. (2014, Sep 25). Why Al Jazeera has launched its first newsgame. *Journalism.co.uk*. https://www.journalism.co.uk/news/why-al-jazeera-has-launched-its-first-news-game/s2/a562575/. (Accessed 15 October 2020).

Epley, N., Waytz, A., & Cacioppo, J. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, *114*(4), 864–886.

Exline, R. V., & Winters, L. C. (1965). Affect relations and mutual gaze in dyads. In Tomkins, S., & Izzard, C. (eds.), *Affect, Cognition and Personality*. New York: Springer.

FaceRig [computer software]. (n.d.). San Francisco: Holotech Studios.

Fake online influencers a danger to children, say campaigners [image]. (2019, Nov 4). The Guardian. https://www.theguardian.com/media/2019/nov/04/fake-online-influencers-a-danger-to-children-say-campaigners. (Accessed 30 October 2020).

Ferrer Conill, R. (2016). Points, badges, and news. *Comunicacio, 33*(2), 4563.

Ferrer Conill, R., & Karlsson, M. (2016). The gamification of journalism. In Gangadharbatla, H., & Davis, D. (eds.), *Emerging Research and Trends in Gamification*. Hershey, Pennsylvania: IGI Global.

Finnish News Agency STT. (n.d.). *News robotics: Robotics projects and tools*. https://stt.fi/en/product/news-robotics/. (Accessed 12 November 2020).

Fogg, B. J. (2003). *Persuasive technology*. Burlington, MA: Morgan Kaufmann.

Foner, L. (1993). What's an agent, anyway? A sociological case study, "Agents Memo 93-01". *The Agents Group, MIT Media Lab.*

Fox, J., Arena, D., & Bailenson, J. N. (2009). Virtual reality: A survival guide for the social scientist. *Journal of Media Psychology*, *21*, 95–113.

Fox, J., Ahn, S. J., Janssen, J. H., Yeykelis, L., Segovia, K. Y., & Bailenson, J. N. (2015). Avatars versus agents: A meta-analysis quantifying the effect of agency on social influence. *Human-Computer Interaction*, *30*, 401–432.

Foxman, M. (2015). Play the news: Fun and games in digital journalism. *Columbia Journalism School: Tow Center for Digital Journalism*. http://towcenter.org/research/play-the-news-fun-andgames-in-digital-journalism/. (Accessed 11 September 2020).

García-Ortega, A., & García- Avilés, J. A. (2020). When journalism and games intersect: Examining news quality, design and mechanics of political newsgames. *Convergence: The International Journal of Research into New Media Technologies*, *26*(3), 517–536.

Gong, L., & Nass, C. (2007). When a talking-face computer agent is half-human and half-humanoid: Human identity and consistency preference. *Human Communication Research*, *33*(2), 163–193.

Graefe, A. (2016). *Guide to automated journalism*. Columbia University: Tow Center for Digital Journalism.

Graham, J. (2016, Nov 18). Virtual reality gets gritty with breaking news. *USA Today*. https://eu.usatoday.com/story/tech/2016/11/18/virtual-reality-gets-gritty-breaking-news/93934318/. (Accessed 10 August 2020).

Griffith, T. (2020). Interactions between humans, virtual agent characters and virtual avatars. *Electronic Theses and Dissertations*, *2020-*. 52.

Guadagno, R., Blascovich, J., Bailenson, J., & McCall, C. (2007). Virtual humans and persuasion: The effects of agency and behavioral realism. *Media Psychology*, *10*, 1–22.

Guide [website]. (n.d.). Crunchbase. https://www.crunchbase.com/organization/guide#section-overview. (Accessed 1 July 2020).

Gulz, A., & Haake, M. (2006). Design of animated pedagogical agents – A look at their look. *International Journal of Human-Computer Studies*, *64*(4), 322–339.

Gustafson, J., & Bell, L. (2000). Speech technology on trial: Experiences from the August system. *Natural Language Engineering*, *1*(1), 1–15.

Hakola, E. (2013, Feb 8). Yle uudistaa ilmeensä. *Markkinointi & Mainonta*. https://www.marmai.fi/uutiset/yle-uudistaa-ilmeensa/ba65862a-a23e-37e9-a146-27eeaf8680d8. (Accessed 30 October 2020).

Hamburger, E. (2013, Feb 5). Can Guide's digital news anchors replace daytime TV? *The Verge*. https://www.theverge.com/2013/2/5/3950798/guide-app-for-ipad. (Accessed 30 October 2020).

Hatsune Miku [image]. (n.d.). Crypton Future Media Inc. https://ec.crypton.co.jp/pages/prod/virtualsinger/cv01_us. (Accessed 30 October 2020).

Helsingin Sanomat. (2020, Jan 29). Helsingin Sanomien periaatelinja. https://www.hs.fi/info/art-2000006390609.html. (Accessed 12 November 2020).

Holzwarth, M., Janiszewski, C., & Neumann, M. M. (2006). The influence of avatars on online consumer shopping behavior. *Journal of Marketing*, *70*(4), 19–36.

Jacobs, N., & Garnham, A. (2006). The role of conversational hand gestures in a narrative task. *Journal of Memory and Language*, 291–303.

Jones, S. (2015). Immersive storytelling as a learning platform. *Talk given at TedX, London*. December 10.

Jones, S. (2017). Disrupting the narrative: Immersive journalism in virtual reality. *Journal of Media Practice*, *18*(2–3), 171–185.

Khan, R. F., & Sutcliffe, A. (2014). Attractive agents are more persuasive. *International Journal of Human-Computer Interaction*, *30*, 142–150.

Kipp, M., Heloir, A., & Nguyen, Q. (2011). Sign language avatars: Animation and comprehensibility. In *Intelligent Virtual Agents*, *6895*, 113–126. Berlin Heidelberg: Springer.

Kizuna Ai [Image]. (n.d.). Kizuna Ai Inc. https://kizunaai.com/. (Accessed 30 October 2020).

Knapp, M. L., & Hall, J. A. (2013). *Nonverbal communication.* De Gruyter Mouton.

Knapp, M. L., Hall, J. A., & Horgan, T. G. (2013). *Nonverbal communication in human interaction* (8th ed.). Boston, Massachusetts: Cengage Learning.

Koda, T., & Maes, P. (1996). Agents with faces: The effect of personification. In *Proceedings 5th IEEE International Workshop on Robot and Human Communication. RO-MAN'96 TSUKUBA*, 189–194.

Kreijns, K., Kirschner, P. A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior*, *19*(3), 335–353.

Lai, H. (2015). Newsgames. In Kaiser, M. (eds.), *Innovationen in den Medien*. *Crossmedia, Storywelten, Change Management*. Munich, Germany: Medien Netzwerk Bayern.

Lazar, J., Feng, J., & Hochheiser, H. (2017). *Research methods in human computer interaction* (2nd ed.). Cambridge, Massachusetts: Morgan Kaufmann.

Leathers, D. G. (1997). *Successful nonverbal behavior – principles & applications* (3rd ed.). Needham Heights, Massachusetts: Allyn & Bacon.

Lee, Y.-H., Xiao, M., & Wells, R. H. (2018). The effects of avatars' age on older adults' self-disclosure and trust. *Cyberpsychology, Behavior, and Social Networking*, *21*(3), 173–178.

Lombardo, V., Battaglino, C., Damiano, R., & Nunnari, F. (2011). An avatar–based interface for the Italian Sign Language. In *International Conference on Complex, Intelligent, and Software Intensive Systems*, 589–594.

Lunardo, R., Bressolles, G., & Durrieu, F. (2016). The interacting effect of virtual agents' gender and dressing style on attractiveness and subsequent consumer online behavior. *Journal of Retailing and Consumer Services*, *30*, 59–66.

Luo, F. T., McGoldrick, P., Beatty, S., & Keeling, K. A. (2006). On-screen characters: Their design and influence on consumer trust. *Journal of Services Marketing*, *20*, 122–124.

Magdi Fawzy, R. (2019). Neoliberalizing news discourse: A semio-discursive reading of news gamification. *Discourse & Communication*, *13*(5), 497–515.

Mason, P. (2006, Jan 5). Do avatars dream of electric racoons? *BBC News*. http://news.bbc.co.uk/2/hi/programmes/newsnight/4583924.stm. (Accessed 15 September 2020).

Meet Q: The first genderless voice [website]. (n.d.). https://www.genderlessvoice.com/. (Accessed 30 October 2020).

Mehrabian, A. (1967). Orientation behaviors and nonverbal attitude communication. *Journal of Communication*, *16*, 324–332.

Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook* (2. eds.). Sage.

Miquela [@lilmiquela]. (n.d.a). Posts [Instagram profile]. *Instagram*. https://www.instagram.com/lilmiquela/?hl=fi. (Accessed 17 September 2020).

Miquela [@lilmiquela]. (n.d.b). 19 / Robot / FULL PERFORMANCE /bio link) [TikTok profile]. *TikTok*. https://www.tiktok.com/@lilmiquela?lang=en. (Accessed 17 September 2020).

Moon, J. H., Kim, E., Choi, S., & Sung, Y. (2013). Keep the social in social media: The role of social interaction in avatar-based virtual shopping. *Journal of Interactive Advertising*, *13*(1), 14–26.

Mori, M. (1970). Uncanny valley. *Energy*, *7*(4), 33–35.

Nass, C., & Brave, S. B. (2005). *Wired for speech: How voice activates and enhances the human-computer relationship.* Cambridge, Massachusetts: MIT Press.

Nass, C., Moon, Y., & Green, N. (1997). Are machines gender neutral? Gender-stereotypic responses to computers with voices. *Journal of Applied Social Psychology*, *27*(10), 864–876.

Nass, C., & Moon, Y. (2000). Machines and mindlessness: Social responses to computers. *Journal of Social Issues*, *56*(1), 81–103.

Nass, C., Isbister, K., & Lee, E.-J. (2000). Truth is beauty: Researching embodied conversational agents. In Cassell, J., Sullivan, J., Prevost, S., Churchill, E. (eds.), *Embodied Conversational Agents*, (374–402). Cambridge, Massachusetts: MIT Press.

NikkieTutorials: Guiding the next generation [website]. (2020, Jun 27). Paper Magazine. https://www.papermag.com/nikkietutorials-pride-2646270437.html?rebelltitem=1#rebelltitem1. (Accessed 15 September 2020).

Nowak, K. L., & Rauh, C. (2005). The influence of the avatar on online perceptions of anthropomorphism, androgyny, credibility, homophily, and attraction. *Journal of Computer-Mediated Communication*, *11*(1), 153–178.

Nowak, K. L., & Rauh, C. (2008). Choose your "buddy icon" carefully: The influence of avatar androgyny, anthropomorphism and credibility in online interactions. *Computers in Human Behavior*, *24*, 1473–1493.

Nunamaker, J. F., Derrick, D. C., Elkins, A. C., Burgoon, J. K., & Patton, M. W. (2011). Embodied conversational agent-based kiosk for automated interviewing. *Journal of Management Information Systems*, *28*(1), 17–48.

Pakkala, E. (2020, Jul 28). Suomalaiset juoksevat taas ämpäreiden perässä – tällä kertaa hyvän marjakesän takia. *Yle Uutiset*. https://yle.fi/uutiset/3-11467450. (Accessed 10 August 2020).

Parmar, D., Olafsson, S., Utami, D., & Bickmore, T. (2018). Looking the part: The effect of attire and setting on perceptions of a virtual health counselor. In *Proceedings of the 18th International Conference on intelligent virtual agents*, 301–306.

de la Peña, N., Weil, P., Pomés, J., Spanlang, B., Friedman, D., Sanchez-Vives, M. V., & Slater, M. (2010). Immersive journalism: Immersive virtual reality for the first-person experience of news. *Presence*, *19*(4), 291–301.

Pratt, J. A., Hauser, K., Ugray, Z., & Patterson, O. (2007). Looking at human-computer interface design: Effects of ethnicity in computer agents. *Interacting with Computers*, *19*, 512–523.

Rafaeli, A., Dutton, J., Harquail, C. V., & Mackie-Lewis, S. (1997). Navigating by attire: The use of dress by female administrative employees. *The Academy of Management Journal*, *40*(1), 8–45.

Ravenet, B., Pelachaud, C., Clavel, C., & Marsella, S. (2018). Automating the production of communicative gestures in embodied characters. *Frontiers in Psychology*, *9*.

Reuters Institution. (2019). Uutismedia verkossa 2019: Digital News Report, Suomen maaraportti. *COMET*. 4–63.

Reuters Institution. (2020). Uutismedia verkossa 2020: Digital News Report, Suomen maaraportti. *COMET*. 4–68.

Robinson, B. (2020). Towards an ontology and ethics of virtual influencers. *Australasian Journal of Information Systems*, *24*.

Rosenberg-Kima, R. B., Baylor, A. L., Plant, E. A., & Doerr, C. E. (2008). Interface agents as social models for female students: The effects of agent visual presence and appearance on female students' attitudes and beliefs. *Computers in Human Behavior*, *24*(6), 2741–2756.

Russell, S. J., & Norvig, P. (2003). *Artificial intelligence: A modern approach*. 2nd ed. Upper Saddle River, New Jersey: Pearson Education, Inc.

Schrader, C. (2019). Creating avatars for technology usage: Context matters. *Computers in Human Behavior*, *93*, 219–225.

Second Life [website]. (n.d.). Linden Lab. https://secondlife.com/. (Accessed 1 July 2020).

Sicart, M. (2008). Newsgames: Theory and design. In Stevens, S. M., & Saldamarco, S. (eds.), *Entertainment Computing - ICEC 2008 vol.* 5309 (27–33). Berlin, Heidelberg: Springer.

Tan, S-M. & Liew, T. W. (2020). Designing embodied virtual agents as product specialists in a multi-product category e-commerce: The roles of source credibility and social presence. *International Journal of Human–Computer Interaction*, 1136–1149.

ter Stal, S., Tabak, M., op den Akker, H., Beinema T., & Hermens, H. (2020). Who do you prefer? The effect of age, gender and role on users' first impressions of embodied conversational agents in eHealth. *International Journal of Human-Computer Interaction*, *36*(9), 881–892.

The Amazon Race. (2019, Jun 7). ABC News Story Lab. https://www.abc.net.au/news/2019-02-27/amazon-warehouse-workers-game-race/10803346?nw=0. (Accessed 15 October 2020)

Thi Nguyen, C. (2019, Sep 11). The problem of living inside echo chambers. *The Conversation*. https://theconversation.com/the-problem-of-living-inside-echo-chambers-110486. (Accessed 12 November 2020).

Tiffany, K. (2019, Jun 3). Lil Miquela and the virtual influencer hype, explained. *Vox*. https://www.vox.com/the-goods/2019/6/3/18647626/instagram-virtual-influencers-lil-miquela-ai-startups. (Accessed 10 July 2020).

TIME Staff. (2018, Jun 30). The 25 most influential people on the internet. *TIME*. https://time.com/5626827/the-25-most-influential-people-on-the-internet/. (Accessed 12 September 2020).

Troll Factory [website]. (n.d.). Yle News Lab. https://trollfactory.yle.fi/. (Accessed 15 October 2020).

Tuomi, J., & Sarajärvi, A. (2018). *Laadullinen tutkimus ja sisällönanalyysi*. (Uudistettu laitos.). Tammi.

Vasalou, A., & Joinson, A. N. (2009). Me, myself and I: The role of interactional context on self-presentation through avatars. *Computers in Human Behavior*, *25*, 510–520.

Veletsianos, G. (2012). How do learners respond to pedagogical agents that deliver social-oriented non-task messages? Impact on student learning, perceptions, and experiences. *Computers in Human Behavior*, *28*(1), 275–283.

Veletsianos, G., & Doering, A. (2010). Long-term student experiences in a hybrid, open-ended and problem-based adventure learning program. *Australasian Journal of Educational Technology*, *26*(2), 280–296.

Visschedijk, G. C., Lazonder, A. W., van der Hulst, A., Vink, N., & Leemkuil, H. (2012). Modelling human emotions for tactical decision-making games. *British Journal of Educational Technology*, *10*.

Vocaloid [website]. http://www.vocaloid.com/en/. (Accessed 13 November 2020).

Vos, T. P., & Perreault, G. P. (2020). The discursive construction of the gamification of journalism. *Convergence: The International Journal of Research into New Media Technologies*, *26*(3), 470–485.

Wiederhold, B. (2019). Animated news anchors: Where to next? *Cyberpsychology, Behavior and Social Networking, 22(*11), 675–676.

Yleisradio. (2016, Sep 3). Sinut on käännytetty [website]. https://yle.fi/uutiset/3-9136482. (Accessed 15 October 2020).

Yleisradio. (n.d.a). Ylen palvelujen personointi ja uutisautomaatio [website]. https://yle.fi/aihe/sivu/yleisradio/ylen-palvelujen-personointi-ja-uutisautomaatio. (Accessed 15 October 2020).

Yohannis, A. R., Prabowo, Y. D., & Waworuntu, A. (2014). Defining gamification: From lexical meaning and process viewpoint towards a gameful reality. *International Conference on Information Technology Systems and Innovation (ICITSI: 2014)*, 284–289.

Zaborowski, R. (2018). Fans negotiating performer personas: 'Melt' by Ryo feat. Hatsune Miku. *Suomen Antropologi*, *43*(2), 104–108.

Zeveleva, K., & Mirumyan, K. (2019, Apr 18). Robot news presenter causes a stir on Russian TV. *BBC Monitoring.* https://www.bbc.com/news/technology-47981274. (Accessed 12 September 2020).

Zoric, G., Smid, K., & Pandzic, I. S. (2007). Facial gestures: Taxonomy and application of non-verbal, non-emotional facial displays for embodied conversational agents. In Nishida, T. (eds.), *Conversational Informatics: An Engineering approach*, (161–182). John Wiley & Sons, Ltd.

Appendices

Appendix 1

Focus group interview script

JOHDANTO (10 min)

[Kaikki osallistujat ovat paikalla keskustelussa.]

- ➔ *Käy läpi, että oikeat osallistujat ovat paikalla*
- ➔ *Laita sekuntikello puhelimesta päälle*
- ➔ *Aloita johdanto*

Ensinnäkin kiitos paljon teille kaikille, että osallistutte tähän fokusryhmähaastatteluun, ja käytätte aikaanne auttaaksenne minua. Arvostan sitä todella paljon. Minun nimeni on Veera Eiste. Opiskelen Tampereen yliopistossa Human-Technology Interaction -maisteriohjelmassa ja tämä fokusryhmähaastattelu on osa Pro gradu -tutkielmani empiiristä tutkimusta. Tutkimus käsittelee näkemyksiä, mielipiteitä ja kokemuksia uutisankkureista ja virtuaalisten uutisankkureiden esillepanoa, eli ulkonäköä, sukupuolta, ikää, ja tapaa kommunikoida. Tämä ryhmäkeskustelu kestää 1,5 tunnista 2 tuntiin. Pyydän teitä nyt suullisesti hyväksymään, mikäli haluatte osallistua tähän fokusryhmähaastatteluun ja hyväksytte keskustelun tallennuksen analyysivaiheen helpottamiseksi. Tallenne sisältää sekä videokuvan että äänen. Jos ette kuitenkaan toivo, että videokuvanne tallentuu, voitte sulkea kameran. Toivon kuitenkin, että voimme pitää kameroita päällä, jotta keskustelu sujuu etänä sujuvammin. Hyväksyvätkö kaikki osallistumisen ja tallennuksen.

- ➔ *Pyydä suostumusta*

Osallistumisenne on täysin anonyymiä, koska tallennetta ei näytetä kenellekään ulkopuoliselle, ja mahdolliset suorat lainaukset raportointivaiheessa ovat anonyymejä. Te ette myöskään ole tunnistettavissa. Tallenne säilytetään salasanalla suojatussa tiedostossa. Haluan myös muistuttaa, että kun tämä haastattelu tehdään etänä, niin mahdollisia teknisiä ongelmia tai huonoa yhteyttä saattaa ilmetä, mutta toivotaan parasta ja koitetaan olla välittämättä siitä liikaa.

Teillä on oikeus missä vaiheessa vaan keskeyttää osallistumisenne, sulkea kameranne tai olla vastaamatta kysymyksiin. Tämän keskustelun osat ovat täysin vapaaehtoisia. Oikeita tai vääriä vastauksia ei ole, koska olen kiinnostunut teidän näkemyksistänne, mielipiteistä ja kokemuksista. Voitte kysyä kysymyksiä missä vaiheessa vaan keskustelun aikana. Tämä keskustelu on luonteeltaan sellainen, että te pääsette osallistumaan mahdollisimman paljon ja keskustelemaan toistenne kanssa ja minä ohjaan keskustelun kulkua kysymysten, videoiden ja tehtävän avulla.

Tämä keskustelu etenee seuraavasti. Aloitamme muutamilla lämmittelykysymyksillä, jonka jälkeen siirrymme katsomaan viisi videota. Minä jaan näyttöni tietokoneeltani, jotta näette videot. Tässä vaiheessa teillä on mahdollisuus kirjoittaa muistiinpanoja, mistä syystä pyysin teitä ottamaan tarvittavat välineet mukaan tai kirjoittamaan tietokoneen muistiinpanoihin. Tämän jälkeen keskustelemme videoista haastattelukysymyksien avulla. Lopuksi pääsette osallistumaan ideointitehtävään, jossa pohditte miltä teidän mielestänne virtuaaliuutisankkureiden tulisi näyttää, miten käyttäytyä ja minkälaisessa ympäristössä. Keskustelu päättyy yhteenvetoon.

Onko teillä tässä vaiheessa kysyttävää? Pyydän myös tässä vaiheessa teitä laittamaan puhelimet äänettömälle, jos teillä on puhelin lähellä, ja sulkemaan mahdolliset muut sovellukset.

➔ *Jos osallistujilla kysyttävää, vastaa kysymyksiin*

Laitan nyt näytöntallennuksen päälle.

➔ *Aloita näytöntallennus*
➔ *Jos osallistujilla ei ole kysyttävää, aloita keskustelu*

LÄMMITTELYKYSYMYKSET (15 min)

Siirrytään lämmittelykysymyksiin. Voitte missä vaiheessa vaan täydentää tai kommentoida toistenne vastauksia, koska tavoite on, että te keskustelette kysymyksistä yhdessä. Voidaan aloittaa!

HUOM! Pyri saamaan keskusteludynamiikka tasapuoliseksi heti alusta, ja tarvittaessa kohdista kysymyksiä eri osallistujille, jotta jokainen pääsee ääneen.

Suomalaiset uutisankkurit

- Yleisellä tasolla, miten kuvailisitte hyvää uutisankkuria? Uutisankkureilla viitataan niihin henkilöihin, jotka uutislähetyksissä lukevat uutiset.
  - Miten kuvailisitte huonoa uutisankkuria?

- Miten kuvailisitte nykyisiä suomalaisia uutisankkureita, joita voi nähdä esimerkiksi Ylen tai MTV3 uutisissa?
  - Miksi?

- Millaiset piirteet (esim. ulkonäöllisesti tai puheessa/eleissä) tekevät uutisankkurista uskottavan?
  - Miksi?
  - Mitkä piirteet tekevät epäuskottavan?
    - Miksi?

- Osaatteko mainita uutisankkureita, joista erityisesti pidätte?
  - Mitkä asiat tekevät siitä pidettävän?
    - Miksi?

- Osaatteko mainita uutisankkureita, joita pidätte epämiellyttävinä?
  - Mitkä asiat tekevät heistä epämiellyttäviä?
    - Miksi?

➔ *Haluatteko vielä lisätä jotain?*
➔ *Osallistujilla ei ole lisättävää, siirry seuraavaan osioon*

VIDEOT JA KESKUSTELU (45 min)

Nyt siirrymme osioon, jossa näytän teille viisi videota erilaisista virtuaalihahmoista. Ne ovat simulaatioita virtuaalisista uutisankkureista, joita voitaisiin ehkä tulevaisuudessa nähdä. Nämä simulaatiot ovat melko yksinkertaisia, eivätkä ne ole laadultaan tai teknisyydeltään huippuluokkaa. Jokainen hahmo kertoo saman uutispätkän. Keskittykää siihen, miltä virtuaaliuutisankkuri näyttää, minkälaisia ominaisuuksia sillä on ja miten se käyttäytyy ja puhuu. Uutisen sisällöllä ei ole merkitystä, vaan esillepano ja miten uutinen kommunikoidaan. Näytän videot jakamalla näyttöni. Videoiden kesto vaihtelee 49 ja 58 sekunnin välillä ja voitte halutessanne kirjoittaa itsellenne muistiinpanoja ajatuksistanne. Lopuksi näytän vielä noin 10 sekunnin pätkät jokaisesta videosta. Pidetään jokaisen videon välissä pieni tauko, niin ehditte halutessanne kirjoittaa ajatuksia ylös ja prosessoida näkemäänne. Kun olette valmiita, näytän ensimmäisen videon.

Pidä pieni tauko jokaisen videon välissä, että osallistujat ehtivät halutessaan kirjoittamaan muistiinpanoja ja prosessoimaan tilannetta.

➔ *Näytä ensimmäinen video*
➔ *Pieni tauko*

➔ *Tässä tulee toinen video.*
➔ *Näytä toinen video*
➔ *Pieni tauko*

➔ *Tässä tulee kolmas video.*
➔ *Näytä kolmas video*
➔ *Pieni tauko*

➔ *Tässä tulee neljäs video.*
➔ *Näytä neljäs video*
➔ *Pieni tauko*

➔ *Tässä tulee viides video.*
➔ *Näytä viides video*
➔ *Pieni tauko*

Nyt näytän teille jokaisesta videosta 10 sekunnin pätkän. Jokaisen videon välissä kysyn teiltä saman kysymyksen.

➔ *Näytä 10 sec ensimmäistä videota*
– Mitä mieltä olette tämän virtuaaliuutisankkurin esillepanosta?
➔ *Näytä 10 sec toista videota*
– Mitä mieltä olette tämän virtuaaliuutisankkurin esillepanosta?
➔ *Näytä 10 sec kolmatta videota*
– Mitä mieltä olette tämän virtuaaliuutisankkurin esillepanosta?
➔ *Näytä 10 sec neljättä videota*

- Mitä mieltä olette tämän virtuaaliuutisankkurin esillepanosta?

➔ *Näytä 10 sec viidettä videota*

- Mitä mieltä olette tämän virtuaaliuutisankkurin esillepanosta?

Nyt olette nähneet kaikki viisi videota, joten voimme siirtyä keskustelemaan niistä. Jätän tähän näytölle kuvan, jossa näkyy kaikkien videoiden virtuaaliuutisankkurit. Kuten sanoin aiemminkin, tarkoituksena on, että voitte yhdessä keskustella kysymyksistä ja täydentää tai kommentoida toisianne.

Virtuaaliuutisankkurien ulkoiset piirteet

- Mitä olette mieltä virtuaaliuutisankkureiden ulkoisista piirteistä?
  - Esimerkiksi siitä miten ne ovat pukeutuneet, niiden realistisuudesta tai miltä ne näyttävät kokonaisuutena?
- Mikä virtuaaliuutisankkuri miellyttää ulkonäöllisesti teitä eniten?
  - Miksi?
  - Mikä ulkonäön piirre miellyttää erityisesti? Miksi?
- Mikä virtuaaliuutisankkuri miellyttää ulkonäöllisesti teitä vähiten?
  - Miksi?
  - Mikä ulkonäön piirre on erityisesti epämiellyttävä? Miksi?

Virtuaaliuutisankkurien ikä ja sukupuoli

- Miten paljon kiinnititte huomiota virtuaaliuutisankkurien ikäryhmään?
  - Millainen merkitys sillä on, että virtuaaliuutisankkuri olisi (tai ei olisi) tiettyä ikäryhmää?
    - Miksi?
- Miten paljon kiinnititte huomiota virtuaaliuutisankkurien sukupuoleen?
  - Millainen merkitys sillä on, että virtuaaliuutisankkuri olisi (tai ei olisi) tiettyä sukupuolta?
    - Miksi?

Virtuaaliuutisankkurien vuorovaikutustyyli

- Mihin kiinnititte huomiota virtuaaliuutisankkurien eleissä ja puheessa?
  - Miksi kiinnitit tähän huomiota?
    - Miten se vaikutti uutisen seuraamiseen?
- Mikä virtuaaliuutisankkuri kertoi uutisen miellyttävimmin?
  - Miksi?
    - Mitkä seikat vaikuttivat siihen?
- Mikä virtuaaliuutisankkuri kertoi uutisen vähiten miellyttävästi?
  - Miksi?
    - Mitkä seikat vaikuttivat siihen?

Virtuaaliuutisankkurien uskottavuus ja pidettävyys

- Miten uskottavilta tällaiset virtuaaliuutisankkurit tuntuivat?
  - Mitkä seikat vaikuttivat uskottavuuteen (positiivisesti/negatiivisesti)?
    - Miksi?
- Mikä virtuaaliuutisankkuri tuntui uskottavimmalta?

    - Mikä teki siitä uskottavan?
- Mikä virtuaaliuutisankkuri tuntui epäuskottavimmalta?
    - Mikä teki siitä epäuskottavan?
- Mistä virtuaaliuutisankkurista piditte eniten?
    - Mistä piirteistä pidit erityisesti?
        - Miksi?
- Mistä virtuaaliuutisankkurista piditte vähiten?
    - Mistä piirteistä et erityisesti pitänyt?
        - Miksi?
        - Miten olisitte kehittäneet tätä virtuaaliuutisankkuria, jotta pitäisitte siitä enemmän?

Virtuaaliuutisankkurit

- Mitä olisitte mieltä ajatuksesta, että uutisten kertojana voisi toimia tietokoneella tehty virtuaaliuutisankkuri?
    - Miten tämä voisi vaikuttaa uutisten seuraamiseen teidän kohdallanne?
        - Miksi vaikuttaa näin?
- Minkälaisten uutisten kertomiseen virtuaaliuutisankkurit voisivat toimia parhaiten?
    - Miksi?
- Minkälaisten uutisten kertomiseen virtuaaliuutisankkurit voisivat toimia huonoiten?
    - Miksi?
- Miltä uutisten katsominen tuntuisi, jos uutisten kertojana toimisi virtuaaliuutisankkuri?
    - Miksi?
- Minkälaisesta lähteestä seuraisitte mieluiten tämänkaltaisia uutisia?
    - Toimisiko virtuaaliuutisankkuri ennemmin lisämahdollisuutena vai korvaisi jotain uutisia?
- Millaisille ihmisille suosittelisitte virtuaaliuutisankkurin kertomia uutisia?
    - Miksi?

Fasilitoijan muistilista:

- *Kuuntele ja anna osallistujien puhua*
- *Kysy lisäkysymyksiä. Esim. “Kerro lisää tästä…”, “miksi…?”*
- *Jos keskustelu alkaa liikaa rönsyilemään, voit varovasti johdattaa keskustelun oikeaan aiheeseen. Esim. ”Jos palataan tähän kysymykseen liittyen…”*
- *Pidä mielessä mitä osallistujat vastaavat, jotta et kysy samoja kysymyksiä monesti*
- *Jos tarvetta, voit viitata siihen, mitä osallistujat ovat aiemmin maininneet. Esim. ”aiemmin mainitsit, että…”*

Haluaisitteko vielä lisätä jotain?

Onko teillä tässä vaiheessa muuten jotain kysyttävää?

➔ *Osallistujilla on lisättävää tai kysyttävää*
➔ *Osallistujilla ei ole lisättävää tai kysyttävää, siirry eteenpäin*

Nyt voimme siirtyä tämän keskustelun viimeiseen isoon osioon, eli ideointitehtävään.

IDEOINTITEHTÄVÄ (30-40 min)

Tämän tehtävän tarkoituksena on selvittää teidän toiveitanne, näkemyksiä ja mielipiteitä siitä, miltä virtuaaliuutisankkurit voisivat näyttää, miten ne voisivat käyttäytyä ja millaisessa ympäristössä. Voitte pohtia virtuaaliuutisankkureita millaisten uutisten kertojina tahansa. Ideoinnin tarkoituksena on, että saatte hyvin vapaasti ehdotella erilaisia asioita ja keskustella toistenne kanssa. Voitte keksiä myös monenlaisia vaihtoehtoja. Tehtävän aikana voimme etsiä kuvia ja esimerkkejä ajatuksistanne, jos ne selkeyttävät kuvaa siitä, millainen virtuaaliuutisankkuri voisi olla. Te voitte ideoida täysin laatikon ulkopuolelta, ja hahmot eivät ole rajoittuneet ihmismäisiin hahmoihin, vaan voitte ideoida myös muita täysin vapaasti. Voitte käyttää myös apuna ajatuksianne viidestä videoista, jotka katsoimme aiemmin, mutta ideat eivät rajoitu niihin. Tärkeintä on, että ideoimanne esillepanot vastaisivat sitä, millaisia virtuaaliuutisankkureita voisitte itse kuvitella näkevänne ja hyväksyvänne. Minä käynnistän keskustelun ja herättelen ajatuksia erilaisten kysymysten avulla. Jaan teille näytön ja kirjoitan ajatuksianne muistilapuille, jotta näette mitä olette jo keskustelleet. Ideoinnille on aikaa 30-40 minuuttia, ja voitte vapaasti antaa keskustelun ja ajatusten virrata. Onko tästä tehtävästä jotain kysyttävää?

Aloitetaan!

- ➔ *Avaa Whimsical, johon voit lisätä post-it lappuja*
- ➔ *Jos osallistujat eivät tiedä mitä ajatella, voit esitellä heille esimerkkejä virtuaalihahmoista.*
- ➔ *Etsi tehtävän aikana kuvahausta tai muuten internetistä referenssejä, joka visualisoi osallistujien ajatuksia.*
- ➔ *Aloita ideointitehtävä kysymällä kysymys. Muista kysyä jatkokysymyksiä ja perusteluja.*
- Miltä virtuaaliuutisankkuri voisi näyttää?
- Olisiko se ihminen vai jokin muu?
- Miten se voisi pukeutua?
- Millainen hiustyyli sillä voisi olla?
- Kuinka realistiselta hahmo näyttäisi?
- Millaista ikäryhmää se voisi olla?
- Mitä sukupuolta se voisi olla?
- Millaisia eleitä hahmolla voisi olla?
- Millaisia ilmeitä hahmolla voisi olla?
- Millaisessa ympäristössä se voisi esiintyä?
- Miten virtuaaliuutisankkuri voisi puhua?
- Millä tavalla se kertoisi uutisen?

Fasilitoijan muistilista:

- *Kuuntele ja anna osallistujien puhua*
- *Kysy lisäkysymyksiä. Esim. “Kerro lisää tästä…”, “miksi…?”*
- *Jos keskustelu alkaa liikaa rönsyilemään, voit varovasti johdattaa keskustelun oikeaan aiheeseen. Esim. ”Jos palataan tähän kysymykseen liittyen…”*
- *Pidä mielessä mitä osallistujat vastaavat, jotta et kysy samoja kysymyksiä monesti*
- *Jos tarvetta, voit viitata siihen, mitä osallistujat ovat aiemmin maininneet. Esim. ”aiemmin mainitsit, että…”*

Onko teillä vielä lisättävää?

➔ *Jos on, käykää läpi*
➔ *Jos ei, siirry eteenpäin*

YHTEENVETO (10 min)

Nyt olemme saavuttaneet tämän keskustelun lopun, hienoa! Kävimme läpi uutisankkureiden piirteitä, erilaisia virtuaaliuutisankkureiden esillepanoja, ja ideoitte ominaisuuksia, joita haluaisitte itse nähdä virtuaaliuutisankkureissa. Kiitos paljon osallistumisestanne, saamani aineisto auttaa minua paljon. Muistutan vielä, että tämä tutkimus on täysin anonyymi ja teidän tietojanne ei tule näkymään missään, eikä teitä voi tunnistaa. Voin käyttää tutkimuksessa suoria lainauksia, mutta ne ovat anonyymejä. Onko teillä vielä tässä vaiheessa kysyttävää tai kommentoitavaa?

➔ *Jos kysyttävää, vastaa*

Lopetan nyt näytöntallennuksen.

➔ *Lopeta näytöntallennus*

Saatte kiitokseksi osallistumisestanne yhdet Finnkinon lahjakortit, jotka lähetän teidän sähköposteihinne. Saatte sähköpostit pian tämän jälkeen.

Voimme päättää keskustelun tähän. Kiitos vielä osallistumisestanne!

➔ *Lopeta keskustelu*

Appendix 2

Participation survey

Moi! Olen Veera Eiste Human-Technology Interaction -maisteriohjelmasta Tampereen yliopistosta. Tämä ilmoittautumislomake on osa Pro gradu -tutkielmaani, jossa tutkin virtuaalisten uutisankkureiden esillepanoa.

Tässä lomakkeessa voit ilmoittautua fokusryhmähaastattelun osallistujaksi. Fokusryhmähaastattelut toteutetaan etäyhteyden avulla Zoom videokeskusteluna viikolla 35 (24.-28.8), ja haastattelu kestää 1,5-2h. Keskusteluihin osallistuu minun lisäkseni max. kolme osallistujaa. Fokusryhmähaastattelut ovat luonteeltaan keskustelevia, eikä niissä tutkita tai testata osallistujia. Olen kiinnostunut osallistujien näkemyksistä ja kokemuksista, mikä auttaa virtuaaliuutisankkureiden esillepanon suunnittelussa. Keskustelut sisältävät haastattelukysymyksiä, videoiden katsomista ja yhteistä ideointia.

Keskusteluun osallistuminen edellyttää etäyhteyden ja videokuvan seuraamisen mahdollisuutta.

Videokeskustelut videotallennetaan analyysivaihetta varten, mutta tallennetta ei pääse minun lisäkseni katsomaan muut. Tallenne säilytetään suojattuna salasanan takana. Toiveena on, että osallistujat voivat pitää videoyhteyden auki keskustelun aikana, mutta tämä on vapaaehtoista. Materiaali ja osallistujien tiedot käsitellään ja raportoidaan anonyymisti ja siten, että osallistujien henkilöllisyyttä ei pysty tunnistamaan.

Palkkioksi osallistumisesta jokainen osallistuja saa yhden Finnkinon leffalipun (voimassa 12kk).

Mikäli haluat osallistua, valitse Sinulle sopiva ajankohta alla olevista vaihtoehdoista. Osallistuminen edellyttää, että kulutat uutisia säännöllisesti ja olet katsonut suomalaisia uutislähetyksiä. Lomake sisältää myös taustatietojen keräämistä (ikäryhmä, sukupuoli, uutisten kulutuksen ja uutislähetysten seuraamisen tiheys), mikä auttaa minua rakentamaan monipuoliset fokusryhmät, ja sähköpostiosoitteen ilmoittamisen, jotta saan yhteyden osallistujiin.

Huom! Täytäthän ilmoittautumislomakkeen vain, jos aiot osallistua :) Ilmoittautua pystyy torstain 20.8 loppuun asti.

Yhteystietoni:
veera.eiste@tuni.fi

Kulutatko uutisia säännöllisesti?

- ◯ Kyllä
- ◯ Ei

Oletko katsonut suomalaisia uutislähetyksiä? *

- ◯ Kyllä
- ◯ Ei

Ikäryhmä *

- Alle 20-vuotias
- 21-30 v.
- 31-40 v.
- 41-50 v.
- 51-60 v.
- 61-70 v.
- Yli 70-vuotias
- En halua kertoa

Sukupuoli

- Mies
- Nainen
- Muu
- En halua kertoa

Kulutan uutisia... *

- Useita kertoja päivässä
- Päivittäin
- Useamman kerran viikossa
- Harvemmin kuin viikoittain

Seuraan uutislähetyksiä televisiosta... *

- ○ Useita kertoja päivässä
- ○ Päivittäin
- ○ Useamman kerran viikossa
- ○ Harvemmin kuin viikoittain

Ilmoittautumisen vahvistaminen

Lähettämällä lomakkeen vahvistat fokusryhmähaastatteluun ilmoittautumisen. Mikäli haluat tehdä muutoksia valitsemaasi ajankohtaan tai estyt osallistumasta, voit ottaa minuun yhteyttä sähköpostitse osoitteeseen veera.eiste@tuni.fi. Otathan yhteyttä mahdollisuuksien mukaan hyvissä ajoin! Lähetän Sinulle vahvistuksen ajankohdasta sähköpostitse viimeistään perjantain 21.8 loppuun mennessä (jos valitsit useamman ajankohdan, ilmoitan yhdestä ajankohdasta). Viesti sisältää linkin Zoom videokeskusteluun, suostumuslomakkeen tutkimukseen osallistumisesta ja linkin taustakyselyyn, jotka toivon täytetyksi ennen fokusryhmähaastattelua.

Minuun voi olla myös yhteydessä mahdollisten kysymysten kanssa koska vain!

Kiitos jo etukäteen!

Ystävällisin terveisin,
Veera Eiste