

**“NOT WITH THESE TRAINS”: FINNISH PUBLIC
DISCUSSION ON REPLACING SHORT DOMESTIC
FLIGHTS WITH LAND-BASED TRAVEL MODES**

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ABSTRACT

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Title "Not with these trains": Finnish public discussion on replacing short domestic flights with land-based travel modes	
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<p>Abstract</p> <p>While the aviation industry provides important economic and social benefits to societies and individuals, it also has significant negative environmental impacts. The industry's contribution to climate change is particularly noteworthy because the industry continues to grow rapidly. Current mitigation measures are not sufficient to counter the emissions growth caused by increasing demand.</p> <p>While awareness of aviation's climate change contribution has increased among the public, people remain rather unwilling to change their travel behaviour. In addition, the discussion around the aviation-climate change dilemma has become polemic because the topic is emotive and sensitive.</p> <p>This study investigated Finnish perceptions on and attitudes towards domestic aviation and climate change through analysing the public discussion around a study that suggested replacing short domestic flights with land-based transportation modes. The data consisted of eight online news articles and readers' feedback - comments and poll responses - to them.</p> <p>The results show that there is a strong division of opinion: many readers expressed full support for the suggestion, but even more disagreed with it. Support was based on perceptions of short domestic flights as unnecessary and environmental concerns, whereas disagreement was based on travel time concerns and domestic flights' perceived importance as connecting flights, lack of environmental concern, and questioning the validity of the original study. The main discourses present in the discussion were similar to those maintained by the aviation and tourism industries.</p> <p>There was little to no previous research from the Finnish context prior to this study, and so the results provide a basis for an understanding of Finnish perceptions on aviation and climate change and attitudes towards reducing domestic flights. They could also provide suggestions for which issues are important to consider in policy design and help improve research and other public communications around the topic. Future studies could provide a better understanding through collecting a representative sample and by investigating if the COVID-19 pandemic has changed the perceptions.</p>	
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TIIVISTELMÄ

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<p>Tiivistelmä</p> <p>Lentoliikenne on tärkeää yhteiskunnille ja yksilöille sekä taloudellisesti että sosiaalisesti. Samalla se kuitenkin aiheuttaa huomattavia ympäristöhaittoja. Näistä erityisen merkittävä on lentoliikenteen ilmastonmuutosta edistävä vaikutus, sillä ala kasvaa nopeasti. Nykyiset toimet ympäristöhaittojen vähentämiseksi eivät riitä kumoamaan kasvavan kysynnän aiheuttamaa päästöjen kasvua.</p> <p>Vaikka tietoisuus lentämisen ilmastovaikutuksista on lisääntynyt yleisön keskuudessa, yksilöt eivät ole kovin halukkaita muuttamaan matkustuskäyttäytymistään. Lisäksi keskustelu lentämisen hyödyistä ja ilmastovaikutuksista on muuttunut kiistelyksi, koska aihe on tunnepitoinen ja herkkä.</p> <p>Tässä tutkimuksessa selvitettiin suomalaisten näkemyksiä kotimaanlennoista ja ilmastonmuutoksesta analysoimalla julkista keskustelua tutkimuksesta, joka ehdotti lyhyiden kotimaanlentojen korvaamista juna-, linja-auto- tai automatkoilla. Tutkimuksen aineisto koostui kahdeksasta verkkouutisartikkelista ja lukijoiden palautteesta - kommenteista ja kyselyvastauksista - näihin artikkeleihin.</p> <p>Tulokset osoittavat, että näkemykset ovat voimakkaasti jakaantuneet: monet lukijat tukivat alkuperäisen tutkimuksen ehdotusta täysin, mutta vielä useammat olivat asiasta eri mieltä. Tuki perustui näkemykseen lyhyistä kotimaanlennoista tarpeettomina ja ympäristöhuoliin, kun taas erimielisyys perustui huoleen matkustusajasta, näkemykseen kotimaanlentojen tärkeydestä ulkomaanmatkojen yhteyslentoina, ympäristöhuolten puutteeseen ja alkuperäisen tutkimuksen pätevyyden kyseenalaistamiseen. Keskustelussa esiintyneet diskurssit olivat samankaltaisia kuin ne, joita lento- ja turismialat ylläpitävät.</p> <p>Vastaavaa tutkimusta on Suomen kontekstissa tehty vain vähän tai ei ollenkaan, joten tulokset luovat perustan tieteelliselle ymmärrykselle suomalaisten näkemyksistä lentämisestä ja ilmastonmuutosta kohtaan ja asenteista kotimaanlentojen vähentämisestä kohtaan. Tulokset voivat myös tukea poliittista suunnittelua sekä viestintää aiheesta osoittamalla mitkä asiat ovat kansalaisille tärkeitä. Ymmärrystä voitaisiin kehittää jatkossa kokoamalla kattava otos sekä tutkimalla onko COVID-19-pandemia vaikuttanut näkemyksiin.</p>	
Asiasanat Kotimaan lentoliikenne, lentomatkustus, ilmastonmuutos, julkinen keskustelu, diskurssitutkimus	
Säilytyspaikka Jyväskylän yliopiston kirjasto	

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ABSTRACT

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1 INTRODUCTION

Aviation is economically and socially very important for societies and individuals. Most importantly, air travel is fast, enabling people and cargo to reach faraway destinations efficiently. The industry creates more than 10 million direct jobs globally (Oxford Economics, as cited in ATAG, 2018, p. 4), and supports much more indirectly by advancing tourism and business. The global gross domestic product (GDP) impact of aviation was \$2,7 trillion in 2016, or 3,6% of the total world GDP (Oxford Economics, as cited in ATAG, 2018, p. 4). Socially and culturally, aviation supports the creation and maintaining of contacts and interaction that directly benefit societies, businesses, and individuals. Furthermore, urgent assistance in cases of natural disasters and other emergencies can be rapidly delivered by air even to remote locations. In Finland, aviation is evaluated to account for 3,5-4% of the GDP, employment, and tax revenue (Finnair, 2020a, p. 8), and the industry creates 25 000 jobs directly and supports 44 500 more (Oxford Economics, as cited in ATAG, 2018, p. 64). Furthermore, the Ministry of Transport and Communications (2015, p. 4) highlights the importance of aviation in supporting the growth and development of Finland's economy and competitiveness and strives to support further growth in the industry.

Yet the benefits of aviation are accompanied by significant negative environmental impacts. Aviation causes greenhouse gas (GHG) emissions, pollution, and noise (see, for example, Niemistö et al., 2019). In 2018, aviation accounted for 3,4% of the total GHG emissions in EU countries (EEA, 2020). What is more, the industry and its emissions continue to grow rapidly. Current mitigation measures, such as technological and operational improvements, are already insufficient to counter the influence of growing demand (see, for example, EASA et al., 2019). As an example, aviation emissions in EU countries grew 4,7% from 2017 to 2018 (EEA, 2020). Furthermore, IATA (2018, 2020) estimates that passenger numbers could double from 4 billion in 2018 to 8 billion in 2030. To reduce the overall environmental impacts of aviation, more radical mitigation measures are thus required.

One potential mitigation measure is behavioural change on the air passengers' side. However, despite increasing awareness of aviation's climate change contribution, passengers remain rather unwilling to consider climate change when making travel plans (see, for example, Becken, 2007; Hares et al., 2010). Signs of change in this regard have only recently emerged (see, for example, Gössling et al., 2019; Baumeister, Zeng & Hoffendahl, 2020). The dilemma between the benefits and environmental impacts of aviation has become a regular topic of public discussion, but the discussion is very sensitive and multi-dimensional. Randles and Mander (2009, p. 111) note that different societal issues and values intersect when it comes to aviation and consumption, resulting in "a cacophony of contradictory positions." The aviation and tourism industries main-

tain discourses that emphasize their contributions to climate change are relatively small and technological development is key to solving any environmental problems (Gössling & Peeters, 2007; Gössling et al., 2019; Duffy & Stroebe, 2015). In the Finnish context, the Ministry of Transport and Communications (2015, p. 15) emphasizes the importance of aviation for regional connectivity and businesses, seeking for growth in the industry and bypassing sustainability concerns by noting that the Finnish company Neste is a global leader in developing bio-based fuels. These discourses contribute to common individual attitudes that place the responsibility for aviation emissions and power to act on actors other than the self, denying individual agency (see, for example, Dickinson et al., 2010; Gössling et al., 2009). The status quo is thus maintained.

Yet the public discussion often focuses on long-haul flights, overlooking domestic flights which could more easily be replaced with other modes of transport (Baumeister, 2019). Short flights cause more emissions per passenger than long-haul flights and replacing them with, for example, railway traffic has meaningful emissions reduction potential. Baumeister (2019) (hereafter referred to as 'the original study' or 'the study') studied this in the Finnish context and found that the travel times of existing land-based transportation modes are similar to those of aircraft on routes up to 400 kilometres, whereas aviation produces significantly more emission. This finding was reported in a press release published by the University of Jyväskylä, suggesting that replacing short domestic flights would be a concrete way to reduce emissions on a national level. The press release (hereafter referred to as 'the original press release' or 'the press release') aroused a great deal of public attention, with several media outlets reporting on the study and the news being widely shared and discussed on social media. This discussion became the basis for the present study.

This study investigates Finnish perceptions on domestic aviation and climate change in general and the suggestion to reduce domestic flights for climate reasons in particular through analyzing the public discussion around Baumeister's study. The discussion initiated by the study does not only concern the one study but the whole aviation-climate change dilemma in general, and online commentary is a useful source of data for analyzing public perceptions because it is real-time and not affected by the data collection process. Thus, the data for this study consists of 8 online articles by 7 different Finnish media outlets and the readers' feedback - comments and poll responses - to these articles. The media outlets' profiles vary; some of them are targeted towards smaller audiences whereas some have national significance. The most prominent media included in the study is *Ilta-Sanomat*, which has the largest reach in Finland (Media Audit Finland, 2021) and whose article attracted nearly 400 comments from readers. The data was analyzed with a qualitative discourse studies approach. Discourse studies pay close attention to linguistic strategies and structures on different levels of texts and discourses, with a focus on the meanings constructed in different contexts. The analysis process was not straightforward but iterative, moving back and forth between the data and the emerging interpretations. For the analysis of the readers' comments, the software Atlas.ti 9 was utilized.

The research questions that this study aims to answer were reformulated and specified along the research process, which is normal in a qualitative research process. Eventually, the research questions became formulated as follows:

1. How did the media outlets report about the study?
 - a. What discursive strategies were utilized and how did these differ across the articles?
2. How did the general public react to the study?
 - a. Which issues were raised in the discussion?
 - b. What kinds of attitudes there were towards the suggestion to reduce domestic aviation for climate reasons and how were these supported discursively?
 - c. Which aspects of the study were misunderstood in the discussion?
3. How do the discourses found in these discussions relate to the broader societal discourses about the topic?

There is little to no previous research on aviation and climate change perceptions from the Finnish context. Earlier studies from other countries (see, for example, Gössling et al., 2019; Larsson, 2020; Higham et al., 2016; Cohen & Higham, 2010) have shown that perceptions on the topic, behavioural changes, and willingness to accept policy interventions vary depending on the national context. Because aviation is a global industry, international cooperation and regulation are needed to mitigate its emissions. It is therefore important to develop a theoretical understanding of Finnish perceptions to contribute to the understanding of how the issue is perceived differently in different contexts. Practically, the results can also support national policymaking around the topic by showing which issues are important to the public and should thus be considered in policy design in order to gain public acceptance. In addition, the results can help improve research communication and other public communication around the topic by increasing the understanding on the audience's existing perceptions and attitudes and thus supporting the creation of more tailored, more efficient messages.

The structure of the present study is as follows: Chapter 2 provides an overview of the societal context on aviation, its environmental impacts, and air travel behaviour and public discussion about aviation in Finland. Chapter 3 outlines the theoretical framework, which includes the impact of language on social realities, the role of media and social media in society and their key characteristics, attitudes towards aviation and climate change, and discourses related to aviation. Chapter 4 presents the data and methodology. Chapter 5 presents the results of the study. Finally, Chapter 6 discusses the findings and their significance, the theoretical and practical contributions as well as limitations of this study, and perspectives for future research.

2 CONTEXT ON THE AVIATION INDUSTRY AND ITS ENVIRONMENTAL IMPACTS

In this chapter, the societal context in which Baumeister's study was published is discussed. The societal context is relevant for the present study because context is an integral part of discourse studies. Texts and contexts have a two-way relationship: text production is influenced by the context, but the context is also influenced by the texts produced. For research purposes, an operationalization of the societal context must be constructed because it is not possible to consider all aspects of it. In this study, the following contextual factors are considered: the environmental impacts of aviation and how these are or could be mitigated, the aviation industry's role and operations in Finland, and the media discussion on aviation in Finland before Baumeister's study was published. These factors are discussed, respectively, in this chapter.

2.1 The environmental impacts of aviation

The main environmental impacts of aviation are greenhouse gas (GHG) emissions, noise, and pollution affecting air quality (see, for example, EASA et al., 2019; Niemistö et al., 2019; Finavia, 2020a). In addition to these, there are emissions and pollution related to airport activities such as ice prevention, winter maintenance, and maintenance of buildings and other infrastructure (Finavia, 2020a). The industry thus affects the environment on different levels: locally, regionally, and globally.

On the global and regional levels, the GHG emissions caused by the transport sector as a whole and aviation specifically are significant. The entire transport sector is responsible for more than a quarter of all global carbon dioxide (CO₂) emissions (IEA, 2020a). What is more, the sector's emissions continue growing: IEA (2020a, 2020b) shows that almost all the growth in global CO₂ emissions between 2010 and 2018 has stemmed from the transport and electricity and heat generation sectors as other sectors have maintained or even reduced their emissions. While most of the transport sector's emissions originate from road transport, aviation is the sector's second largest emitter and its' emissions are notable because of their high growth rates. According to EEA (2020), aviation accounted for 15,6% of the transport sector's GHG emissions in EU countries in 2018. Compared with 1990 levels, aviation's emissions have grown 141%, and even the annual percentage increase from 2017 to 2018, 4,7%, is larger than any other sector's (EEA, 2020). Furthermore, IATA (2018, 2020) estimates that air passenger numbers could double from under 4 billion in 2018 to more than 8 billion in 2030 if the global policy framework remains constant. Although the industry has taken action to mitigate its environmental impacts, the increasing demand

has regardless led to an increase in overall environmental impacts, and emissions are growing faster than the number of flights (EASA et al., 2019, p. 25). Thus, while aviation currently accounts for only a relatively small share of all CO₂ or GHG emissions - 3,4% of GHG emissions in EU countries in 2018 (EEA, 2020) - it is still consequential.

The GHG emissions of airplanes' fuel combustion consist of 70% CO₂, 30% water vapour, and less than 1% of other emissions such as nitrogen oxides, sulphur oxides, hydrocarbons, carbon monoxide, and particulate matter (Niemistö et al., 2019, p. 22). The strong and long-term impact of CO₂ on the climate is well-understood, while the other emissions' specific reactions and impacts in the atmosphere are still relatively unknown (EASA et al., 2019; Niemistö et al., 2019). EASA et al. (2019, pp. 83-88) emphasize that the latter have to be addressed as well because their potential climate impact in the short term is very significant. One tool for better measuring the emissions' actual climate impacts is the Radiative Forcing Index (RFI). Lee et al. (2009) found that aviation alone is likely to represent around 4% of the total human-induced radiative forcing in 2005, projected to grow in the future.

On the more local level, the air pollution and noise caused by aviation have notable impacts on human health and well-being. According to EASA et al. (2019, p. 85), particulate matter, nitrogen oxides, and volatile organic compounds have the most significant health impacts of all aviation's emissions. By producing these, aviation reduces air quality both near airports and further away (EASA et al., 2019, p. 85). In addition, aviation noise causes annoyance and sleep disturbance, and may contribute to ischaemic heart disease and cognitive impairment in children (World Health Organization, 2018). The health risks affect most likely those people who live in the vicinity of large airports (Niemistö et al., 2019, p. 21).

Research on the environmental impacts of domestic aviation specifically is rather limited. What is clear is that domestic flights produce more emissions per passenger than long-haul flights. According to Grimme and Jung (2018), domestic flights' poor performance in terms of emissions per ton kilometre is due to lower load factors, partially because of the smaller quantity of cargo than on longer flights, and the fact that the high energy consumption of take-off and climbing is distributed over a shorter distance. The most prevalent suggestion for mitigating the environmental impacts of domestic aviation is replacing domestic flights with high-speed rail (HSR). For example, Prussi and Lonza (2018) found that HSR could bring significant emissions reduction as well as transport resilience and reliability benefits on major intra-EU routes.

2.2 Measures to mitigate aviation's environmental impacts

To reduce aviation's negative environmental impacts, actors in the industry have already implemented various mitigation measures. However, current measures have not been sufficient to stop the impacts from increasing. Technological and

operational improvements have resulted in reductions in emissions per passenger kilometre and noise levels, but as the number of flights continues to grow so do the overall environmental impacts (EASA et al., 2019, pp. 8, 25; EUROCONTROL, 2019; Niemistö et al., 2019, p. 33). As EUROCONTROL (2019, p. 1) notes, the aviation industry is very challenging to decarbonise rapidly because of its long-term nature where returns on investment are measured in decades. Yet aviation was also the first industrial sector committing to a specific target for CO₂ emissions reduction, showing that the industry as a whole is willing to respond to the pressure to decarbonise (EUROCONTROL, 2019).

The mitigation measures available in the aviation industry can be divided into five categories: technological changes, operational changes and infrastructure improvements, market-based changes, regulatory changes, and behavioural changes. Each category contains a number of specific measures that can be or have already been implemented by actors in the industry and/or stakeholders, as well as measures that are being studied because of their potential impact. Considering all categories is important to achieve net impact reduction because each one has factors hindering its implementation and only a limited impact by itself.

First, technological changes include improvements in airframes and engines, the use of alternative fuels replacing kerosene, and the introduction of electric aircraft. It is important to note that new aircraft are in use for approximately three decades, meaning that the impact of technological improvements is gradual (EUROCONTROL, 2019, p. 5). Alternative fuels are already in use, but only on a minimal scale (EASA et al., 2019, p. 8). EASA et al. (2019, p. 49) predicts that their use will remain at less than 1% of total aviation fuel consumption in EU in the near future, noting it is difficult to predict the mid- and long-term evolution. However, they could potentially make a significant contribution to the mitigation efforts (EASA et al. 2019, p. 8; Niemistö et al., 2019, p. 36). As for electric aircraft, Gnadt et al. (2019) note that only all-electric aircraft can result in zero in-flight emissions, eliminating emissions in high altitudes and reducing CO₂ equivalent emissions if renewable energy is used, but all-electric aircraft that could carry as many as 180 passengers seem infeasible with current battery technology. However, first generation electric aircraft that could carry 9-19 passengers could replace existing aircraft and reduce emissions on short-haul routes by 2025 (Baumeister, Leung & Ryley, 2020). Niemistö et al. (2019, p. 13) note, though, that the potential of technological solutions to mitigate emissions is sometimes hindered by collaborative efforts taken on a regional, not global scale.

Second, operational and infrastructural changes include flight control, optimising routes and airspace design, improving airport infrastructure, and making airports carbon neutral. For example, the Finnish airport operator Finavia has implemented an ISO 14001 environmental management system, collaborates with airlines and flight control to make take-offs and landings efficient, and enhances water protection at airports (Finavia, 2020a, p. 44). In addition, their goal is to reach zero emissions in their activities, while all of their airports are already carbon neutral.

Third, market-based measures include emissions trading and offsetting, taxation, and subsidies. For example, the CORSIA offsetting scheme introduced by the United Nations' International Civil Aviation Organization (ICAO) in 2016 is a global commitment for carbon neutral growth in the industry beyond 2020. However, ICAO (2019, p. 23) estimates that the goal is, in fact, "unlikely to be met." In terms of taxation, Niemistö et al. (2019, p. 43) note that existing practices vary, but taxation can be based on passengers, flights, fuel, tickets, or value-added taxes on fuel and tickets. Even so, EUROCONTROL (2020) argues that taxation is not an effective way to prevent aviation emissions from increasing and calls for additional funding for other mitigation measures such as alternative fuels instead.

Fourth, regulatory measures include different kinds of standards and permit requirements. For example, ICAO has set global standards on noise and some emissions, although the first CO₂ standard was adopted only in 2017 (ICAO, 2019, p. 25). When it comes to permits, for example in Finland airports must acquire environmental permits with certain requirements concerning issues such as noise and water management (Finavia, 2020a, p. 50).

Fifth, behavioural changes include change on both the airlines' and passengers' side, but the main responsibility lies with the airlines. Cowper-Smith and de Grosbois (2011, p. 72) found that airlines' corporate social responsibility (CSR) reporting practices vary considerably, making their actions and commitment difficult to compare. Additionally, they found that while airlines had stated a number of CSR goals, they had often listed only a small number of tangible initiatives to achieve the goals even if relatively simple initiatives would have been available. On the passenger side, Baumeister (2020, p. 9) noted it is not easy for passengers to identify more environmentally friendly airlines, which is why an instrument such as an eco-label would be needed. Higham et al. (2016) found that there is variation across societies in consumer willingness to approve government intervention on air travel through regulatory measures. Thus, they argue, while regulatory measures are necessary, they have to be implemented with careful consideration as to the public acceptance.

In order to effectively mitigate aviation's environmental impacts, all of the above categories are important. In addition, actors in the industry and its stakeholders have to collaborate. The Finnish Ministry of Transport and Communications (2015, p. 15) highlights the importance of global emissions control to guarantee equal operating conditions. EASA et al. (2019, p. 7) stress that the long-term success of the industry depends on effective stakeholder coordination. In addition, Niemistö et al. (2019, p. 51) note that the industry should also collaborate with other industries, including tourism, trade, and other actors in the transport sector.

2.3 The aviation industry in Finland

Although the aviation industry has significant negative environmental impacts, it has a notable economic and social contribution to societies, both globally and in Finland specifically. Aviation enables freight and people to travel rapidly and employs a large number of people both directly and indirectly.

According to Finnair (2020a, p. 8), aviation is evaluated to account for 3,5-4% of Finland's gross domestic product, employment, and tax revenue. The industry employs 25 000 people directly and 44 500 more indirectly and through catalysing tourism in Finland (Oxford Economics, as cited in ATAG, 2018, p. 64). Niemistö et al. (2019, p. 13) note that aviation affects national economies significantly because, in addition to its employment impact, it supports tourism, international trade, and contacts. It also increases social and cultural interaction. In Finland, the Ministry of Transport and Communications (2015, p. 4) sees that it is important to develop aviation in the long term and to seek for growth in the industry, in collaboration between the industry and the government, because the industry supports the growth of the national economy and competitiveness. To improve the sustainability of the industry, the ministry highlights the potential of Finland to become a leader in sustainable fuels because the Finnish company Neste, also partially state-owned, is developing bio-based fuels (Ministry of Transport and Communications, 2015, p. 15; see also Niemistö et al., 2019, p. 12).

The central aviation infrastructure in Finland is maintained by the state-owned company Finavia. There are 21 airports maintained by Finavia, and a few independent, small airports maintained by municipalities. Financially, the Finavia airports are treated as a network where unprofitable airports are supported with the income from profitable airports which means that, in practice, the network is maintained with the profits of the Helsinki-Vantaa airport and its active international traffic (Niemistö et al., 2019, p. 17). While the Helsinki-Vantaa airport's number of passengers on domestic flights has remained at just under 3 million per year since 1998, the number of passengers on international flights has grown from 6,5 million in 1998 to 18,9 million in 2019 (Finavia, 2020b). This network structure is inexpensive for the government and taxpayers because unlike roads, railways, and waterways, the aviation infrastructure is maintained without the government's support (Niemistö et al., 2019, p. 17).

According to Niemistö et al. (2019, p. 17), there are 13 commercial airlines operating within Finland. One of them is Finnair, whose majority owner is the state. Finnair specializes in traffic between Europe and Asia as it has a competitive advantage on those routes because of the geographical location of Finland and the Helsinki-Vantaa airport (Finnair, 2020c). Over the past few years, Finnair has emphasized sustainability in its activities. The company's new strategy, published at the end of 2019, emphasizes sustainable growth, where sustainability is defined in terms of environmental, financial, and social aspects (Finnair, 2020a, p. 3). Finnair also created an emissions compensation scheme for its customers at the beginning of 2019. The Push for Change -scheme originally gave customers

the opportunity to support a certified emissions reduction project in Mozambique or to purchase bio-based fuel manufactured in California to replace kerosene, or both (Finnair, 2019). However, the scheme was criticized as insufficient, with experts stating the compensation payments were too small (see further discussion in Section 2.5 below). Moreover, the entire scheme had to be closed in early 2020 because it was deemed in violation of the Finnish law on fundraising (Finnair, 2020b). To make the services available again, the company planned to integrate them with ticket sales in the future (Finnair, 2020b). It thus seems that Finnair acknowledges the need for the aviation industry to become more sustainable and is willing to lead the way, but the way in which they engage their customers in their sustainability efforts is not currently very sustainable.

2.4 Air travel and travel behaviour in Finland

National and international air travel is considered very important in Finland because of the geographical characteristics of the country: Finland is so long that aviation is important for regional connectivity, and Finland is separated from Central Europe by the Baltic Sea. The Ministry of Transport and Communications (2015, p. 7) highlights the importance of the national aviation network for regional economic growth and Finnish businesses. They also state that functional flight connections are a pre-requisite for businesses' internationalization. Thus, the Finnish government emphasizes maintaining and developing national and international aviation for economic reasons.

In 2019, Finns made altogether 9 400 000 international and 29 000 000 national overnight trips (Official Statistics of Finland, 2020). Most of these were free-time trips rather than work trips: 78% of the international and 88% of the national trips were free-time trips. Out of those international free-time trips, 66% were done by airplane, 25% by ship or ferry, and the rest by car or other modes of transport. When it comes to national trips, the purpose affects the transport choice quite strongly: for national free-time trips airplanes were the least frequently used travel mode: 74% of the trips were made by car, 14% by train, 8% by bus, and only 2% by airplane, whereas for national work trips, about half were made by car, 25% by train and 10% by airplane (Official Statistics of Finland, 2020). This shows that domestic air travel is more important for business than free-time travellers in Finland, but when travelling abroad aviation is Finns' most used mode of transport regardless of the trip's purpose.

Finns' travelling and free-time air travel have continued to increase since the 1960s, growing particularly rapidly in the 1970s as a result of improved living standards and increased free time (Finavia, 2018b). Southern holidays in, for example, Mallorca or the Canary Islands became a relatively established phenomenon before the end of the 1960s (Finavia, 2018a) and the first regular route from Finland to Thailand was launched in the 1970s (Finavia, 2018b). Since then, while the amount of national overnight trips has remained stable at around 30 million

between 2009 and 2019, the amount of Finns' international overnight trips has not quite doubled but increased from 5,8 million to 9,4 million over the same period (Official Statistics of Finland, 2020). It is apparent that Finns are travelling abroad more and more while also maintaining the amount of domestic travel. According to the Messukeskus Expo and Convention Centre (2020), it is a Finnish specialty that people wish to keep work and holiday travels separate, which could be one factor behind the increasing number of trips.

According to the Messukeskus Expo and Convention Centre (2018, 2019, 2020), Finns travel abroad to relax, distance themselves from their everyday lives, see the world, and enjoy pleasant holiday weather. New experiences and sharing time with friends and family are also important reasons. The most important factor affecting destination decisions are the experiences of friends and acquaintances, but advertisements from travel agencies, airlines, and hotels, and social media content also inspire travellers (Messukeskus Expo and Convention Centre, 2019). For domestic travel with paid accommodation, nearly equally important reasons for choosing a destination are culture and amusements, nature, sports, and well-being, while shopping is less important (Official Statistics of Finland, 2020).

Finnish travellers consider social responsibility issues such as respecting the local culture, using local services, and ensuring equality and human rights when they travel abroad (Messukeskus Expo and Convention Centre, 2020). However, environmental sustainability is not considered very much: maintaining biodiversity is seen to be important, but for example carbon dioxide compensation is rare (Messukeskus Expo and Convention Centre, 2020). Yet Finnair (2020b) found there is a lot of interest towards compensation among their customers so this might be changing, especially if compensation becomes an easy option along ticket purchases. Because Finns' air travel produces the second-most CO₂ emissions per capita in the world, with only Singaporeans ahead (ICCT, 2019), it seems Finnish travellers should consider environmental sustainability more carefully.

2.5 Aviation in the Finnish media

Aviation is a rather frequent topic for news and opinion pieces across Finnish media outlets. As a topic, it can be approached in a number of different ways because it is connected to both citizens' personal lives and societal wellbeing in multiple ways. In this section, an overview of the Finnish media discussion on aviation prior to the publication of Baumeister's study in May 2019 will be provided. More specifically, articles from four different media outlets, namely Yle, Iltasanomat, Svenska Yle, and Hufvudstadsbladet (HBL), published between January and April 2019 were looked at and the diverse ways in which they approached aviation are discussed. These outlets were selected because they represent some of the main media outlets in Finland, both in Finnish and Swedish, and

because they allow access to articles that are more than a year old unlike some other notable outlets such as *Iltalehti* and *MTV Uutiset*.

One of the main approaches was the relation of air travel to climate change, but the approach had two more detailed frames: on the one hand, that individuals are reducing air travel for environmental reasons and, on the other hand, that individuals do not need to reduce their flying. These articles largely consisted of interviews of individuals who were passionate about the issue one way or the other. For example, *Innanen (2019)* interviewed a train travel hobbyist who highlighted that flying is not the only way to get to Europe from Finland, and that train travel is enjoyable in itself. Similarly, *Rasi (2019b)* interviewed a citizen who had not taken a flight for 27 years and rather travelled by train. Conversely, *Rasi (2019a)* interviewed a travel blogger who argued that the aviation industry has been demonized and climate anxiety is merely a trend. The blogger had a clean conscience despite flying often because she preferred responsible airlines, and she believed the industry would further reduce its emissions through innovations. There were also articles on individuals' climate-friendly new year's promises (*Brenner, 2019*), a vegan yoga teacher whose "bad habit" was flying often but who compensated the emissions (*Puurunen, 2019*), and a female flight captain who enjoyed her job immensely and encouraged more women to pursue the profession (*Rasi, 2019c*). These articles show that there is a lot of discussion about the role of individuals in mitigating the environmental impacts of aviation, but views about the issue vary significantly.

Another approach on the travel issue was offering readers travel tips on how to avoid flying. *Heima (2019)* discussed *Interrail*, focusing on the renewed ticket options and giving some overall tips related to the system. In addition, *Östman (2019)* and *Nironen (2019)* discussed an alternative travel fair organized in Helsinki, sharing the organizers' and participants' tips for travelling with less emissions. These articles indicate that there is increasing interest in travelling by land rather than flying. In fact, this issue was the focus of one of the articles: *Kellman (2019)* interviewed a travel journalist who suggested slow travel is gaining more popularity and interest because responsibility is increasingly important for travellers. In addition, *HBL (2019b)* reported that the travel agency *TUI* announced they will start to compensate their Nordic customers' flight and holiday emissions without additional costs to customers. Thus, both individual travellers and the tourism industry seem to be increasingly addressing climate change in their actions.

The environmental impacts of the aviation industry in general were also addressed in the articles. *Ikävalko (2019a)* discussed aviation emissions and pointed out that Finns cause almost as much carbon dioxide emissions by flying than by driving. He further noted that aviation causes environmental impacts beyond carbon dioxide emissions and while it is difficult to evaluate the overall impacts, it is clear that the emissions reductions so far cannot cover the growing emissions caused by increased travelling. On the other hand, *Ziemann (2019c)* reported on the future development of airplanes based on interviews with representatives from the large airplane manufacturers *Airbus* and *Boeing*. Especially

Airbus was confident in the future of hybrid and electric aviation, whereas Boeing focused on developing more traditional technologies such as replacing kerosene with biofuel. These articles further highlight the division of attitudes: some emphasize the need to reduce aviation while some focus on the ability of technological development to mitigate its environmental impacts.

A number of articles focused specifically on Finnair and its emissions. As discussed above, Finnair published a compensation scheme in January 2019, and it got the media's attention. Ziemann (2019a) highlighted that Finnair is encouraging customers to pack less luggage because it would save fuel and has also launched a voluntary compensation scheme. The interviewed Finnair representative also pointed out that aviation has several positive social and economic impacts, so the future of aviation lies in balancing those with environmental well-being. Ziemann (2019b) interviewed several experts concerning Finnair's emissions reduction plans, and all of them noted that the direction is correct but the compensation payments are too small and customers' voluntary measures and compensation are not enough by themselves, there also needs to be reductions in emissions. Similarly, Näveri (2019) interviewed an expert who believed that the compensation measures are not sufficient and are not enough to solve the problem, the actual solution would be to reduce emissions in the first place. On the same topic, Jaakkonen (2019) pointed out in an opinion piece that the emissions reduction scheme is offering customers ways to continue life as it is but with a clean conscience although the actual positive impacts remain quite small. Ikävalko (2019b) compared Finnair's emissions with other Finnish companies and other European airlines, noting that Finnair's emissions are growing due to increased demand. The interviewed company representative saw emission trading as the best solution because it guides airlines to reduce their emissions continuously. Again, it seems that there is a gap between what experts say is needed in terms of the environment, and what the industry's response is.

Some articles approached the aviation industry with a focus on security. For example, the major airplane manufacturer Boeing's issues concerning the safety of a certain airplane model were addressed by Hällegårdh (2019), who reported that the company has confirmed a fault in the emergency systems of the 737 MAX airplane model was the reason for two deadly crashes within six months. According to the article, the crashes had caused a 20-percent reduction in the production rate of the model, but the company had since found a way to correct the problem. Gustafsson (2019) reported on a close call situation at the Helsinki-Vantaa airport after two airplanes landed on the same landing strip without enough time between them. SPT (2019) briefly reported that an airplane had landed at the Helsinki-Vantaa airport with a broken wheel and that despite the landing going well there would be an investigation about it. As a positive security issue, HBL-SPT (2019) reported that Finavia had updated and unified the evacuation plans at all of their airports. These articles show that environmental issues are not the only major concern related to the aviation industry, as security is so important that even close-call situations are reported.

Finally, there were a number of diverse topics such as strikes, delays, and regional connectivity. There was a major SAS pilots' strike in early 2019, and HBL (2019a) reported that 70 percent of SAS's flights were affected by it, yet there were at the moment no negotiations to agree on terms. Furthermore, Söderlund (2019) reported a few days later that the strike continued and the situation was still locked in place as neither party was willing to give up. Langh (2019) reported that Finnair was among the worst airlines globally when it comes to flights departing on time and paying reimbursements to customers for delays. Ståhl (2019) reported on approaching snowstorms and noted that flights have already been cancelled and delays are expected due to the bad weather. Löv (2019) reported on the challenging situation in the Kokkola-Pietarsaari airport, as Finnair cancelled several flights over a few weeks and discontinued some connections permanently. The number of flights had reduced significantly over the past few years, and as the few remaining flights were uncertain because of cancellations the region suffered. These articles show that disruptions in the industry can have significant individual and regional effects.

3 THEORETICAL FRAMEWORK

In this chapter, the theoretical framework of this study is presented. The framework consists of a linguistics-oriented perspective on the role of language in society, the role and characteristics of media and social media discussion in society, and public attitudes and discourses on aviation and its environmental impacts, discussed here respectively.

3.1 The role of language use in constructing social realities

3.1.1 Social constructivism

Discourse scholars across disciplines agree that language use has power in shaping social realities. As noted by Locke (2004, p. 11), this view results in an understanding that meaning is not absolute but rather always situated in a historical and cultural context. Yet approaches differ in relation to the degree of power. The approach that grants the most power to language and other forms of meaning-making and social interaction is called social constructivism. Social constructivism extends beyond the notion that language shapes reality; it claims that reality is indeed constituted in linguistic action and social interaction. Wodak et al. (2009, p. 8) identify four ways in which discursive acts are socially constitutive on a macro level:

“Firstly, they are largely responsible for the genesis, production and construction of particular social conditions. Secondly, they can contribute to the restoration, legitimation or relativisation of a social status quo (ante). Thirdly, discursive acts are employed to maintain and reproduce the status quo. Fourthly, discursive practice may be effective in transforming, dismantling or even destroying the status quo.”

In addition, on a micro level, Fairclough (2003, p. 8) notes that texts can change knowledge, beliefs, attitudes, values, and identities. Through these changes, texts influence actions and indeed the material world, as well as social relations (Fairclough, 2003, p. 8).

This is why discourses and discursive strategies are highly important matters: they can be used to shape the world, including knowledge, situations, social roles, identities, and interpersonal relations (Wodak et al., 2009, p. 8). However, Fairclough (2003, p. 8-9) emphasizes that only a moderate version of social constructivism should be accepted as the impact of texts on reality is not mechanical or regular, that is, the effect is not automatic or always the same. Instead, the impact depends on a number of contextual factors, including the status quo and the actor (Fairclough, 2003, p. 8-9). Thus, while the impacts of individual instances of language use on social realities cannot necessarily be pinpointed, there

certainly are real impacts and language use and discursive choices are significant factors in shaping social realities.

3.1.2 Discourse

The term 'discourse' has no universal definition, it is used in a number of ways across various disciplines. The present study adopts Fairclough's (2003, p. 124) definition: discourses are seen as "ways of representing aspects of the world - the processes, relations and structures of the material world, the 'mental world' of thoughts, feelings, beliefs and so forth, and the social world." Importantly, Fairclough further notes that discourses are not only representations of the world as it actually is or is seen to be, but they are projective, representing how people wish the world would be and the directions in which they would change it (see also Pietikäinen & Mäntynen, 2009). Such a perspective, as noted by Pietikäinen and Mäntynen (2009, section 1.1), sees language not as an independent, transparent system showing the world or people's thoughts as they are. Instead, language is seen as a flexible material that can be used and modified in different ways depending on the context, producing different end results (Pietikäinen & Mäntynen, 2009, section 1.1). Discourses are one important element of it because different discourses enable different approaches, framings, and evaluations of the topic, emphasizing some aspects and marginalizing others (Vaara & Tienari, 2002, p. 281)

This definition of discourse implies that language users can actively choose to represent the world, or aspects of it, in different ways when producing texts. The term 'text' is understood here in a very broad sense, including written, spoken, and visual sequences of language. In other words, language users can adopt different discursive strategies, that is, systematic ways of using language (see, for example, Reisigl & Wodak, 2001). The concept of strategy implies practices planned, more or less intentionally and accurately, with a certain goal in mind (Wodak, 2011, p. 49). Discursive choices can be made in terms of, for example, vocabulary, semantic relationships between words, grammar, genres, assumptions, narratives, the degree of generalization, what is included and excluded, and what elements are given the greatest salience (see Pietikäinen & Mäntynen, 2009, section 1.2; Fairclough, 2003). Furthermore, language users may draw on a number of different discourses and combine them in different ways. This is known as interdiscursivity, defined by Wodak (2011, p. 49) as linking topic-oriented discourses together in various ways. Furthermore, Wodak (2011, p. 49) highlights the open and hybrid nature of discourses, which allows users to create new sub-topics and new fields of action at any time.

Yet language users are not entirely free in their discursive choices; language use is affected by several different factors including different levels of discourses and the context. Hardy and Phillips (1999) distinguish between discourses on three different levels: the societal level, including mass media; what they term 'the institutional field', that is, a group of organizations; and individual organizations. They state that these different levels of discourse affect each other

in various ways, the higher levels facilitating, restricting, and producing the lower levels, which in turn produce the former. The choices of individual language users are thus affected by the discourses of the institutional field and society. Furthermore, specific contexts, such as a specific institutional field, have their own discursive practices that users should adopt in order to be understood. These include certain discourses, genres, styles, narratives, and other norms that language users become familiar with through socializing in the particular community (Pietikäinen & Mäntynen, 2009, section 1.5). However, it is important to note that the relationships between individual texts and factors that shape, facilitate, and constrain them are very complex. These factors affect the production of texts to an extent, while language users still maintain a great deal of freedom and are thus able to produce different meanings for different purposes (see, for example, Fairclough, 2003; Hardy and Phillips, 1999; Pietikäinen & Mäntynen, 2009).

3.1.3 Genre

In addition to the different levels of discourses, language use is shaped by the genre that is adopted. Genres are relatively stable, recognizable ways of structuring social action (see, for example, Pietikäinen & Mäntynen, 2009; Tardy, 2011; Fairclough, 2003). They are more dependent on situations than discourses (Pietikäinen & Mäntynen, 2009, section 3.1), and a discourse can manifest through a wide variety of different genres (Wodak, 2011, p. 48). As socially situated and recognizable forms, genres reveal the cores of specific social actions (Pietikäinen & Mäntynen, 2009, section 3.1) and facilitate an understanding of the ways in which language and context are related (Tardy, 2011, p. 55). However, genres may also be quite complex and heterogeneous. Fairclough (2003, pp. 66-69) notes that genres vary in their degree of stabilization and that particular texts may not belong to a particular genre; instead, language users may draw from generic resources rather innovatively, depending on the situation. In addition, genres are specialized for different communication technologies and so new genres are developed as new communication technologies emerge (Fairclough, 2003, p. 77). Indeed, Herring et al. (2013, pp. 8-9) note that Internet-based genres seem more multi-functional and open for change than more traditional genres. This is why genres are considered relatively stable but not fixed.

Like discourses, genres shape language use while language users may also draw from generic resources in different ways, more or less freely depending on the specific situation. Tardy (2011, p. 54) notes that genres embody expectations for linguistic form, but also dimensions such as rhetorical strategies, procedural practices, topics, and content, as well as how these factors are connected. In the next section, the genres relevant for the present study, online news articles and social media comments, are discussed in more detail.

3.2 The role and characteristics of media and social media

3.2.1 The role of media and social media in society

The media is an important actor in our everyday lives and in society as its role in societal interaction and public communication is highly prominent in modern societies. On the one hand, the media acts as a public sphere, an arena for public discussion and debate and, on the other hand, the media is an independent political actor that can shape the discussion by, for example, selecting and evaluating information in different ways (Park, 2013). Different media increase awareness on some issues and leave others aside, present potential solutions to societal problems as desirable or infeasible, and so forth (Lyytimäki, 2011, p. 651). As Vaara and Tienari (2002, p. 276) put it, collective sensemaking of complex phenomena takes place in or is reflected in media texts. It is therefore important to note that the media does not show the world as it is. Instead, different actors compete in the media field by promoting different social realities with various linguistic tools (Seppänen & Väliverronen, 2012). The media produce representations of the world through more or less systematically framing issues in specific ways, using certain discourses, different choices related to contextualizing, and so forth (Seppänen & Väliverronen, 2012).

The agenda-setting theory emphasizes the role of the media in composing the public agenda, or social priorities. McCombs and Shaw (1972) suggest that the media shape both audience views about a given issue, but also about its importance. In other words, the media give salience to some issues over others. Agenda-setting research concerns, among other things, the objects of media attention, the attributes given to those objects, and intermedia agenda setting, or how one high-level news organization may shape the agendas of other news organizations (McCombs, 2020). Importantly, the theory does not suggest a direct correlation between media coverage and the public agenda; the former is seen to shape the latter, but the impact is not linear (see, for example, Lyytimäki, 2012). As Cohen (1963, as cited in McCombs & Bell, 1996, p. 96) noted back when the agenda-setting theory was being conceptualized, the press may not be able to tell people what to think, but it is very good at telling them what to think about.

However, since the agenda-setting theory was developed the media field has changed significantly. With digitalization and social media, a huge range of information sources are now available. While mass media still reach large audiences and continue to play a role in setting the public agenda, issues can also be raised in social media (see McCombs et al., 2014, pp. 788-790). In addition, individuals can now meld personal agendas by sampling and drawing from the agendas of different media and other sources, choosing agendas that fit their individual preferences, to “find, or create, the personal communities in which we choose to live” (McCombs et al., 2014, p. 794). This unconscious process is called *agendamelding*, and *agendamelding* research attempts to explain why there are variations in the strength of media agenda-setting between media, groups, and

individuals (McCombs, 2020, p. 15). It can therefore be said that the importance of mass media in agenda-setting has been challenged and individuals are increasingly able to choose their information sources. Even so, Neuberger and Nuernbergk (2010) argue that social media complement, rather than replace, professional media in society.

The specific role of social media in public agenda-setting and shaping individual and public opinion remains an open question. Social media advocates argue that online discussions bring together people with different views, that written contributions can be more considered than face-to-face discussion, and that anonymity allows participants to express themselves more freely (Quinlan et al., 2015, p. 195). However, others argue that online environments in fact bring together people who already have similar views, that anonymity allows uncivil discussion, and that there is little substantial policy discussion online because the forums are partisan (Quinlan et al., 2015, p. 195). It thus seems that online forums provide significant opportunities for deliberative discussion in theory, but this potential may not be realized in practice.

Furthermore, mass media and social media meld together as news media are increasingly integrating social media elements on their websites. Readers may be offered the option to comment, submit photos, like, and/or share articles. Looking specifically at the discussions that take place in the comment-sections of online news articles, Cavanagh and Dennis (2013, p. 3) note that the sites of respected news organizations may be a platform for “genuinely democratic and socially effective debate” as they collect large enough audiences. In line with what the agenda-setting theory suggests, Milioni et al. (2012) found that the media guides the discussion in the comments by setting the topic of discussion, but users interpret the news as they wish. This means that “professional news no longer have a monopoly over the production of meaning for public issues, but they blend with users’ perspectives in new, hybrid texts” (Milioni et al., 2012, p. 41-42). Worryingly, Milioni et al. (2012) also observed that users frequently adopted an abrasive tone and that the opinions voiced in the comments lacked diversity. This is highly significant also in light of Lee’s (2012) finding that comments significantly affect readers’ perceptions on public opinion (see also Hsueh et al., 2015). Thus, news media may in fact indirectly support the spreading of harsh and one-sided perceptions. To conclude, the media and social media both play central roles in bringing forth or leaving out issues for public discussion and shaping people’s opinions.

3.2.2 Characteristics of online news articles

Online news sites have evolved away from print newspapers and have developed their own characteristics. Eriksen and Ihlström (2000) note that online news media are fluid: article content may change, the location of the article on a page changes, the concept of an edition no longer applies. In addition, online news sites operate on a continuous basis instead of the 24-hour cycle of print media, and thus they report news live as they occur (Eriksen & Ihlström, 2000). This

practice has resulted in increased pressure to produce new content continuously and efficiently. Himma-Kadakas (2017) notes that the pressure creates a favourable environment for misleading and fake news to become published and distributed, because journalists have less room for filtering and processing information. In addition, digital media has resulted in the recycling of texts, and online media sites publish and re-use use some of the same material as print media, television, radio, social media, as well as other news sites' material (Johansson, 2014; see also Seppänen & Väliverronen, 2012). Juntunen (2011, as cited in Seppänen & Väliverronen, 2012, section 6) found that, in the Finnish context, news media published press releases from different societal actors and used material produced by news agencies or borrowed from other media quite easily online.

The three key features of digital media are interactivity, multimodality, and hypertextuality (Mangen & Velay, 2014). In addition, the fluidity and rapid pace of online media have given room to two noteworthy characteristics: editing content afterwards and click-bait headlines. First, Riesch (2011) notes that online media may be tempted to discreetly edit articles not only when new information becomes available, but also when the content has been shown inaccurate or even damaging, which means that most of the readership may see a different version than the final, archived product. This can be particularly problematic when looking into the media's contribution to national debate in retrospect (Riesch, 2011). Second, click-baiting is a strategy to make headlines attract more clicks which may, among other things, result in more advertising revenue for the media and therefore be very important. Blom and Hansen (2015) found that commercial and tabloid media in Denmark had a strong tendency to use click-bait headlines, stronger than non-commercial and non-tabloid media. However, Alves et al. (2016) note that click-baiting may also result in reader dissatisfaction and frustration, which could be harmful for the media and its trustworthiness.

These characteristics also change the ways in which readers read and respond to news. Online reading is less sequential and more superficial than print reading (see, for example, Loan, 2012). Baron (2013) found that reading onscreen frequently included multitasking, unlike reading from print, and that the latter was associated with improved learning. Similarly, Mangen and Velay (2014) note that digital reading platforms invite extensive multitasking and that hypertextuality changes document navigation, contributing to nonlinear reading. Further, as discussed above, readers are no longer merely readers, but they can interact with the media and each other on news media platforms. These platforms can be considered social media.

3.2.3 Characteristics of social media discussion

The general characteristics of computer-mediated communication (CMC) or electronically mediated communication have been extensively studied and debated. Initially, one central argument concerned whether CMC is more like speech or traditional writing, and both sides have their proponents (see, for example, Crystal, 2006; Tannen, 2013). What is clear is that the characteristics of modern online

language use have not emerged from nowhere: much if not most of them have antecedents in the earliest online texts such as email as well as analogous writing and speech (see, for example, Herring, 2013). Still, online language use is bound to be different from the other modes of communication because it lacks the auditory and gestural communication channels, and research suggests there are some structural features that are common to all CMC (Bieswanger, 2013). Danet (2001, as cited in Bieswanger, 2013, p. 464) suggested that digital writing has nine common features: “multiple punctuation, eccentric spelling, capital letters, asterisks for emphasis, written out laughter, descriptions of action, “smiley” icons, abbreviations, and the use of all lower case.”

The specific linguistic characteristics of CMC naturally depend on the specific channel and language used, as well as other contextual factors. Baron (2014, p. 310) notes that synchronous communication encourages faster messaging with less effort on editing than asynchronous communication, that input is easier on full computer keyboards, and that some channels have specific restrictions on, for example, message length. These features can result in quickly written and, sometimes necessarily, short messages. In addition, Herring (2013) suggests that technological factors are likely to reshape interactional phenomena but that social discourse phenomena, including expressions related to social dynamics, power, identity, and cultural differences are not easily reshaped. In other words, expressions related to turn-taking, co-construction and interactivity are different online, but social phenomena remain similar to face-to-face interaction.

The area of most interest here is asynchronous communication on open platforms. Looking at asynchronous chatgroup messages, Crystal (2006, p. 144) notes that individual messages are contributions in an ongoing discussion and the aim is not to get personal replies. Rather, the aim is “to influence the discussion, to correct a misapprehension, to express agreement, to remind people that you exist, to ‘sound off’, to ‘have your say’.” Furthermore, the language is a mixture of monologue and dialogue (Crystal, 2006, p. 154). However, such platforms also commonly invite uncivil behaviour (Coe et al., 2014). Lambiase (2010) found that a small number of participants are able to control discussion topics, lead a conversation away from its original topic, and silence opposing viewpoints by flaming - inflammatory and obscene messages -, wilfully misunderstanding earlier messages, and overloading the discussion with multiple messages about a topic. Democratic conversations are hardly possible when dominant communicators can override the benefits of the online platform (Lambiase, 2010, p. 18; see also Milioni et al., 2012; Quinlan et al., 2015). In addition, von Sikorski and Hänelt (2016, p. 566) found that comments on news articles can also negatively influence reader perceptions on the quality of an article and lower their trust in the news organization. Yet some researchers still highlight the potential for deliberative discussion on such platforms (see, for example, Manosevitch & Walker, 2009; Collins & Nerlich, 2015).

3.3 Public attitudes on aviation and climate change

There is at least a general awareness of the environmental impacts of aviation and its contribution to climate change among the public in Finland and other Western countries. This has been shown in research (see, for example, Cohen & Higham, 2010; Higham & Cohen, 2011; Gössling et al., 2009), and is also clear from the frequent media discussion around the topic (see Chapter 2). Yet it seems that knowledge does not translate in a straightforward way into positive attitudes towards policies that aim to reduce the impacts and especially not into action to reduce the impacts of one's own flying behaviour. While there is little to no research from the Finnish context specifically, international studies from Sweden (Gössling et al., 2019; Larsson, 2020), Norway (Higham & Cohen, 2011; Higham et al., 2016), the United Kingdom (Cohen & Higham, 2010; Randles & Mander, 2009), and other countries have looked at the public knowledge, attitudes, and behaviour around the topic, and the factors behind them.

3.3.1 (Un)willingness to change individual air travel patterns

Studies have shown that people are quite unwilling to consider climate change in relation to their travel plans, especially when it comes to tourism (see, for example, Becken, 2007; Hares et al., 2010). In the UK and Norway, Cohen and Higham (2010) and Higham and Cohen (2011) found that tourists consider long-haul travel extraordinary and thus justified despite climate concerns. In these studies, respondents were more concerned about the unsustainability of frequent short-haul air travel. Gössling et al. (2009) also found that the majority of Swedish air travellers consider flying less either irrelevant or difficult and were unlikely to change their behaviour. However, they note that when it comes to business travel, many travellers are unable to influence their own travel patterns, though respondents did suggest videoconferencing as a potential way to reduce flying for business.

The unwillingness to reduce flying and the perceived irrelevance of doing so may partially stem from lack of detailed knowledge, the perceived responsibility for reducing the impact, and denial strategies. First, in terms of knowledge, people may not understand the actual climate impact of air travel concretely (Higham & Cohen, 2011, p. 103), they may believe that everyday environmental actions such as recycling are sufficient individual actions and balance the emissions from holidays (Dickinson et al., 2010; Higham & Cohen, 2011; Becken, 2007), or they may place their faith on technological development as the main solution despite poor knowledge on the technological solutions and their timeframes (Randles & Mander, 2009, p. 109). Second, people assign responsibility for reducing the climate impact of aviation elsewhere instead of taking it on themselves. Gössling et al. (2009, p. 9) found that responsibility was primarily assigned to aircraft producers, then airlines, government, intergovernmental organizations, and lastly on air travellers themselves, with only about one-third acknowledging

their own responsibility for the emissions. Responsibility may also be assigned on other groups and individuals than the self (Randles & Mander, 2009, p. 107). Third, studies have found a number of denial mechanisms to cope with the uncomfortable coexistence of knowledge about aviation's environmental impacts and personal need or desire to continue flying. Assigning responsibility elsewhere and arguing that individuals cannot make a difference is one of these (Hares et al., 2010). Becken (2007, p. 365) argues that the conflict between aviation and climate change is indeed not only a matter of individual denial but a situation of collective denial "where everyone waits for someone else to do something." All in all, it is evident, as Kroesen (2013, p. 286) puts it, that people as argumentative beings have a lot of scope to reconcile inconsistencies between their attitudes and behaviours.

However, there are also signs towards changing travel behaviour. Higham and Cohen (2011, p. 101) found that climate discourse in Norway has "moved from debate to acceptance of, and response to, the issue", with no evidence of denial. While Norwegians were still unwilling to forego long-haul travel, they concluded that Norway is a vanguard of the tourism market in Europe when it comes to climate sensitivity. A significant number of respondents were beginning to adjust their travel behaviour by intending to stay in the destination longer and combining multiple travel motivations. In addition, Baumeister, Zeng, and Hofendahl (2020) found in a recent study that air passengers, especially environmentally-minded passengers, would respond well to an eco-label in the aviation industry. There is willingness to pay more to avoid the worst-performing flights, and willingness to accept trade-offs in terms of travel time to be able to choose the best-performing flights. In another recent study, Gössling et al. (2019) also found that social norms are shifting and air travellers are increasingly weighing the desirability of flying and its moral legitimacy. The frequent flier respondents considered a fifth of their flights to be of no or limited importance and thus redundant (see also Gössling et al., 2009; Randles & Mander, 2009). Thus, Gössling et al. (2019, p. 8) argue that social norms, and thus social practices, can be changed by fostering moral concern and awareness of aviation's climate impacts (see also Antimova et al., 2012). Yet it is important to note that public responses vary depending on the context, and Mokhtarian et al. (2015, p. 268) argue that the demand for travel may have been substantially underestimated in research focusing only on extrinsic or instrumental travel motivations without considering the intrinsic motivations, such as experiential and hedonic factors. Thus, they note, also resistance to reducing or replacing travel may be greater than expected.

3.3.2 Attitudes towards different mitigation and policy measures

Outside of changing travel behaviour, potential measures to mitigate the climate impact of aviation and travel in general range between voluntary individual measures such as offsetting, soft bottom-up measures such as social nudging, and coercive top-down measures such as regulation. Attitudes towards them seem to vary depending on the national socio-cultural context, including the level of trust

in institutions (Higham et al., 2016, see also Larsson et al., 2020) and public discourse on climate change (Higham & Cohen, 2011).

In terms of added costs for offsetting or compensating emissions, Gössling et al. (2009) found support for voluntary carbon offsetting in Sweden, with the majority of respondents confirming they could compensate future flights after receiving information about offsetting. However, Higham et al. (2016) found that voluntary carbon offsetting was viewed sceptically in all four nations studied (Norway, UK, Germany, and Australia) as the concept was not understood well and its impact was not trusted (see also Randles & Mander, 2009). Interestingly, they found that the public would prefer a mandatory offsetting cost included in the ticket price over a voluntary option, and that the Norwegians supported a high carbon tax too. Similarly, Becken (2007) found that a global air travel tax was deemed a realistic compromise solution by tourists rather than voluntary initiatives or a carbon budget. Randles and Mander (2009) also found support for a 'Green Tax' on aviation among frequent flyers in the UK, but only given that the revenue would be used to reduce emissions and that this was clearly and directly demonstrated. Likewise, Baumeister, Zeng, and Hoffendahl (2020) found that passengers who were provided information on aviation eco-labels, including what it stands for, why it is important, and what environmental impacts it addresses were more likely to choose the best-performing flights over the worst-performing flights. Without the additional information, passengers might consider an aviation eco-label greenwashing and not trustworthy (Baumeister, Zeng & Hoffendahl, 2020). These studies show that people are willing to accept an added cost as long as they do not have to change their travel behaviour and they can see the impact. Conversely, Larsson et al. (2020) found that Swedes were more supportive towards pull-measures such as subsidies and information than push-measures such as taxes and emissions trading.

Because travel is a matter of personal freedom in Western societies, fairness is also an important factor in policy design. Larsson et al. (2020) found that the perceived fairness and effectiveness of different policy measures were in fact the most important factors affecting supportiveness. Randles and Mander (2009) also found fairness important, although participants' calculation of what is fair was rather vague. Higham et al. (2016) highlight the importance of nuanced and transparent policy interventions to account for public concerns about the actual environmental impacts and perceived loss of freedom resulting from different policy measures. They argue that voluntary and soft measures are insufficient to change air travel behaviour yet acknowledge the challenge in designing and implementing acceptable regulation. In addition, they note that aviation restrictions would be resisted by many. This issue was also raised by Randles and Mander (2009), who found a significant minority expressing 'aviation rage', or anger and frustration because of a feeling that air travellers are being unjustly targeted in discussions about climate change and emissions. Thus, it is clear that emissions reductions in the aviation sector cannot be achieved by only addressing the consumption side. Instead, the production patterns and underlying societal structures have to be addressed as well.

3.4 Air travel as a societal norm and related discourses

Aviation is a normal, even unquestionable part of many Western people's lifestyles and its perceived value is high not only in terms of economic value but also social and symbolic value (see, for example, Gössling et al., 2009; Hares et al., 2010; Dickinson et al., 2010; Becken, 2007). Yet air travel is not only a matter of individual preference, but a social practice and societal norm constructed discursively as well as through structures and regulations - or the lack of them. Aviation organizations, airlines, and the tourism industry are all influential players in the field and have obvious interests to protect.

When it comes to the aviation industry, Gössling and Peeters (2007) found that its sustainability discourses misrepresent the actual environmental performance of the industry (see also Burns & Cowlshaw, 2014). The industry's main arguments emphasized aviation's energy-efficiency and marginal share of global CO₂ emissions, the industry's economic and social importance, technological development as a solution to environmental problems, and the unfairness of the treatment of air travel compared to other modes of transport (Gössling & Peeters, 2007). Gössling and Peeters (2007, p. 414) argue that such discourses support and justify non-action for individuals and thus conclude that "[s]hould these discourses continue to prevail, it is likely that air travel will grow and become deeply enrooted in society." It seems that these discourses indeed have prevailed since then and are also widely used by actors other than the industry. Furthermore, in a more recent study Gössling et al. (2019, pp. 1-2) note that, despite the increasing conflict between aviation and the need for emissions reduction, aviation organizations continue to maintain two main discourses: that air travel is a norm for a large share of the global population, a mass activity, and that air travel is always valid, socially desirable, and moral, with justifiable traveller motivations. Thus, public discussions about the legitimacy of flying and individual responsibility for emissions are scarce (Gössling et al., 2019, pp. 1-2). In addition, Peeters et al. (2016, p. 40) note that the various potential technological solutions presented by the industry and distributed widely by the media over two decades have created a popular understanding of aviation as a "soon-to-become-sustainable" sector, stalling policy measures to reduce its emissions.

Similarly, the tourism industry constructs itself as a crucial economic sector with a relatively small contribution to climate change (Duffy & Stroebel, 2015, p. 16). In addition, the industry supports market-based measures such as technological development and voluntary self-regulation as the best solutions to climate change, thus marginalizing discussions about alternatives such as binding global regulations (Duffy & Stroebel, 2015, p. 16). The tourism industry thus also promotes a continued increase in travel and disregards the conflict between growth and need to reduce emissions (Duffy & Stroebel, 2015, pp. 18-19).

These prevailing discourses maintained by powerful industries contribute to the individual attitudes discussed above and seem to be reproduced by individuals, too. Dickinson et al. (2010, p. 483) found that the power to act was an

important theme in descriptions about holiday travel and climate change, with people employing three discursive strategies that deny individual agency: placing responsibility on the government who are not taking action; questioning the scientific knowledge base on climate change and doubting the phenomenon; and claiming a lack of knowledge on climate change. In addition, as mentioned above, people justified flying on holidays by noting pro-environmental behaviour in their everyday life (Dickinson et al., 2010, pp. 486-487). Randles and Mander (2009, p. 111) further note that the discussion around flying has become emotional and sensitive for passengers, with numerous contradictory positions creating a polemic debate.

Therefore, it seems that while there are structural barriers, such as time, cost, and booking systems, to replacing air travel with other modes of travel, discursive constructions also act as a barrier for changing behaviour. Prevalent discourses about aviation and climate change support maintaining the status quo and move responsibility and agency away from individuals. To improve the situation, Gössling et al. (2009) argue that airlines should openly admit and provide transparent information on aviation's contribution to climate change and engage actively in emissions reduction. Gössling et al. (2019) also note the importance of societies fostering moral concern and individual accountability to overcome denial and achieve emissions reductions.

4 DATA AND METHODOLOGY

In this chapter, the data for this study, as well as the data collection and analysis methods are presented. The data consists of online news articles and readers' feedback on them, and the qualitative analysis process draws from approaches in discourse studies.

4.1 Data and data collection

The data for this study consists of eight online articles from seven different media outlets and the readers' feedback on them in the form of poll responses and comments. Analysing the articles provides an insight to how the media deals with the topic, and the commentary is a useful source of data for studying public perceptions qualitatively because it is real-time and not affected by the data collection process. Table 1 lists the details of the data: the media outlet, the date and time of publication and potential edits, the language used, and the type and number of reactions and comments received.

TABLE 1: Overview of the data

Media outlet	Publication date (edited)	Language	Poll	Comments
Verkkouutiset	2 May 2019, 7:22 (9:35)	Finnish	Poll about the article: 219 votes	9 comments, identified with Facebook account, Facebook-login required
Helsingin uutiset	2 May 2019, 8:37	Finnish	Poll on aviation: 1879 votes. Poll about the article: 117 votes	14 comments, anonymous but KeskiSuomalainen-login required
Svenska Yle	2 May 2019, 14:43	Swedish	N/A	25 comments, anonymous but Yle-login required
Hufvudstadsbladet (HBL)	2 May 2019, 18:25	Swedish	Poll on aviation: 210 votes	N/A
Yle News	2 May 2019, 19:30 (19:30)	English	N/A	N/A
News Now Finland	2 May 2019, no time	English	N/A	N/A
Ilta-Sanomat	4 May 2019, 7:30	Finnish	N/A	384 comments, anonymous, no login required
Svenska Yle	6 May 2019, 5:15 (5:32)	Swedish	N/A	38 comments, anonymous but Yle-login required

The data was collected between January and September 2020 while all of it was publicly available online.

Looking at these seven media outlets in more detail, it is apparent that their profiles are somewhat different. First, Verkkouutiset is a free online media directly associated with the Finnish centre-right political party Kansallinen Kokoomus. The site's slogan is 'For consumers of politics', framing it as a site for people interested in societal affairs. Second, Helsingin uutiset is a free print and online media, with a focus on the Helsinki region. It has a large readership in both online and print (Helsingin Uutiset, 2019). Third, Svenska Yle is the Swedish unit of the national public broadcasting company Yle. They have an online news site as well as a tv channel and two radio channels. Their news focus on the Swedish-speaking population of Finland and Finland in general, with a local emphasis on the capital region and Western Finland. Similarly, Yle News is Yle's English news site, with some radio content as well. The site delivers news about Finland for foreigners in Finland and interested people abroad. Fifth, Hufvudstadsbladet (HBL) is a print and online media, and the largest daily Swedish paper in Finland. Sixth, News Now Finland is a free, independent online news site in English without a topical focus. And finally, Ilta-Sanomat (IS) is one of the two main tabloid publications in Finland, with a print paper published six days a week and a website. The IS website is highly popular, making the media's overall reach, print and online combined, the largest in Finland (Media Audit Finland, 2021). All in all, the target groups and regional focus of the media thus show significant variation. However, what is common is that they all cover multiple areas of society and life.

The aim of the data collection for this study was to identify each article that a Finland-based media outlet published on Baumeister's study in May 2019 or soon after. Several articles were identified by Baumeister as soon as they were published as they followed the public discussion and participated in it through interviews. To complement the data collection, a web search using the Google search engine was conducted to try to ensure that no articles were missed. The search terms used consisted of a combination of "Stefan Baumeister" and different words for aviation and/or emissions in Finnish, English, and Swedish. Both means combined, a total of 10 articles were identified. Out of these, the above-mentioned 8 (see Table 1) were selected for this study. Table 2 lists the details of the two articles that were excluded from the study.

TABLE 2: Overview of the articles excluded from the study

Media outlet	Publication date (edited)	Language	Reactions	Comments
Raidepuolue	4 May 2019, no time	Finnish	N/A	N/A
Tiede magazine	10 July 2019	Finnish	N/A, print media	N/A, print media

These articles were excluded because the media outlets differ significantly from the other, more general media that are included. *Raidepuolue* is a trade-specific media maintained by the railway industry trade unions. Therefore, it is not a general news source like the others, and it has a specific interest in this case which is likely to shape its message and thus prevent comparison. *Tiede* magazine, then, was excluded because the article was only published in print, unlike the other articles that were published online. In addition, the publication date was two months later than the others', separating the article from the main discussion around the study that took place in early May 2019.

In addition to these articles and their comments, the study aroused public discussion on a number of social media platforms such as Facebook and LinkedIn. For this study, it was decided to focus solely on the discussion on publicly available media sites because they are easily accessible, general information sources, and open for everyone. Therefore, it can be assumed that a more diverse group of readers participates in the discussions there than in, for example, Facebook groups, where only people interested in the group's topic are discussing. While the data for this study does not allow the results to be generalized to the entire population, the fact that the data is from open sources where all readers have been able to participate in the discussion enables a general understanding of public perceptions to be produced.

Furthermore, the study resurfaced in public discussion, especially on social media, in May 2020 after Finnair announced it would cancel all of its flights to five Finnish regional centers for the summer due to the COVID-19 pandemic. However, these discussions have also been excluded from this study because, due to the pandemic, their societal context is rather different from the original discussion that took place a year earlier. Including two such different sets of data would have been beyond the scope of this study.

4.2 Data analysis

The present analysis approach draws mainly from the field of qualitative discourse studies. This field was chosen because the aim of the study is to gain an understanding of a phenomenon that has not been studied in the Finnish context previously, namely perceptions on and attitudes towards domestic aviation and climate change, and specifically the suggestion to reduce domestic air travel for climate reasons. Discourse studies are flexible and allow close attention to detail and contextual factors, which are seen beneficial for this research design. In this section, discourse studies and the specific means of analysis in this study are discussed.

4.2.1 Discourse studies

Discourse studies is a vast field whose roots lie in a number of disciplines such as linguistics, history, philosophy, and sociology (see, for example, Wodak, 2008). Within the field, there are a number of different approaches or subdisciplines that have different theoretical and epistemological underpinnings. Furthermore, a variety of different methods are used in the field, hence the more traditional term 'discourse analysis' is increasingly being replaced by 'discourse studies' to highlight that there is no single method for analysing discourse (see, for example, van Dijk, 2016).

What the various approaches in the field have in common, and what is thus the core of discourse studies, is "the systematic and explicit analysis of the various structures and strategies of different levels of text and talk" (van Dijk, 2007, as cited in Wodak, 2008, p. 3). As discussed above, discourses and other linguistic strategies construct social realities which is why studying them is important. The focus in discourse studies is not on 'truth' but instead on understanding and revealing the meanings that prevail, are marginalized, or are missing in different texts (Pietikäinen & Mäntynen, 2009). As Gössling and Peeters (2007, p. 405) put it: "clearly, there is no single 'truth' or 'reality'", and thus discourse studies can provide an understanding of how and which 'truths' and 'realities' are created in different contexts. In addition, because discourse studies allow scholars to consider multiple perspectives on and interpretations of the object studied and take into account the context (Wodak, 2008), they can provide a deep understanding of texts and, through them, the social phenomena covered in the texts (Gering, 2015).

Differences between the approaches in the field are many, but one that should be considered here is the difference between discourse studies and critical discourse studies (CDS). The critical approach, as much of the terminology in the field, has been defined in a number of ways. Wodak and Meyer (2016) assign CDS many such features that are included in the present approach, such as including the context of language use in analysis, understanding discourse as both constructing and being constructed by social structure, and explicitly stating the researchers' positioning and being self-reflective during the research process. Yet the defining feature of CDS, according to Fairclough (2015) as one of the most influential authors in the field, is its commitment to not only explaining discourse and its role in the existing social reality, but also taking transformative action to change that reality for the better. CDS is specifically interested in the role of discourse in the use of power and domination, and it provides academic contributions to emancipate people from power abuse (see, for example, Fairclough, 2015; van Dijk, 2016; Wodak & Meyer, 2016). Because this aspect is missing from the present study, the approach here is labelled 'discourse studies', although the theoretical framework and methodology draw from critical scholars as well.

4.2.2 Means of analysis

Because there is no single method for analysing discourse, the methodology for the present study has been defined based on different kinds of qualitative discourse studies. The starting point of the analysis process here is that it should be an iterative process, that is, the analysis should move back and forth between the data and the codes and interpretations being developed based on the data. As Antaki et al. (2003) note, it is simpler to identify what is not discourse analysis than what actually is. However, they do summarize that analysis means “a close engagement with one's text or transcripts, and the illumination of their meaning and significance through insightful and technically sophisticated work.” This is the guiding principle of the present study.

Because of the nature of the data, the articles and the readers' feedback were analysed in slightly different ways. Both analyses included several different steps, although it must be noted that the steps often overlapped and some steps were conducted several times. Thus, the processes were not linear or straightforward. The analysis of the articles included the following steps: a close reading; comparison with the original press release; comparison of the linguistic choices across the articles; and drawing conclusions. Because there were a lot of similarities across the articles, the analysis process was not as complex as with the readers' feedback.

The analysis of the readers' feedback was more complicated because the amount of data was much larger and there were much more differences to be considered across the comments than across the articles. The analysis focused on the comments, while the poll responses were considered where deemed appropriate. This analysis process included the following steps: a close reading and initial coding of the data; a second coding with more precise codes developed from the initial codes and data; combining the codes into larger categories; drawing a map of the connections between the categories; identifying the attitudes and discursive strategies associated with them; and drawing conclusions. Each step also included considering alternative interpretations besides the initial interpretation made by the researcher. The first coding phase was done on paper, but the second coding was done on the analysis software Atlas.ti 9. The software was then also used for co-occurrence calculations to identify issues that were connected with one another and issues that were connected with the attitudes.

Both processes began with familiarizing with the data, after which interpretations were made through cataloguing and re-arranging the data and displaying it in different ways such as tables and maps. The interpretations were made abductively, moving from a description of the data towards an explanation of meaning while considering the specific context. As discussed in Chapter 3, linguistic action is always dependent on and shaped by the context, and thus the analyst must move back and forth between the different levels of language use and situational context (Pietikäinen & Mäntynen, 2009, section 1.2). The different levels may be emphasized differently depending on the research objectives, but

it is important to be aware of the various levels and their interconnectedness (Pietikäinen & Mäntynen, 2009, section 1.2). Naturally, the analyst cannot consider all possible contextual factors; instead, they must create an operationalization of the context to be considered. The approach used here was adapted from Wodak's (2008, p. 13) approach, which considers four different levels of context: "1. the immediate, language or text internal co-text; 2. the intertextual and interdiscursive relationship between utterances, texts, genres and discourses; 3. the extralinguistic social/sociological variables and institutional frames of a specific *context of situation* (middle-range theories); 4. the broader socio-political and historical contexts, to which the discursive practices are embedded in and related (macro theories)." Here, the first three levels were considered in earlier phases of the analysis, and the fourth level was considered towards the end of the analysis and in more detail in the Chapter 6. Considering the context is highly important to understanding the investigated phenomenon as a whole and acknowledging and considering alternative interpretations.

Finally, addressing researcher subjectivity is important because none of the methodological tools available for discourse studies can free the analysis from the researchers' interpretation. However, this does not prevent valid analysis as long as the issue is acknowledged. Wodak (2006, p. 608) states that analysis is always dependent on the selected research questions, which are influenced by interests and values. Similarly, Fairclough (2003, p. 14) notes that no analysis can say everything there is to be said about a text and thus analysis is inevitably selective. Yet both conclude this is appropriate because it would not be useful to merely describe the features of a text without a defined research objective. To validate the analysis, Wodak (2006, p. 608) offers the tools of separating analysis and interpretation, conducting the analysis in a systematic manner, and explaining the terms of analysis. The present analysis has attempted to utilize these tools. The motivation for this study arose from an interest in understanding how the suggestion to replace short-haul flights with existing land-based transportation modes for climate reasons was received in Finland and what this may tell about Finns' attitudes towards domestic flights and climate change mitigation. The analyst is personally dedicated to climate change mitigation and reducing air travel and hopes that an understanding of the public perceptions around the topic in Finland could contribute towards improved communications and thus a positive attitude shift.

5 RESULTS

In this chapter, the findings of this study are presented. The first section concerns the media articles and the discursive choices that shape the message in them. The second section concerns the issues, misunderstandings, and attitudes in the readers' comments and reactions. The news articles were originally either in Finnish, Swedish, or English, and the comments were either in Finnish or Swedish. To support the presentation of the results, some parts of the articles and comments have been translated into English. The aim of the translation has been to maintain the tone of the original as well as possible. Errors in, for example, capitalization and punctuation that are characteristic of computer-mediated communication are included in the translation where possible because they are relevant in linguistic analysis, although they were not the main issue of interest in this study.

5.1 Media reporting of the study

Out of the eight articles, three exclusively re-used content from the press release, two combined information from the press release and the paper itself, and two were more detailed with additional comments directly from the researcher and a second view on the topic from a different source. One of them, the HBL article, is mainly about a different but related topic, a citizens' initiative for a flight tax in Finland, and integrated information from the press release as a second theme. While the articles are similar in many ways, it is important to pay attention to the small changes made in the content that affect the message of each article. Despite using the same information source, the articles differ in, for example, title choices, the structuring and inclusion or omission of information - including which issue is raised in the lead text -, the way the researcher is presented and other word choices, and whether the original paper is made available or not.

In online environments, titles and beginnings are rather important because, as noted above, readers do not necessarily read texts fully, from beginning to end (see, for example, Loan, 2012; Baron, 2013; Mangen & Velay, 2014). The titles and lead and/or caption texts of the articles are presented in Table 3. Starting with the titles, while all but one title refer to giving up domestic flights, most do not refer to what lies behind the idea, that is, emissions reduction. On the other hand, both Svenska Yle articles refer to the environment or emissions, but neither of them mentions that the idea is based on research, which is included in all the other titles. Importantly, some titles refer to 'short domestic flights' while others have omitted the word 'short', thus suggesting that the matter concerns all domestic aviation. It is also noteworthy how some titles refer to 'giving up' domestic flights, following the original press release, and others use stronger words such as 'abandoning' or 'ending'. In addition, most titles present the topic as a

suggestion to reduce domestic flights from an individual researcher whereas the one from News Now Finland presents it as the result of a study, and the wording suggests domestic flights ‘could’ be abandoned rather than that they ‘should’ be. These differences in tone change how readers approach the topic and are particularly important if readers only read the title but not the entire article.

TABLE 3: Article titles and lead and/or caption texts

Media	Article title	Lead and/or caption text
Verkkouutiset	Researcher proposes giving up domestic flights	New study suggests giving up short domestic flights entirely. / Thinking of concrete ways to reduce aviation and emissions, short domestic flights are clearly more easily replaced with more environmentally-friendly options than long-haul flights.
Helsingin Uutiset	A direct suggestion from a researcher at a Finnish university: Short domestic flights should be given up - this is how they justify	According to the researcher, flights under 400km could be replaced with train trips.
Svenska Yle (article A)	Are you ready to give up domestic flights for the sake of the climate?	It is often imagined that aviation emissions are connected to long-haul flights to distant countries. But the environmental impacts of domestic flights are rarely taken up in the climate debate.
HBL	A citizens’ initiative wants to introduce a flight tax - researcher suggests that domestic flights be abandoned entirely	A citizens’ initiative that wants to set political pressure for introducing a flight tax launched on Thursday. / Air traffic raises opinions. Now names are collected to introduce a flight tax in Finland.
Yle News	Finnish researcher calls for end to domestic air travel, citing climate concerns	Carbon emissions from trips less than 400km are 18 times higher when travelling by air compared to taking a train, the researcher said.
News Now Finland	Study: Short domestic flights could be abandoned in Finland	The new research finds that replacing domestic flights with buses, trains or cars on journeys up to 400km would significantly reduce a country’s climate impact.
Ilta-Sanomat	Postdoctoral researcher’s surprising suggestion: A significant share of domestic flights should be discontinued	According to the business school postdoctoral researcher, train traffic could replace domestic flights almost entirely. It would not take time from travellers. / The Tampere-Pirkkala airport is one of the airports to which flying from Helsinki is not worth it from the point of view of the study.
Svenska Yle (article B)	To fly so short as from Helsinki to Vaasa spares almost no time but generates 18 times more emissions than taking a train	It could be a good idea to abolish short domestic flights in Finland and favour, for example, train travel instead, according to research published recently at the Jyväskylä University School of Business and Economics. Simultaneously state employees are flying more for work.

Secondly, there are similar differences in the lead and caption texts, which are the most prominent parts of an article in addition to the title and thus important. There are two articles that do not mention emissions reduction or the environment in either the title or the lead text (Helsingin Uutiset and Ilta-Sanomat), although they are the basis for the original study and the suggestion to reduce domestic flights. These two articles fail to make this basis for the suggestion clear in the beginning. In addition, only the Svenska Yle article A does not mention that the suggestion is based on research in either the title or the lead. An additional, prominent element are also the pictures selected for the articles. They are largely similar, containing aircraft from different angles, either at an airport or in the air. However, it is noteworthy that the main photo of two articles, and the second photo of a third, contains a Finnair airplane. This may guide readers to think, for example, that the suggestion is targeted at Finnair specifically.

Third, the differences in presenting the researcher and the source of information are relevant because they increase or decrease the credibility of the statements. The original press release introduces the researcher as 'Postdoctoral researcher Stefan Baumeister from the Jyväskylä University School of Business and Economics' and includes an academic reference to the paper. Some articles use the same introduction, whereas others first highlight that the source is 'a fresh study published by the University of Jyväskylä' and refer directly to the researcher only later in the text. In these cases, the reference to the researcher is either 'researcher Stefan Baumeister' or, more specifically, 'postdoctoral researcher Stefan Baumeister.' The Yle News article introduces the researcher as 'Stefan Baumeister, a researcher of corporate environmental management at Jyväskylä University's [sic] School of Business and Economics', including the discipline as additional information. Regarding the original paper, five articles contain direct hyperlinks to it. The Svenska Yle article B even mentions that the paper was published in a scientific journal, including the name of the journal. However, three articles, one of them being the highly read and commented article in Ilta-Sanomat, contain no link to the paper and thus make it more difficult for readers to access the original information.

There are six articles whose content is based entirely on the press release (Verkkouutiset, Helsingin Uutiset, Svenska Yle article A, HBL) or the press release and the paper (Yle News, News Now Finland). The HBL article does contain additional information about the citizens' initiative, but the part about the study is based on the press release. What is interesting about these articles is the way the information is arranged in the body text and how different parts of the press release are omitted. Table 4 shows the order of the different content points from the original press release in the body text of each of these articles.

TABLE 4: Content order in the articles based on the press release

Content points from the press release / Media	Aviation produces much emissions	Example: Flying to Thailand vs private driving	Debate focuses on long flights, overlooks domestic flights	As a way to reduce emissions domestic flights are easier to replace	Study suggests giving up short domestic flights	Reason 1: Trains are much better for the climate	Reason 2: Flying is not necessarily faster	Example: From Kokkola to Helsinki	Number of domestic passengers in Finland	Suggestion's potential to reduce emissions	Comparison of emissions on short distances	Climate action is needed
Verkkouutiset	Not included	Not included	1	2	3	4	5	6	7	8	9	10
Helsingin Uutiset	Not included	6	5	7	1	2	3	4	8	9	10	11
Svenska Yle (Article A)	1	2	Only included in the lead	4	3	9	5	6	7	8	10	Not included
HBL	Mentioned in the first part*	Not included	Not included	Not included	1**	2	3**	Not included	Not included	5	4	Mentioned in the first part*
Yle News***	Not included	Not included	2	4**	3	8	6	7	5	10	9	Not included
News Now Finland***	Not included	Not included	4	5	1**	Not included	2	3	Not included	7	Not included	Not included

* The first part of the HBL article concerns the citizens' initiative on introducing a flight tax.

** These points have been slightly modified from the original press release.

*** The first point is from the paper itself, not from the press release.

**** The sixth point is from the paper itself, not from the press release.

Importantly, the issue that is mentioned first in the press release - aviation produces much emissions - is left out from most articles. Similarly, the example comparing the emissions of a trip to Thailand with a full year of private driving is excluded from most articles. Additionally, the last point of the press release - concrete actions are needed to stop climate change - is omitted from half the articles. These omissions can change the message rather drastically because the need for emissions reductions and specifically in the field of aviation is not explicitly explained. Instead, the articles raise the study's suggestion to give up short domestic flights to the forefront. The point about the climate debate overlooking domestic flights is also commonly mentioned near the beginning. As to the other points, there is quite a lot of variation among the articles. For example, the reasons for the suggestion - that trains are much better for the climate and that flying is not necessarily faster - have been placed either near the beginning or towards the end, depending on the article.

The two articles with some content from the paper itself are those from Yle News and News Now Finland. The former begins with the statement that while air travel can be the fastest travel mode it is also the one with the largest climate impacts, while the latter explains the study in more detail, noting that CO₂ emissions and door-to-door travel time were considered. These additional points can increase the credibility of the study. However, what is highly noteworthy about these two articles is that although both of them mention the 400km distance within which other modes of transport can compete with flights, they often omit the word 'short' and merely state that the researcher suggests ending domestic flights. The News Now Finland article makes it clear in the title that this concerns only short flights, but it seems that the Yle News article could very easily be misinterpreted in this regard.

The two more detailed articles that include comments directly from the researcher and a second perspective on the topic are those from Ilta-Sanomat and Svenska Yle (article B). Noteworthy issues about the Ilta-Sanomat article are that first, it contains a map of Finland with the 400 km radius from Helsinki drawn to show which airports are concerned here; second, it contains a photo of the researcher; third, it contains an additional comment from the researcher saying faster train connections to northern Finland should be considered; and fourth, it notes that short flights cause relatively more emissions than long-haul flights. Moreover, whereas the other articles follow the press release in stating that train travel is the most environmentally-friendly option but cars and buses are also better than flights, this article takes a slightly different perspective. It only includes a comment from the researcher saying that car and bus travel was also considered, but the efficiency there is not as great as it is with trains. This can be slightly misleading, as the article's focus is so strongly on train travel as the replacement option for flights. In addition, the article includes comments from Finnair, noting that the company does not 'shoot down' the research. Instead, the company suggests developing train and air travel together by, for example, building a track that would connect long-distance trains directly with the Helsinki-Vantaa airport. These issues seem to have guided some of the discussion in

the comments section of the article in different directions than the discussions around the other articles, although it is also true that the discussion on this article was by far the most extensive.

The article B by Svenska Yle has replaced the press release's example of domestic flights from Helsinki to Kokkola with Vaasa, presumably because Vaasa would be of more interest to their readership. Interestingly, the article notes that the travel time calculations in the study include waiting time at the airport and travel time to and from the city centre, but excludes security and boarding, which were included in the original paper and press release. This article is also the only one that mentions the share of air traffic from global CO₂ emissions. The second perspective in this article is from the state and the Ministry of Finance, noting that state employees take a lot of domestic flights for work, and the number has increased in recent years. The ministry representative highlights the possible lack of train connections and cost of travel time as potential factors preventing employees from choosing land-based travel modes. There are also additional comments from the researcher: surprise over the increase in state employees' flying and a statement that train connections in Finland and for example to northern Finland could be improved.

It can be concluded that most of these articles do not primarily contribute to discourses highlighting the role of aviation in contributing to climate change or even those emphasizing the importance of climate action. This is apparent from the way the press release's points about aviation emissions and the need for concrete actions to stop climate change are often either ignored completely or at least not raised to the title or beginning of the article. Through small changes to the content of the press release, many articles highlight the shock factor that an individual researcher would propose such an action rather than bringing the need for climate action and the emissions reduction potential of the suggestion to the forefront. However, the Svenska Yle article A makes an exception by following the press release quite closely and including the point that aviation produces a lot of emissions. In addition, by taking the statements from the press release and turning them into quotes from the researcher, the articles open more room for discarding the statements as the words of an individual researcher. Therefore, most of the articles contribute more to maintaining the status quo than changing it for environmental reasons.

5.2 Readers' comments and feedback

In this section, the findings from analysing the readers' reactions and comments to the articles are discussed in detail. The section is divided into three sub-sections: the issues raised in the discussion, issues that were misunderstood about the study, and the attitudes and discursive strategies present in the discussion.

5.2.1 Issues raised in the discussion

A great variety of issues were raised in the discussion. Two main themes emerged: travel time and environmental issues. Considering the topic of the original study, these themes are not surprising. In addition to these main themes, there were three others: pros and cons of each travel mode; alternative solutions; and credibility of the study, researcher, and research in general. In addition, some other issues that did not fit into the above themes emerged from the discussion, but these were a rather small group and not relevant in terms of the present study. The most frequently mentioned issue not covered by this study were politics and politicians, with largely very negative comments expressing distrust and dislike towards the Finnish government and especially towards the Green party. The five main themes and their relations to each other are presented in Figure 1.

5.2.1.1 Travel time

Travel time was one of the two main themes in the entire discussion. It was discussed from multiple perspectives, which are detailed in this section. The most frequent discussion point in relation to travel time and one of the most frequent issues brought up in the entire discussion was the matter of connecting flights from the Helsinki-Vantaa airport. Readers pointed out, largely based on their own experiences, that when travelling abroad it is faster to fly from a regional airport to Helsinki-Vantaa than to combine different travel modes. It is noteworthy that the original study arrived at the same conclusion, although this is not clearly stated in the media articles. Many readers also estimated the time needed for check-in, security checks, and boarding at local airports to be even less than in the original study:

“When I start my journey from the local airport, it takes me approx. 15 minutes to travel from home to the airport by taxi, and it suffices to arrive to the airport approx. 30-45 minutes before the airplane departs, because check-in and security check do not take much time at a small airport with few travellers. -- By train the same takes approx. 10 minutes to the train station by taxi, then 5-7 hours by train to Helsinki-Vantaa, and then long queues to the check-in machines, baggage drop, and slow security check.” (Alasajoako?, Ilta-Sanomat, 4.5.2019)

In this example, the time estimated to travel to the airport is in line with the study, but the difference lies in the estimated time needed at the airport. The reader only reserves a total of 30-45 minutes at the airport, whereas the study reserved 30 minutes for check-in and 45 minutes for security check and transfer to gate. Thus, readers find that the time saved by flying is greater than shown in the study.

In addition, readers noted that while the schedules of domestic flights are synchronized rather well with flights abroad, this is not the case for other modes of travel. Combining different travel modes can thus be complicated and may

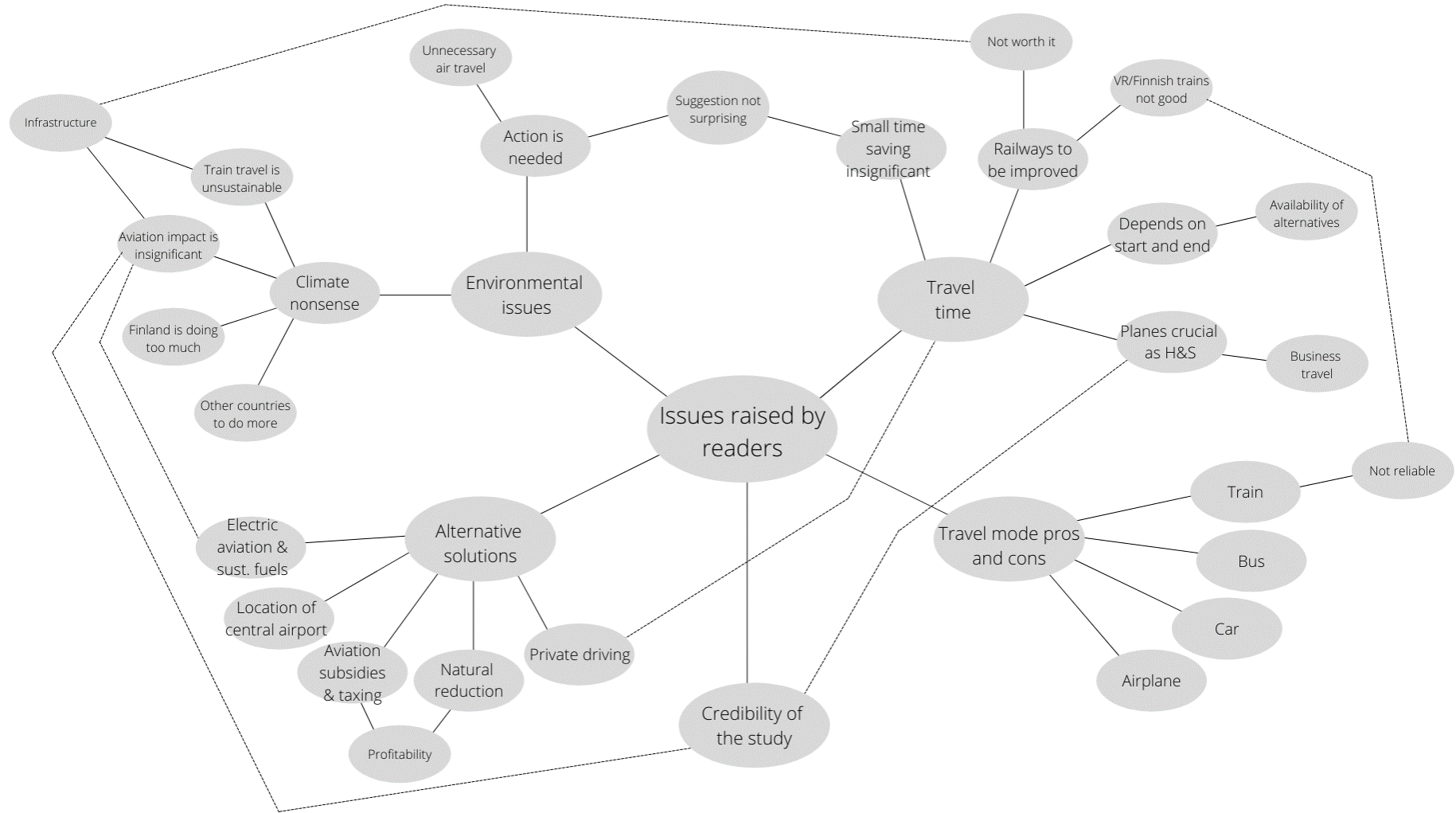


FIGURE 1: Thematic network of the readers' discussion

even result in added travel days, which is particularly significant in terms of business travel:

“It is a slow and thus an expensive alternative for an employer to have their employee first travel by train, then switch to an airport train somewhere, and in practice to always spend an extra night or two somewhere, because the morning trains cannot take you to morning flights in time so you must leave the night before and spend the night at the airport, and coming back with an evening flight there are no trains anymore and again you have to spend the night. It is a lunatic waste of money and working time.” (Jotain rajaa, *Ilta-Sanomat*, 4.5.2019)

Furthermore, while many readers only differentiated between business and leisure travel, some particularly highlighted business travel related to international trade and sales. Readers argued that salespeople do not have any extra time to spend travelling, as they are constantly in a hurry to be productive and they may even be paid based on their performance.

When it comes to travelling to the Helsinki city centre, some readers argued that even then it is so much faster to travel by airplane that other travel modes cannot compete. This is opposed to the results of the original study, where it was found that flying is slower or only slightly faster on routes up to 400 kilometres. Readers offered further examples from their own experiences showing that flying is much faster, often also noting that the result depends on the end destination which may not be at the very centre of Helsinki:

“One saves a whole lot of time by flying compared with taking a train. Should I fly from Vaasa to Helsinki, it tends to be quite enough to be at the airport 30 minutes before the flight departs, the flight takes one hour, and a half hour after landing one is in the centre of Helsinki. Already here one has saved at least one and a half hours. It must be taken into account in the calculation that even if one took a train one would have to be at the train station 10-15 minutes beforehand and arriving right at the centre in Helsinki by train does not mean that one must not take a taxi or other to get to their end destination, so the actual time won is closer to two hours. It becomes four hours on a round trip, or half a working day.” (C2, *Svenska Yle* 2, 6.5.2019)

Again, the time estimates for reaching Helsinki city from the Helsinki-Vantaa airport differ between the readers' examples and the study. Some readers justified their short estimates by having no luggage to claim and/or taking a taxi from the airport, whereas in the study the travel time included 40 minutes for baggage claim and transfer to the airport train stop, and 31 minutes for the actual train journey. The readers' views on whether one should take a taxi from the airport or use the public transport options that are readily available in Helsinki varied. Some noted that the connections from Pasila or the Helsinki central railway station are much better than from the airport, whereas others argued that taking a taxi is the fastest and thus best option, meaning long-distance trains have no advantage in this regard.

On the other hand, the dependence of the results on the starting point of the journey was also discussed. Many readers felt that considering only those

travellers whose starting point and end destination are near the city centre is not fair because it excludes those who live further from the centre. For them, the airport may be easier to reach than the train station. However, one reader also noted that the starting point and end destination may also mean it is faster and easier to take a train than to fly:

“If I were to leave from this neighbouring municipality to the [Helsinki-Vantaa] airport it would take time and I would have to be at the airport well in advance to make it to the flight, and at the other end the airport is not such that you could reach Kuopio quickly, especially if you are going somewhere outside of the city centre. But the train arrives very near the Kuopio centre and there is a bus station next to it from where you can go in all directions.” (kotiäiti, Ilta-Sanomat, 4.5.2019)

Another frequent discussion point about travel time was about the current railway conditions in Finland and how they require many improvements to become a viable option for flying. The most frequently called for improvements were a faster connection between Helsinki and Tampere and shifting the main track to run via the Helsinki-Vantaa airport directly. Other specific improvement suggestions mentioned several times included a faster connection between Helsinki and Turku, a new track via Lahti and Jyväskylä to Rovaniemi, and new tracks near both the eastern and western borders of Finland. In addition, there were a few calls for better east-west connections, improvements to the transport options feeding the train stations, night trains from Kajaani to Helsinki, and express trains between the Helsinki-Vantaa airport and Helsinki city centre. Interestingly, several people also brought up high-speed rail (HSR). The original study specifically notes that HSR would not be feasible in Finland and focuses on the existing transport infrastructure. However, readers mention bullet trains, hyperloop trains, and magnetic levitation trains as potential alternatives. Many call for ambitious investments in railways, following the example of European countries, such as Germany, and Japan. Finally, readers also hoped for opportunities to buy tickets that combine flights and trains, as is the case in Germany, for example.

On the opposite side of the discussion on travel time, there were also readers who felt that the original study has got it exactly right, that people often do not realize how much time airport formalities take and that saving a small amount of time by flying is not worth it for financial or environmental reasons:

“The researcher’s claims are correct. I travel for work doing maintenance around Finland from Helsinki, places such as Kokkola, Joensuu, Kuopio... The maintenance jobs come on a short notice and one must travel for example to Kokkola on the next day. The train goes every couple of hours, takes 3,5 hours, and costs about 50e one-way, as I recall. Ok, the company pays for my travel so I could take the airplane too but an airplane ticket costs approx. 450e on a one-day notice + expensive taxis and parking at the airport and the time saving is - well, nothing really, half an hour?? Many people do not want to realize this.” (reissumiesHki, Ilta-Sanomat, 4.5.2019)

“If I were to travel only to Helsinki from Vaasa it is clear that I take the train. It is much simpler and one does not save that much time by flying. It takes a lot of time to get from the airport to the centre.” (13331, Svenska Yle 1, 2.5.2019)

These readers also highlighted that it is easier to work on a train so the travel time can be better spent than when flying. This issue will be discussed in more detail below in section 5.2.1.3.

5.2.1.2 Environmental issues

The second main theme in the readers’ discussion were environmental issues. The views on the importance of environmental considerations ranged on a broad scale. The group of readers who opposed environmental actions the most had many different labels for climate concern. The most frequent term was “climate rut”, in addition to which there were terms such as “climate hysteria”, “climate fuss”, “climate nonsense”, and “idiocy”. People with climate or general environmental concerns were referred to as “world savers” several times. There was only one direct statement that climate change is not caused by humans, but a number of readers seemed to think that climate or environmental reasons should not be given weight in decision-making, especially if the decisions would influence the national economy:

“It is faster to fly to Oulu, so I see no reason why Finns should weaken the competitiveness of the national economy and travel by train from Helsinki to Oulu for 8 hours. It would be absurd to prioritize the climate instead of thinking the time spent with your own children and friends.” (Ei järkeä, Ilta-Sanomat, 4.5.2019)

One of the first comments in the active discussion on Ilta-Sanomat, and one that received a large number of likes and replies, also had this view that climate concern is going too far in Finland:

“Soon we Finns will develop things so much that soon we will notice that other countries are laughing at our gullibility. At the same time they will thank our climate rut as our industries have moved to them. Elsewhere they know that our moral posing has had no positive impact on the global climate. On the contrary, the factories that have left here pay no heed to any restrictions elsewhere.” (Mustasilmäinen, Ilta-Sanomat, 4.5.2019)

This comment also links to the next discussion point, which is how Finland is doing too much for the environment while other countries are not doing anything, or at least that it would have a bigger impact if other, bigger countries acted instead of Finland. China was mentioned a couple of times, noting that China and also India are building new coal plants and that aviation is increasing rapidly in China. The main reason for not taking environmental action seemed to be the national economy and trade, but several people also referred to environmental action deteriorating living conditions and quality of life in Finland:

“Finland does not always need to be the first to do everything, especially when it comes to deteriorating the living conditions we have finally reached from the Stone Age.” (Mummi, Ilta-Sanomat, 4.5.2019)

It is important to note here that while some readers felt Finland does not need to take environmental action because it is such a small country and already doing well on the environmental front, others were not opposed to environmental action per se but argued Finland should collaborate with other countries. Either Finland could drive joint decisions in the EU, or assist other countries reduce their emissions with technological solutions:

“I wonder why transport must be attacked. Why can’t Finland lobby it so that we help technically some polluting country reduce their emissions. Looking at the whole, it would clearly make more sense and have much bigger impacts - if we are actually interested in the environment on Earth. Of course if we must toot our own horn and show how good we think we are, then I understand this whipping of ourselves.” (Kim Flori-ance, Verkkouutiset, 2019)

The third discussion point was related to the environmental impacts of different travel modes: many readers noted that the environmental impacts of aviation, especially domestic aviation, are insignificant, and some also claimed that trains are not a sustainable way to travel. These arguments were used to discard the suggestion to replace aviation with land-based transport modes as not useful. One of the most cited arguments was the fact that the CO₂ emissions of aviation are not more than a few percent of the national or global CO₂ emissions:

“According to the ministry of transport, domestic flights’ CO₂ emissions are a couple percent of the country’s entire traffic emissions and approx. 0,5% of our total CO₂ emissions.” (HCJ, Svenska Yle 1, 4.5.2019)

“Aviation causes 3% of the world’s CO₂ emissions. Of that portion every individual can of course think about the share of e.g. their holiday flights.” (3% ja suhteellisuudentaju, Ilta-Sanomat, 4.5.2019)

There were also a few suggestions that private driving, rather than aviation, should be the target of emissions reductions. A couple readers suggested rush-hour fees or similar.

“For another thing, charter flights from local airports should rather be increased, it would reduce the rushes at Helsinki-Vantaa and car traffic from the regions to Helsinki. The added distance for the airplane to fly to the region takes much less fuel / passenger than the passengers driving their cars to Helsinki-Vantaa.” (eki, Ilta-Sanomat, 4.5.2019)

On the same theme, train travel was called unsustainable on the basis that the electricity may be produced from non-renewable sources, although in the Helsingin Uutiset comment section a reader corrected others by noting that in Finland trains have run on hydropower for more than a decade already. Another

issue mentioned several times was the infrastructure that different travel modes require. Readers noted, for example, that felling trees to build new railways causes much emissions so it would not be worth it to increase train travel. It was also noted that abandoning the existing aviation infrastructure would be a waste and re-building the airport areas would cause much emissions.

“On top of everything, airplanes do not need roads or tracks, whose making and maintenance causes big emissions. The other environmental drawbacks of electric airplanes are also smaller: they do not turn over nature, the noise disturbances are smaller and the traffic is statistically safer for both humans and animals.” (Valdemar Hirvelä, Verkkouutiset, 2019)

The fourth item was the matter of unnecessary aviation - whether there is such a thing, is it only holiday travel or are there unnecessary business trips too, and whether it should be restricted. Readers were divided on the issue. Some suggested that many business trips are in fact unnecessary and the work issues could be dealt with online but employees just want to travel in order to have a good time. However, these comments were often received with arguments to the contrary, claiming that everything that can be done remotely is already being done so, as shown in this comment and a response to it:

“While we’re at it we could also give up holiday flights. One flight per person a year, and if you don’t use your right you can sell it to someone else. There’s no need to fly for business trips either. Sit on your butt at home in front of a laptop and create an internet connection to where the important meeting is or where they need consultation help.” (rva Ränni, Helsingin Uutiset, 3.5.2019)

“In every single company every single consultation is done remotely that can be done already. How stupid must one be to imagine that people in companies are made to fly for fun nowadays?” (jepulisjee, Helsingin Uutiset, 4.5.2019)

Flying to boost one’s ego or show status was also mentioned several times in relation to both business and holiday travel. Business travellers were sometimes seen to want to appear so busy that they must fly even if it was not necessary, and it was noted that those who travel far abroad for holidays think they are stylish when in fact it is not fashionable anymore because it is not sustainable.

“If someone cannot travel ecologically then let them pass entirely. The time for selfishness is over. Countless pleasure trips were not made in the old times either. Less is enough.” (Tiukka linja, Ilta-Sanomat, 4.5.2019)

Finally, there were the readers who agreed that the environmental impacts of aviation are significant and must be reduced, because environmental action has to be taken. As discussed above, some readers argued that Finland should not be the one to take environmental action because Finland’s impact is not significant. However, others responded to this arguing that such an attitude will

lead to our destruction. The following are direct responses to the comment by *Mustasilmäinen*, discussed above on page 48:

“That is why we must solve the problem globally. The Chinese have also noticed the local impacts of emissions for example in Shanghai. Your own ways must be changed when your people are getting sick and dying. That is what this is about. Humanity has to change its ways. By taking advantage of mother Earth our end will be horrible, maybe already for us.

Change is possible. We have seen that already with reducing ozone depletion.” (Silmät auki, *Ilta-Sanomat*, 4.5.2019)

“With the attitude: ‘If others won’t, we won’t either’ one won’t get far!” (TS, *Ilta-Sanomat*, 4.5.2019)

Similarly, several others argued that the situation is already so severe that radical action is needed. One reader also noted that it makes no difference whether you believe in climate change or not, as other environmental changes are inarguably true:

“Must we have more typhoons, cities sinking and summers where it doesn’t rain for months. For people to believe protecting nature is number one. Whether climate change is real or not is irrelevant. species extinction is real at least. And people are getting sick themselves! From pollution too.” (Luontoon kuulutaan, *Ilta-Sanomat*, 4.5.2019)

Arguing less passionately but arriving at the same end result, many readers also noted that a 2-3 percent reduction in traffic emissions is much, or that aviation is a major factor in greenhouse gas emissions increasing, which is why its role should be acknowledged and its emissions reduced.

5.2.1.3 Pros and cons of different travel modes

In addition to travel time and environmental impacts, another factor affecting the readers’ preference of travel mode were the pros and cons associated with each. For train travel, the most cited positive aspects were that one can work on a train and that train stations are centrally located. Many readers noted that since it is easier to spend the travel time working on a train than on an airplane, it does not make a difference if the trip takes a little longer by train. In addition to working, readers also noted that it is better to sleep on a train than in an airplane, and that one can also save time by having lunch on the train. The central location of train stations and good connections from there onwards were also factors favouring train travel, although as discussed above some readers drew attention to those who live outside of city centres and who cannot reach the train stations easily. In addition, some readers also felt that travelling by train is more comfortable than travelling by airplane when considering the seats in the economy class.

The overwhelmingly most common negative aspect related to train travel was that trains in Finland are not reliable. The Finnish state-owned railway company VR received a significant amount of complaints. Readers argued that trains

are often late and claimed that especially during winters trains are not running at all. In addition, these readers often noted that the city centre may not be a preferable leaving or arrival location.

“It has not been considered here that a train will not pick you up from your doorstep either, at least not me. It takes time to travel to the train station too. Then you wait at the cold station outside when it is sleeting for an undefined period of time and wonder if the train is late this time because of the sleet, too cold weather, too warm weather, or perhaps some other surprising weather condition or technical error. Then once you finally get to the train the tension of how many times the journey is paused and whether some part has to be travelled by bus because of a track failure, equipment failure, or other reason starts. Once you finally get to the end destination it is rare for the train to take you to the door there either but you must find some means of transport forward from the end station.” (Dino, *Ilta-Sanomat*, 4.5.2019)

Readers also noted that switching trains is too burdensome, especially when travelling with luggage. Additionally, some readers noted that it is difficult to travel with a big piece of luggage on a train as one has to take care of it oneself, unlike on an airplane. And finally, as has been discussed above, it was often noted that train schedules are not well synchronized with other travel modes. The early morning trains are thus not early enough to catch morning flights, and late night trains are not late enough to make it from late flights. However, it is noteworthy that despite these negative aspects, some readers appreciated the sustainability of train travel enough to favour trains instead of airplanes:

“But I understand also that it is bad towards the environment to fly these additional domestic trips. That is why I take the train to the Helsinki-Vantaa airport sometimes too, if I have extra time. But it is much more complicated than flying directly from Vaasa.” (13331, *Svenska Yle* 1, 2.5.2019)

Travelling by bus was not brought up often in the discussion in general, but it was contrasted with train travel in terms of convenience a few times. These readers only associated positive aspects with buses as a travel mode, noting that buses tend to stay on schedule and operate in weather conditions where trains do not. It was also noted that buses serve small communities too, unlike trains and airplanes, and that buses are cheaper.

“Trains don’t usually take you anywhere near the target, and neither do airplanes. It also requires a bus connection. Fast trains need such a sparse set of stations that the total travel time increases because of that as well. Buses save time by being so flexible, they can drive different routes at different times, similarly with fewer passengers even a tighter route network becomes profitable. Finland is so sparsely populated that frequent bus connections serve the audience the best. Of course other public transport modes can also be made profitable but that means a decrease in service level. When you count the total travel time you obviously must consider the frequency of connections too.” (Mietiskelijä, *Ilta-Sanomat*, 4.5.2019)

However, the one negative aspect associated with buses was that connections have been reduced in recent years and taking a bus may thus not be an option.

Cars were mentioned frequently, largely in positive terms and argued to be the best travel mode for a number of reasons. As discussed below, they were offered as an alternative solution to the situation where flights need to be reduced but trains are not reliable. The positive aspects of cars listed were the following: one can go door-to-door with just the one travel mode; one can decide their own schedule; driving is cheap, especially when travelling with a group of people; it is a simple way to travel with any large equipment; and cars have lower emissions than airplanes. The negative aspects associated with private driving were that it is taxed too hard, that it has higher emissions than public transport, and that it takes more time than airplanes and even trains sometimes.

“Again private driving was handily forgotten with just a minor role. A car with low emissions is fast, flexible and cleaner than an airplane.

Neither does it make any sense to drive a car from home (e.g. heinola å) to the train station ä (lahti), from which by train to a different city (tampere) and from there again by car (to ikaalinen). As a whole a car has the lowest emissions and is fastest.

Railways do not reach a large part of Finnish municipalities. When local transport and other public transport from railway municipalities to elsewhere is lousy, a car is really the most environmentally-friendly too.” (Laskekaapas tarkemmin, Ilta-Sanomat, 4.5.2019)

“It must also be remembered that merely the fixed costs of private driving are so high in finland that driving your own car if you own one is financially the only sensible solution. Public transport at its best does not optimally serve but a few people. And even those few often take it only when necessary.” (Talouden perussäännöt, Ilta-Sanomat, 4.5.2019)

Finally, the positive aspects of air travel were naturally the speed and the fact that any delays are compensated and passengers re-routed. Especially when travelling abroad the simplicity of air travel was also highlighted in comparison with taking a train to Helsinki-Vantaa airport.

“Flying in Finland, a country of relatively long distances, is the only sensible and functional mode of transport. Not everyone has time to sit all day in a train when there’s somewhere to be. -- Flight ticket prices on domestic flights are so high that it surely compensates the trail of carbon left by flying, but speed brings efficiency and comfort. Also when travelling abroad it is much easier and faster to fly for an hour from Kuopio to Helsinki-Vantaa than to mope all day in different trains and buses.” (Ei pissitä omaan kenkään!, Ilta-Sanomat, 4.5.2019)

The negative aspects that were mentioned included first and foremost the large emissions of air travel, the distant locations of airports, expensiveness, people travelling by train only to boost their egos, the discomfort of travelling by airplane, and the fact that on the occasions flights are delayed or cancelled the increase in travel time is much more than when trains are delayed. A few readers also noted that the Helsinki-Vantaa airport does not operate smoothly and services there are too expensive.

“What is so comfortable about air travel? If the Helsinki City Transport vehicles such as buses would jump and shake as strongly as airplanes then newspapers would be flooded with complaints towards these totally worthless modes of transport. But when it comes to airplanes they can howl and shake not to mention the bouncing and nobody is protesting.” (Hei me lennetään, Ilta-Sanomat, 5.5.2019)

“According to my experiences, domestic flights are quite unreliable these days. Repeatedly I’ve had to wait for even more than an hour past departure time as a broken propeller airplane is being replaced with one viable to fly.

In addition, domestic flights are shockingly expensive. Finnair’s domestic flight prices would take you to any European country cheaper.

Short flights are indeed in no way profitable. Investing in railway traffic on the distances shown by the researcher is much more sensible in every way.” (A.M Haukka, Ilta-Sanomat, 4.5.2019)

5.2.1.4 Alternative solutions

The fourth category of issues brought up by the readers were alternative solutions to the situation where, as it was perceived by the readers, the negative environmental impacts of aviation and its benefits in terms of reduced travel time are conflicting. The most popular solution was switching the central airport in Finland to a different one instead of Helsinki-Vantaa, which was brought up more than 20 times. The second-most popular solutions concerned aviation subsidies and taxation, and electric aviation.

The first alternative solution was replacing the Helsinki-Vantaa airport with a different airport that would be more centrally located. The most frequent suggestion was the Tampere-Pirkkala airport, while the Jyväskylä airport was seen as the second-most viable option. Interestingly, this issue was frequently mentioned in the discussion in Ilta-Sanomat, but not on any of the other platforms except for Svenska Yle 2 where a couple of readers considered it.

“It would be worthwhile to move domestic flights entirely to the Tampere-Pirkkala airport, from where connections to the capital region would be managed with trains. Simultaneously that 400km “radius” would contain practically the entire Finland, excluding the airports in Lapland. Helsinki is regrettably far away when considered from elsewhere in Finland. There is truly life outside of the capital region.” (Ilmarinen, Ilta-Sanomat, 4.5.2019)

As in this comment, the most used justification for moving the central airport was that Helsinki lies so inconveniently on the coast of Finland, far away and difficult to reach from many places. A different airport with a more central location would be easier to reach from more directions, and the 400-kilometre distance where trains can keep up with the travel times of airplanes would contain more of Finland. Other reasons to move the airport included that pressure on the capital region would reduce and much room would be released for construction there, and that society would become more equal. In addition, some readers disliked the Helsinki-Vantaa airport or Helsinki city in general, remarking upon the traffic,

congestion, expensive parking, and expensive services and thus supporting a different central airport. It was also noted that there are now direct connections to Stockholm from several regional airports, suggesting that those could be increased further and Helsinki-Vantaa dedicated for people travelling to Asia. In addition, some readers suggested keeping two or three airports as national hubs, serving most customers:

“A two-hub model to Finland instead of one. Helsinki and Oulu are the most suitable airports to run two hubs and it would be good to develop these airports together to link to long-distance railway traffic. This would create capacity to Helsinki-Vantaa and reduce the pressure to continuously expand, and on the other hand passenger flows and supply security to the north.” (erittäin kannatettavaa, *Ilta-Sanomat*, 4.5.2019)

The second alternative solution was removing aviation subsidies and/or taxing aviation more, although this suggestion also received opposition in the discussion. The HBL article had a poll for readers on whether Finland should implement a flight tax: out of 209 votes, 57% voted “no” and 43% “yes”. However, the article had no comments section for further discussion. In the discussions on the other platforms, many readers who supported removing subsidies or implementing taxes suggested that the income from these means could be spent on improving the railway network, thus making trains an increasingly viable travel mode. It was also frequently noted that this would make competition across different travel modes fairer and thus the free market would determine which travel modes should stay.

“Let’s remove aviation subsidies, so competition will take care of ending unprofitable traffic. In Finland flights trips are so short that if the aviation subsidies were spent on improving and developing the railway network, railway traffic would largely solve Finns’ transport problems.” (Teppo Vanamo, *Helsingin Uutiset*, 2.5.2019)

“Ticket prices to a level where aviation needs no subsidies, not even for unprofitable local airports. Trains are a faster way to get away from the capital region than flying. And aviation should be burdened with taxes the same way as private drivers.” (Tukipäästöt kuriin, *Ilta-Sanomat*, 4.5.2019)

However, those who opposed this solution noted that increased costs would end all domestic flights, and that if aviation subsidies were removed then the subsidies for other modes of public transport should also be removed. In response to the comment by *Teppo Vanamo* quoted above, another reader noted:

“Yeah, and because we’re speaking of public transport - which aviation is - then subsidies should be removed from Helsinki City Transport and other regional traffic institutions in the name of equality. But this must not suit green clowns such as Vanamo so let’s just leave aviation be quite in peace.” (Maurizio, *Helsingin Uutiset*, 4.5.2019)

And another one in *Ilta-Sanomat* argued removing subsidies would have major consequences for the national economy:

“By taxing aviation more we can make really great deeds in terms of causing large-scale unemployment in Finland while all of Finland’s competitors get fatter and Finnish companies lose their job opportunities on international markets.” (jotain rajaa, Ilta-Sanomat, 4.5.2019)

The third alternative solution from the readers was the electrification of aviation as well as sustainable aviation fuels, which would solve the conflict by removing the negative environmental impacts of aviation. Sustainable fuels were only mentioned a couple of times, but electrification was brought up by a number of readers who argued strongly that it would become a viable option soon and solve the issue entirely.

“ELECTRIC AIRPLANES are a good option for domestic passenger traffic and it is more environmentally-friendly than other modes. In Norway they already have an aviation strategy about this where domestic passenger flights will become entirely electric by 2040. Electric airplanes are smaller and fly non-stop from smaller airports directly to the hearts of growth centres. This makes the schedule much more flexible for passengers and all operations are faster from smaller airports.” (Valdemar Hirvelä, Verkkouutiset, 2019)

In relation to sustainable fuels, it was noted that Finland has Neste which is a leader in developing such. However, there were also readers who did not find electric aviation a viable solution. One reader noted that such plans are science fiction, and others highlighted the differences between Norway and Finland.

“Norway may experiment with electric airplanes, but one must remember that the population there is more scattered than here and Norway has also a much sparser railway and road network than Finland, and the distance to northern Norway from e.g. Oslo is close to double that of Helsinki to Rovaniemi. The role of electric flights there will largely be locally significant by taking people from the deserted villages without proper road connections to larger centres. If the Norwegians succeed with their electric aircraft then Finnair can well by one of those also and fly people from Enontekiö to Kittilä or from Kökar to Mariehamn. (RSi, Svenska Yle 1, 3.5.2019)

The fourth solution was replacing aviation with private driving. The benefits associated with private driving, as discussed above, were used to justify increasing it. Especially the low price, compared with public transport, and flexibility of driving made some readers suggest it as the most superior alternative. Several readers also noted that train and bus connections have been reduced in recent years and that there may not be any public transport from the station to the passenger’s end destination available in the countryside, which is why cars are the most viable transport mode as a whole.

“Finnair has quit northern flights and people have had to switch to using their own cars. At least Oulu is where people head when there are no flights from their home town. Often the selection of travel mode is also related to onward connections, which often do not exist. Then you must use your own car.” (Rivien välistä, Ilta-Sanomat, 4.5.2019)

“And those who live away from both airport and train station? Cycle? Or walk as in the good old times we had 200 years ago...” (bodo, Svenska Yle 1, 3.5.2019)

However, a few readers argued that cars are still too unsustainable and thus cannot solve this issue. The following two comments, the latter of which is a direct response to the first, demonstrate the two sides of the debate:

“A problem with both flights and trains is the price. If one travels with their family, a round trip Uusimaa - Ostrobothnia costs approximately 400€ by train. With a diesel car it costs 50€ and you can travel from door to door.” (An0nym, Svenska Yle 2, 6.5.2019)

“Now it depends of course on the size of the family and the children’s age, but if we count with 2 adults and 2 kids (4-16 years, under 4 are free) then the round trip by train costs between 177,60 euros and 288,00 euros if one books a month beforehand. The problem is largely that it is too cheap to drive a car from an environmental perspective. We should clearly tax gasoline and diesel higher, and the money could be used to subsidize buses and trains further.” (Överslätt, Svenska Yle 2, 7.5.2019)

Finally, the fifth solution was that domestic flights are reducing and might even end entirely because they are not profitable, so the conflict will disappear. Readers noted that Finland is so sparsely populated that flights are hardly profitable.

“In practice domestic flights are already being run down, so that part solves itself automatically. Delays and prevented flights, especially to the smaller airports, are more a rule than an exception. To be certain to make it to Helsinki and a connecting flight (foreign flights) one chooses all the more often, for security’s sake, other alternatives and travels the night before. The same goes for business trips both ways, one has their schedules that do not allow delays. It seems we will in the not all that distant future have a few airports, perhaps Rovaniemi and Kittilä and a couple others besides Helsinki.” (Karl H, Svenska Yle 1, 2.5.2019)

Moreover, in the discussion on Ilta-Sanomat, where the article included a comment from Finnair, readers were not surprised by Finnair’s reaction to the study. Several readers noted that flights are only maintained by politicians who reside in the provinces.

“Similar research results have been gained in the airline’s own analyses already since the turn of the millennium. They were and still are politically very sensitive truths. An air bridge to every nook and cranny is modern pork barrel politics at its purest. There are always elections coming up and as regional policy one must promise “fluent” connections to business life that are then hardly used by anyone. Airlines would have long ago supported the thought of improving train connections. Would the panic caused by climate change be the right moment to get decision-makers in on this?” (Ei ihan uusi idea, Ilta-Sanomat, 4.5.2019)

5.2.1.5 Validity of the study, the researcher, and research

The fifth category of issues brought up by readers consists of comments questioning the validity of the original study, the qualifications of the researcher who conducted it, and the value of research in general. While some of the criticism

was well-constructed, this discussion demonstrates particularly well how discussion about an issue that affects people's lives directly can become quite heated and personal.

The first topic was questioning the validity of the study. As has been discussed above, many readers noted that the travel time depends on the starting point and end destination, and thus claimed that the study is not valid. There were also a number of misunderstandings concerning what parts of the journey are included in the travel time; these are discussed in more detail below, but it is important to note here that several comments declaring the study invalid were based on a misunderstanding.

"That 3,5 hours [from Kokkola to Helsinki] by airplane is quite overestimated, although there is that much truth in that example that an airplane is by no means more than an hour faster on that route." (jepulisjee, Helsingin Uutiset, 2.5.2019)

Some readers also questioned the study's validity based on claims that the environmental impacts of domestic flights are insignificant.

"The actual polluting flights depart and operate from the Hki-Vantaa airport. It is absurd to blame a few regional flights with the climate case, knowing those flights pollute fractions of per mille compared with flights the other air traffic [sic] from Finland." (laivuri, Ilta-Sanomat, 4.5.2019)

Readers also noted that train and flight schedules are not synchronized and there may not be enough train connections, meaning that the study's results are not valid in practice.

"I never dare take a train ticket for the same day the flight leaves from Helsinki. It is not in any way possible to catch morning flights from Helsinki by train. So again I would hope for a little more precise research from researchers." (maalainen, Ilta-Sanomat, 4.5.2019)

In addition, because the Ilta-Sanomat article included a map of Finland with the 400 km radius from Helsinki demonstrating the distances where trains can keep up with the travel time of airplanes, several readers commented on the fact that a train cannot be as fast as an airplane from Mariehamn, as one has to take a ferry to the mainland. This was accounted for in the original study but not mentioned in the article, which resulted in a degree of amusement and disbelief in the study's results.

The second topic was claiming that the researcher is unqualified and has not considered everything, or is biased, and thus the study and its results are not credible. Readers argued that the researcher has missed issues such as the following: any time saved in business travel is valuable because travel time is expensive for companies; the environmental impacts of domestic aviation are insignificant; the electrification of aviation or sustainable aviation fuels will solve the problem; most domestic flights have connecting flights from Helsinki-Vantaa; and trains

are not sustainable or reliable. Several readers suggested that the study was conducted with a specific agenda in mind, as the following comment and response to it demonstrate:

“There are researchers and ‘researchers’ who do their ‘studies’ in the manner that suits them.” (Aarne Paukku, Verkkouutiset, 2019)

“Aarne, the Greens paid for this study, is this proper. No, everybody knows that.” (Vili Herrala, Verkkouutiset, 2019)

Third, a number of readers also questioned the value of research in general along with this one study. Instead of focusing on just the piece of research at hand, readers noted that “again” this is “another” pointless study.

“Doctors have often read one book too many.” (Jahvo, Ilta-Sanomat, 4.5.2019)

“Researching is important. This one study found that taxis are used more during rainy weather than dry weather.” (esko, Ilta-Sanomat, 4.5.2019)

“Why do they train researchers whose business only hurts the country and people? Do people who have studied a long way actually think that Finland can save the world and climate by worsening the conditions of its own people? I think in the next election compass I shall say that the number of universities should be reduced... (Lennetään!, Ilta-Sanomat, 4.5.2019)

Some readers even saw the suggestion to reduce domestic flights as a slippery slope leading to miserable outcomes for Finnish people and Finland:

“Sure sure, again some wisdom from a university. All traffic in Finland must be stopped and combustion engine cars stopped and meat taxed. That will make the people happy and save the world...” (Voihan venäjä, Ilta-Sanomat, 4.5.2019)

5.2.2 Misunderstandings

Some critical aspects of the study were misunderstood in the readers’ discussion. It is important to examine these because that can result in better research communication in the future. These comments are also valuable to gain a deeper insight into the readers’ attitudes towards the issue.

By far the most frequent misunderstanding was that readers claimed the study does not consider travel time to the train station when travelling, for example, from Kokkola to Helsinki. In fact, this was considered in the original study, but the misunderstanding appeared numerous times. The readers also noted that a passenger still has to go to their end destination from the Helsinki central railway station so the study’s results would not be valid. The study assumed air travellers would take a train from the airport and also arrive at the central railway station so the end destination would not make a difference. Thus, the issue was considered in the study although the readers’ point that one could take a taxi from the airport is valid too. This misunderstanding resulted in questioning the

credibility of the study and even discarding the research results and the researcher's qualifications entirely.

"This researcher's comparison is on a similar level as if you compared product prices so that one of them includes VAT and the other doesn't." (Kalevi Suortti, Verkkouutiset, 2019)

"The fact in this article is that the researcher is talking gibberish by presenting these insane time comparisons of his, where in one travel mode all time consumption is taken into consideration and in the other a large part are left entirely unaddressed. That is not research." (jotain rajaa, Ilta-Sanomat, 4.5.2019)

Three further misunderstandings were brought up a couple of times each. One was that the study only considers travel to Helsinki city and not those situations where there is a connecting flight from Helsinki-Vantaa, when in fact this was included in the study.

"So, if one counts only the time one saves if one only goes to Helsinki the difference is not so big. And that journey most already travel by train. So it is misleading to only take that into consideration and say that 'there barely is any time difference'." (13331, Svenska Yle 2, 6.5.2019)

Another was that this suggestion would end tourism in Lapland, although the suggestion was to give up only those domestic flights that are under 400 kilometres. And the third was that the study is suggesting building faster trains or even high-speed rail in Finland and the costs of this have not been considered, although the study explicitly focused on existing travel modes.

"The study highlights that fast connections should be developed and this would lead to the results shown in the research." (Oskari, Ilta-Sanomat, 4.5.2019)

Finally, a few readers noted that there are reasons to maintain small airports beyond passenger traffic: security of supply, crisis situations, and freight. The original study acknowledged that not considering these issues is a limitation and the study in its current form does not justify policy recommendations. This was not brought out in the press release or the articles and was therefore largely not understood by readers.

5.2.3 Attitudes and discourses reflected in the discussion

Six different attitudes towards the study's suggestion to reduce domestic flights for climate reasons were identified in the discussion. These are: explicit support for the suggestion; support for reducing aviation; willingness to support the suggestion if certain conditions were met first; disagreeing with the suggestion because it would not be possible to reduce domestic flights; disagreeing with the suggestion because of seeing no reason to reduce flights; and discarding the sug-

gestion because of the study's claimed invalidity. The relative share of each attitude and the primary issues connected to each are presented in Table 5. It is important to note here that nearly half of all the comments are outside of these six attitudes: either they focused on something else than the study's suggestion, or the attitude displayed towards the suggestion remained unclear.

The disagreeing attitudes 4 and 5 combined have the largest share, one third of the total. Interestingly, explicit support has the second largest share. It should be noted here that explicit support was the easiest attitude to identify from the comments because it was explicitly expressed. In addition, some of the comments that seem to support the suggestion may also have been meant as sarcasm. Still, the seemingly significant amount of support for the suggestion is supported by the poll responses at the Helsingin Uutiset article. In the poll, 93% out of 1879 respondents voted they would be willing to give up domestic flights of less than 400 kilometres for environmental reasons. In addition, Verkkouutiset had a poll asking for opinions about the article. Out of 218 responses, more than half were either "More like this" or "Useful article", which can be interpreted as positive attitudes towards the study. However, most of the remaining half of the responses were "Not interested", which can be interpreted as negative attitudes.

TABLE 5: Relative share of and issues linked with each attitude

#	Attitude	Share	Main issue(s)	Other issues
1	Explicit support for the suggestion	21%	Unnecessary air travel	Need for environmental action, travel time, aviation subsidies and taxing
2	Support for reducing aviation	19%	Unnecessary air travel, improvements required for railway network	Aviation subsidies and taxing, train is a good travel mode, profitability of domestic aviation
3	Willingness to support the suggestion with conditions	15%	Improvements required for railway network	VR/Finnish trains are not good, train is not a good travel mode
4	Disagreeing because it would not be possible to reduce domestic flights	17%	Travel time	Domestic aviation as hub & spoke, VR/Finnish trains are not good, train is not a good travel mode, domestic aviation is necessary
5	Disagreeing because there is no reason to reduce domestic flights	14%	Finland is doing too much for the environment	Aviation's environmental impact is insignificant, climate concern is not needed, electric aviation, domestic aviation as hub & spoke
6	Discarding the suggestion	14%	The study is not valid or has a certain agenda, the researcher is unqualified	Much research in general is pointless, domestic aviation as hub & spoke

Each attitude is justified by a different combination of issues, which together form different discourses. Responding to the same topic, readers draw

from the same themes, mainly travel time and environmental issues, but highlight and omit different details. Thus, they reconstruct existing discourses around the topic and can also construct new ones. While there is variation within each attitude too, the most prominent discourses with each attitude, respectively, can be labelled 'short flights should end', 'trains can replace short flights', 'current railway infrastructure is not sufficient', 'domestic flights are necessary', 'environmental actions are not needed', and 'the study is not objective'. These discourses show that there is much more variation in the readers' discussion than in the articles themselves.

Looking at the linguistic choices and discursive strategies of the readers in more detail also provides some insights. While some strategies, such as appealing to facts or personal experience, are found with each attitude, some differing trends also emerge. With the first attitude, explicit support, it is noteworthy how often the word 'sense' is repeated. Commenters note that the suggestion is sensible and that short flights make no sense. At the opposite end of the spectrum, those who disagree with the suggestion often use words such as 'dumb', 'idiotic', 'nonsense', 'absurd', or 'idealistic'. It is interesting how sense, or the lack of it, is such a prominent way to support one's opinion. Another feature is that many of the supportive readers directly state that they support the suggestion or note that it is correct or a 'good' suggestion, thus focusing on expressing their own opinion. Conversely, the disagreeing readers often address either the researcher or other commenters personally, attacking them directly instead of commenting on a general level or focusing on the writer's own opinion.

6 DISCUSSION AND CONCLUSION

6.1 Answering the research questions

This study investigated Finnish perceptions on domestic aviation and climate change, particularly Finns' attitudes towards a research-based suggestion to reduce domestic flights for climate reasons. The data consisted of media articles about Baumeister's (2019) study and readers' feedback on them. The first research question was concerned with the media reports and the discursive strategies utilized there. It was found that most of the articles were based solely on the press release or the press release and the original paper. Only two articles integrated additional comments from the researcher. This finding is in line with Juntunen's (2011, as cited in Seppänen & Väliverronen, 2012) finding that Finnish news media publish press releases from different societal actors quite easily online. This implies that press releases can be a good way to gain public attention for research in Finland, and thus an important tool for science communication.

In all of the articles, one or more of the three key characteristics of digital media - interactivity, multimediality, and hypertextuality (Mangen & Velay, 2014) - were present. All of them included one or more pictures, several included one or more links, and several enabled readers' reactions in one or more ways through polls and/or open comment fields. These characteristics belong to the online news genre, distinguishing the news articles stylistically from the original press release. However, the media also made small changes to the content of the press release and thus changed the message. The changes included title choices, lead and caption texts, the order and inclusion or omission of the content points, in some cases the inclusion of additional information, word choices related to, for example, the way the researcher was presented, and the inclusion or exclusion of a hyperlink to the paper.

The characteristics of digital media contribute to nonlinear, non-comprehensive reading and multitasking while reading (Mangen & Velay, 2014; Baron, 2013; Loan, 2012), which is why the titles and lead texts are of particular importance as they may be the only parts that many readers read. It was found that most of the articles did not refer to emissions reduction in the title, highlighting only the suggestion to reduce domestic flights but not the reason for it. Two articles, one of them being the widely commented *Ilta-Sanomat* article, failed to mention the reasons behind the suggestion, emissions reduction or the environment, in either the title or the lead text. In addition, several titles refer to 'domestic flights' rather than 'short domestic flights', resulting in a potential misunderstanding about the original suggestion. Therefore, most of the titles seem to be click-baiting (see Blom & Hansen, 2015) rather than providing a comprehensive picture of the topic. As to the body text, it was found that many articles omitted

one or both of the press release's statements that aviation produces much emissions and that concrete actions are needed to stop climate change. This changes the message of the press release quite drastically because the need for environmental action in the field of aviation is left unjustified. In conclusion, most of the articles highlight primarily the shock factor of the suggestion and its coming from an individual researcher. Rather than emphasizing the need for environmental action and the emissions reduction potential of reduced domestic aviation, with the exception of one article, they contribute discursively to maintaining the status quo.

The second research question concerned the public's reactions to the study. The two main themes in the discussion were travel time and environmental issues, which shows that the discussion largely stayed around the topics of the original study. Other themes were the pros and cons of each travel mode, alternative solutions, and the credibility of the study, researcher, and research in general. These themes show highly diverse approaches towards the suggestion: some readers wanted to highlight other aspects related to the choice of travel mode beyond travel time and environmental impact, some wanted to solve the aviation-climate change dilemma differently, and some questioned the entire basis for the suggestion and discarded it. One particular misunderstanding was repeated in the discussion, claiming that the original study has not considered travel time to and from the train station, although this was included in the study.

Six different attitudes towards the suggestion were distinguished from the discussion: explicit support for the suggestion; support for reducing aviation; willingness to support the suggestion if certain conditions were met first; disagreeing with the suggestion because it would not be possible to reduce domestic flights; disagreeing with the suggestion because of seeing no reason to reduce flights; and discarding the suggestion because of the study's claimed invalidity. The disagreeing attitudes combined had the largest share but, interestingly, explicit support had the second largest share. This shows how strongly opinions around the aviation-climate change dilemma are divided in Finland. These results are also in line with findings from different national contexts: many people are unwilling to consider climate change when it comes to their travel plans (Becken, 2007; Hares et al., 2010; Cohen & Higham, 2010; Gössling et al., 2009) although lately there have been also signs towards changes in travel behaviour (Higham & Cohen, 2011; Gössling et al., 2019; Baumeister, Zeng & Hoffendahl, 2020).

This study found both significant support for reducing domestic aviation as well as resistance similar to the 'aviation rage' found by Randles and Mander (2009). Those who opposed the suggestion often saw no need to reduce aviation emissions or no possibility to change people's travel behaviour to do so. They also often attacked either the researcher or other commenters directly rather than discussing on a general level. Randles and Mander (2009) found that the aviation debate has become polemic, and when it comes to social media discussion in general, several researchers note that they do not currently function as platforms for democratic conversations and deliberation (see, for example, Lambiase, 2010;

Milioni et al., 2012; Quinlan et al., 2015). These notions were quite apparent in this case as well.

The third and final research question concerned the relation of the discourses in this discussion and the broader societal discourses around the aviation-climate change dilemma. While this question cannot be comprehensively answered by the present study, it is apparent that the discourses identified in this discussion are similar to those found in the broader societal context, that is, in other media articles about aviation and climate change as well as industry and government discourses. The news articles published in the months prior to the publication of the study, as discussed in Chapter 2, brought up the following views and issues: individuals can or cannot make a difference, individuals and the tourism industry are increasingly addressing climate change, there is a need to reduce aviation or there is no need to reduce aviation thanks to technological development, Finnair's climate change response is or is not sufficient, and aviation security and regional connectivity. These perspectives and topics were also present in the readers' discussion, and some of them in the articles analysed here as well. It seems that, because the media articles analysed here supported maintaining the status quo and the disagreeing attitudes were the most common attitudes towards the original suggestion, the aviation industry's discourses prevail and are often reproduced in the Finnish public discussion. The industry discourses identified by Gössling and Peeters (2007) emphasized the industry's energy-efficiency and marginal share of CO₂ emissions, economic and social importance, technological development as a solution, and the unfairness of the treatment of aviation. These viewpoints were prevalent among those who disagreed or discarded the suggestion. However, what had not appeared in the media but was prevalent in the comments was the lack of trust in VR and the Finnish railway network.

6.2 Contribution

This study has both a theoretical contribution as well as practical contributions. Theoretically, this study provides a basis for understanding Finnish perceptions on aviation and climate change, specifically in terms of domestic aviation and replacing short flights with land-based modes of transport to reduce emissions. Previous studies (see, for example, Gössling et al., 2019; Larsson, 2020; Higham et al., 2016; Cohen & Higham, 2010) have shown that perceptions vary in different national contexts. Since there was little to no research from the Finnish context previously, this study contributes to the overall understanding of what kinds of perceptions there are in different countries and how they vary. Comparing the findings with studies from other Nordic countries, it seems that the Finnish public discussion differs significantly from the discussion in Norway. Higham and Cohen (2011) found that the Norwegian discussion has moved from a debate to a shared acceptance of the issue, climate change and aviation's contribution to it,

and finding responses to it. Norwegians are already willing to accept strong policy interventions to reduce aviation emissions (Higham et al., 2016). In Finland, in light of the results of this study, there is still much debate about the need for climate action in the aviation sector and even climate action in general. In the Swedish context, Larsson et al. (2020) found that Swedes were more willing to support pull-measures such as subsidies and information than stronger push-measures to reduce aviation emissions. These attitudes seem to be more in line with the Finnish opinions according to this study, although the present findings are not generalizable.

Understanding different societal contexts is important because aviation, as a global industry, requires global coordination and regulation to reduce its emissions. Findings from different countries will support policy design. While this study focused on the discussion about domestic aviation and the data is not a representative sample, the discussion themes, attitudes, and discourses identified here provide a basis for further research in the Finnish context. In addition, previous research has focused more on long-haul flights or aviation in general instead of specifically investigating perceptions, behaviour, and willingness to accept policy interventions when it comes to domestic flights. However, replacing short domestic flights can be a feasible way to reduce emissions (Baumeister, 2019) and some countries, such as France, have already implemented policies to ban short flights that could be replaced with train travel (Willsher, 2020). This study invites further research on public attitudes towards domestic aviation.

Practically, this study can support national policymaking and contribute to improved communications around domestic aviation and climate change. The results can support policy design by showing which issues are important to the public and should thus be addressed to gain public acceptance for policy interventions. These include, for example, connections abroad from outside of the capital region, travel time, environmental impacts, and transport reliability. In addition, the study has practical implications for research communication and other public communication around domestic aviation and climate change. In terms of research communication, the high share of readers who claimed the study is not valid or questioned the qualifications of the researcher could suggest a need to communicate about the research process and how research contributes to policy in more detail. For example, many readers argued that the comparison in the study was not fair because travel to the railway station was not considered, when in fact it was included in the original study. In addition, the original study as such would not yet justify policy recommendations, but this was not brought up in the press release. While there is a need to balance between producing interesting and concise communications that would be picked up by the media on the one hand and scientific accuracy on the other, the present findings could suggest a need for highlighting the fact that further research is needed to support policy design in this case. However, it must be noted that the final news pieces are produced by the media and including such a statement in a press release may not mean it would be included in the actual articles. Finally, the results of this

study may also contribute to other public communications around domestic aviation and climate change in Finland by offering a preliminary understanding of the audience's existing perceptions and attitudes towards the topic. Understanding these will help create more tailored messages for different groups, which will be more efficient in delivering the message.

6.3 Limitations and perspectives for future research

The biggest limitation of this study is that the data is not necessarily representative of the general population. The findings cannot be generalized as Finns' perceptions of domestic aviation and climate change. Second, the distribution of the different attitudes that were identified in the discussion can only be considered on a general level. The analysis only considered attitudes towards the suggestion of the original study, so nearly half of all the comments were left outside of the six attitudes because they either focused on a different issue than the suggestion specifically, or the attitude displayed remained unclear. Because of the nature of the data and the analysis process, another researcher could arrive at slightly different results. In addition, some readers posted multiple comments which has not been taken into account in the calculation. It is also possible that readers could be posting using several different nicknames to emphasize their point of view. Furthermore, the data for this study dates back to before the COVID-19 pandemic. It is possible that the pandemic has affected perceptions on the topic because it has concretely reduced domestic flights and forced people to find different ways to act. It could be speculated that the pandemic may have shown domestic flights are not always as important as they were thought to be earlier.

This study provides a basis for understanding Finns' perceptions on domestic aviation and climate change. The findings provide direction for which issues are important for Finns in this regard and should thus be considered in further studies. A quantitative study with a representative sample could provide a better understanding of the distribution of different perceptions and Finns' willingness to reduce domestic flights for climate reasons. In addition, studying the discussions around the topic on different platforms, such as other media outlets and social media channels like Twitter and Facebook could provide further insights. Considering the major contextual shift caused by the COVID-19 pandemic, future studies should also investigate if perceptions have changed over the past year and if the changes are permanent.

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