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The Virus and the Elephant in the Room: Knowledge, Emotions and a Pandemic—Drivers to Reducing Flying in Academia

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‘I think it was quite amazing for me when the Corona came—I was really needing it [...] the break, from all this travelling. It was a stressful and awful situation as it was.’

Olivia’s response to my question about how she, as a young sustainability scientist within an EU-funded mobility programme, had been affected by the COVID-19 pandemic took me by surprise. For the past two years, she had led a hypermobile life, with her partner in Sweden, a PhD position in another country and mandatory courses and exchanges in several EU countries. I thought she would tell me that the forced air travel stop had adversely impacted her research and education—instead, she told me how relieved she felt.

Academic researchers are one of the most aeromobile groups in society, and work-related flights often account for a major part of scientists’ individual carbon footprints. In recent years, the argument has been raised

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that the research community should lead by example and that scientists who do reduce their emissions are more credible when communicating the need for behavioural change to combat climate change (Attari et al., 2016; Ciers et al., 2018; Le Quéré et al., 2015; Whitmarsh et al. 2020).

Yet, Olivia's story is a striking example of the dominant norm to fly in academia and how difficult it is to break this habit even for environmentally aware scientists. In this chapter, I will account for the barriers to reduce flying, but more specifically I will unpack the incentives for people who reduce flying—a small but growing group of 'quitters' and 'reducers' that might function as 'moral entrepreneurs' influencing social norms in a more sustainable direction (Antadze & McGowan, 2017). I will also look into the impacts of COVID-19 on academic flying—an unprecedented and unwished driver of change when it comes to air travel.

My interest in air travel behaviour is founded on an urge to understand why relatively few people act upon the information on disastrous climate change—and why some actually break the norm and change their lifestyles. Further knowledge about the incentives of the latter may be of importance to break the paralysis.

Theoretical Background

Earlier research has shown that a variety of psychological barriers prevent individual climate actions (Gifford, 2011). Many perceive climate change as distant and abstract, and it rarely arouses 'visceral reactions' such as dread (Weber, 2016). When global warming is portrayed in doomsday scenarios, the reaction is often denial (Stoknes, 2014). While more and more people acknowledge climate change and do adjust their lifestyles to some extent, reducing flying seems to be a step that few are willing to take (Cohen & Higham, 2011; Higham et al., 2016; McDonald et al., 2015). Yet, it is one of the most efficient ways to reduce the personal carbon footprint (Wynes & Nicholas, 2017).

The growth of air travel and the drivers of frequent flying have been extensively studied. Increasing incomes, massive globalisation of markets and extended professional and private networks have been driving the demand for aviation. The rise of low-cost aviation during the 1990s

fuelled the shift to a world with higher connectivity and speed, where it is possible for many to travel extensively by air (Gössling & Upham, 2009; Randles & Mander, 2009). Flying has become the norm and a natural part of both working life and a number of social practices: birthday celebrations, hobbies and visiting family and friends in growing international networks. This makes the habit difficult to break—flying is described as necessary and even as a kind of addiction (Cohen et al., 2011; Gössling et al., 2019; Randles & Mander, 2009).

Even for people with pro-environmental values, the gap between attitudes and behaviour (Kollmuss & Agyeman, 2002) is large when it comes to air travel (Barr & Prillwitz, 2014; Büchs, 2016; Cohen et al., 2013; Kroesen, 2013; Lassen, 2010). This has been explained with cognitive dissonance theory, suggesting that the unease felt by individuals when they act against their values is more commonly solved by adjusting attitudes than behaviour—the majority find various justifications for their flights (Barr et al., 2010; Scott A. Cohen et al., 2013; McDonald et al., 2015).

Aeromobility is not evenly distributed. In 2018, only 4 per cent of the global population took an international flight, and 1 per cent of the world population was estimated to be responsible for half of the greenhouse gases caused by aviation (Gössling & Humpe, 2020). Frequent flyers often have higher incomes, education and management positions, but also young people with wide international networks belong to this cosmopolitan group (Beaverstock & Faulconbridge, 2014; Gössling & Upham, 2009).

Many academics belong to the hypermobile group, and the norm of flying seems to be particularly strong for scientists. Especially senior and well-paid scientists have been shown to be frequent flyers, more so than early career scientists (Ciers et al., 2018; Wynes et al., 2019). Travelling is seen as a necessary and natural part of the job, for fieldwork, international research collaborations and for dispersing research results. There is a strong conference culture; to be seen and to network is perceived as crucial or even an obligation for promotion and high-impact publications (Glover et al., 2017; Le Quéré et al., 2015; Storme et al., 2017). To travel and discover other parts of the world is also regarded as one of the perks of an academic career, and work trips are not seldom combined

with private vacations (Hopkins et al., 2019; Whitmarsh et al., 2020). International collaboration is encouraged, and substantial parts of research grants can be spent on travels (Glover et al., 2017).

A recent study from Australia even describes a ‘fear of not flying’ among scientists who perceive travelling (almost always equalling flying) ‘as a key driver for career progression’ (Nurse-Bray et al., 2019). Even if many universities have committed to reducing their carbon footprints, travelling is an actively fostered and recommended activity (Glover et al., 2017). Even if digitalisation has made online meetings possible, virtual mobility has not replaced physical travels (Storme et al. 2017)—at least not before the coronavirus pandemic.

The Swedish Case and the Rise of the Flight Shame Debate

Swedish flying habits illustrate, in a striking way, the often-described gap between pro-environmental attitudes and behaviour. Most Swedes are aware of climate change and do worry about it, and many also know that aviation contributes to the problem (Gössling et al., 2009; Lee et al., 2015; Martinsson & Andersson, 2018). Still, Swedes fly five times more than the global average (Kamb & Larsson, 2018) and flew more every year—at least until 2018 (Trafikanalys, 2019).

However, some people do reduce flying for climate reasons—and the number is growing (Jacobson et al., 2020; Wolrath-Söderberg & Wormbs, 2019). Such individuals had earlier been shown to have a stronger sense of responsibility for climate change than others, feel a moral obligation to mitigate regardless of the effects and distance themselves from the dominant social norms (Büchs, 2016). Otherwise, this group has been little studied.

In 2017–2018 I, therefore, interviewed 26 Swedes, of whom 19 had reduced or quit flying due to climate change and 7 who continued to fly like before (Jacobson, 2018; Jacobson et al., 2020). Using Karen O’Brien’s framework ‘Three spheres of transformation’ (O’Brien & Sygna, 2013) I unpacked incentives and barriers to reducing flying both in the personal

sphere (values, beliefs etc.) and in the political sphere (systems and structures in society).

The interviews showed that almost all incentives could be placed in the personal sphere, while barriers were abundant in both the personal and the political spheres (see Fig. 9.1).

Fig. 9.1 'Three spheres of transformation', adopted from O'Brien and Sygna (2013). Incentives (italics, bold) to reduce flying were identified mainly in the personal sphere, while barriers (bold) were found both in the personal and in the political spheres. Some variables cross the spheres, for instance, 'lack of time'. The practical sphere is the core where measurable change is reached. (The figure has been published in Jacobson et al., 2020.)

While it is debated if knowledge about climate change leads to increased climate concern and if it is a strong or weak driver for behavioural change (Kahan et al., 2012; Kollmuss & Agyeman, 2002; Shi et al., 2016; Whitmarsh et al. 2020), our study showed that those who reduced or quit flying were very well informed about climate change and had strong negative emotions connected to this knowledge. Almost all expressed deep concern, from ‘it doesn’t feel good’ to ‘panic’, particularly when thinking about the future of their children or grandchildren, which acted as a driving force.

Several of those who did not reduce flying perceived climate change as something distant and abstract—a sense of parallel realities. In contrast, reducers/quitters expressed a more internalised notion of climate change. Several described how the knowledge had ‘been digested’ or ‘taken into the body’; ‘it is there, in the back of the head, all the time.’

One of our conclusions was that to reduce flying because of climate change, knowing the facts is important, but not enough. The knowledge also has to be internalised—connected to emotions and personal life. Although almost everybody thought that politicians and decision-makers have the biggest responsibility for reducing emissions, those who reduced also saw it as a personal, moral obligation to do the right thing. They had low confidence in technical solutions and felt frustrated with the inaction from politicians and society at large. Individual action then became a way to get some relief from the collective climate guilt.

However, several who had a strong commitment to reduce were not always able; they felt trapped in societal systems and structures. The barriers in society are many, sometimes no reasonable alternatives to air travel exist, and when they do, they are often more expensive and less functional. For those who travelled for work, time was often a limiting factor, especially when trying to combine professional travelling with having children. Several also reported struggling with the social norms promoting air travel, many felt lonely and ‘strange’ who had taken this step and society was actively working against their decision to live more sustainably.

During the study period, an intense debate about aviation, behavioural change and individual responsibility arose in Sweden. Already in 2017, flying and climate change was a hot topic in the media (Kilström Esscher,

2018), and above all a flight passenger tax proposed by the government was debated. In June 2017, an opinion article (Anderson et al., 2017) was published by *Dagens Nyheter*, the biggest daily newspaper, where a number of celebrities, including opera singer Malena Ernman (Greta Thunberg's mother), climate scientist Kevin Anderson and Olympic champion Björn Ferry, declared that they had quit flying because of climate concerns. These were mentioned as role models by several of my interviewees.

In January 2018, after I had performed most of the interviews, the debate exploded in mainstream and social media. It was sparked by a number of columnists in national newspapers declaring that they had reduced, or quit, flying because of climate change (Hadley Kamptz, 2018; Liljestränd, 2018; Mjörnstedt Karlsten, 2018). These articles were followed by responses from the aviation industry and liberal and conservative politicians and opinion leaders that argued that technical development is the solution—not behavioural change (Flygkanalen, 2018; Holmström, 2018; Levy, 2018; Stiernstedt, 2018a). National radio and TV followed up on the discussion, as well as all the bigger newspapers; ministers and party leaders were interviewed, and all members of parliament were surveyed about their stance (Stiernstedt, 2018b).

In March, an opinion poll showed that the above-mentioned passenger tax (enforced in April 2018) was supported by 53 per cent of respondents compared to 44 per cent in 2017 (Rosén & Kihlberg, 2018). Another opinion poll suggested that an unexpectedly high number, 15 per cent, of the respondents claimed to abstain from flying on vacation (Stiernstedt, 2018c).

Simultaneously, new statistics were published showing record numbers for international flights from Swedish airports (Trafikanalys, 2019). However, this was about to change. In the summer of 2018, Sweden experienced an unusual heatwave and unprecedented wildfires. In September 2018, 15-year-old Greta Thunberg for the first time sat down outside the Swedish Parliament, school striking for the climate—sparkling the global student movement. The word 'flygskam' (flight shame) was established and seemed to fly also internationally (Mkono, 2020; Wolrath-Söderberg & Wormbs, 2019). Thunberg's international impact helped spread the anti-flight movement further. In 2019, the trend of

ever-increasing flights from Swedish airports was broken (Transportstyrelsen, 2019).

The debate was also reflected in the Facebook groups, where I recruited most study participants. In particular, the group ‘Train vacation’ (Tågsemester, [n.d.](#)) showed remarkable growth, from around 2000 members in November 2017 to close to 20,000 in May 2018, to more than 100,000 in 2020. Simultaneously, a Swedish social media group advocating for ‘Flight Free 2019’ spread their message internationally.

It is not clear if this reduction of flights can be attributed to the development described earlier, but new perceptions of what kind of travelling is desirable could be an important driver for a broader transformation of travel behaviour. People who quit/reduce flying may play a role in changing social norms, particularly those with media platforms or otherwise influential positions. The flight tax, the heat and wildfires during the summer of 2018, Greta Thunberg and the global youth movement are all factors that might have increased both knowledge and emotional involvement in climate change among Swedes (Jacobson et al., 2020).

What Makes Scientists Reduce Flying?

Are academic researchers influenced by the same incentives and barriers as my broader group of interviewees? What makes some of them break the strong aeromobility norm? To investigate this, I performed a new set of interviews with Swedish scientists (Table 9.1) during the fall of 2020. I used a similar phenomenological approach and method as in my first study, with qualitative semi-structured, in-depth interviews, this time using Zoom. The interviews were transcribed and thematically analysed and compared to my earlier results.

Since my earlier interviews, two important events had occurred. Firstly, the debate about air travel and individual responsibility described earlier took place. Secondly, and with profound global impact, the COVID-19 pandemic in 2020 put most of the flights on the ground and stopped almost all professional travelling in an unprecedented manner. I, thus, had the opportunity to look deeper into the impacts of the forced halt in air travelling on those who had not reduced it before. I also explored how

Table 9.1 The interviewed scientists, their areas of expertise, and air travel habits. Three of them had reduced or quit flying already before the COVID-19 pandemic, to reduce climate impacts. All names are pseudonyms

Pseudonym	Age	Title	Field	Air travel habits (nr of round trips)
Tom	46	PhD	Microbiology	No flights after 2016, when he had 7 trips including China and Canada.
Cecilia	32	PhD candidate	Sustainability	No flights in the last three years. Earlier, she had approximately 5 round trips per year for leisure and education.
Simon	32	PhD candidate	Sustainability	A few flights for work in the last three years. Do not fly within Europe. Before 2014 more often.
Staffan	35	Associate Professor	Physics	Until 2020, approximately 6–9 flights/year, mainly to the US, Japan, Europe.
Kristina	61	Professor	Medicine	Until 2020, 10–20 return flights/year, many to the US, almost exclusively work related.
Olivia	26	PhD candidate	Sustainability	2018–2019 she flew increasingly much, during the most flight intense period twice a month or more.

the interviewees perceived future academic aeromobility in a post-COVID-19 world.

Three of my academic interviewees, Tom, Cecilia and Simon (all names are pseudonyms), had taken a conscious decision several years ago to quit or drastically reduce flying because of the climate impacts. The other three had been forced to drastically change their travel behaviour due to the pandemic. Staffan I interviewed already in my first study, as one of the informants who had no intention to reduce flying. Kristina and Olivia are frequent flyers, who during the COVID-19 pandemic have decided to cut down on air travel even when it will be possible to fly again.

In the following, I will show that the academic ‘quitters’ and ‘reducers’ describe similar incentives and barriers to reduce air travel as the broader

sample from 2017–2018. However, the challenges to reduce flying as scientists are also specific to the academic world.

Climate Awareness and Sorrow as Incentives to Reduce

The three interviewed scientists who had reduced or quit flying describe a process of increasing knowledge and emotional involvement related to climate change that preceded their decisions to stop or reduce flying. This is in line with the onset of the process of transforming air travel behaviour identified in the broader group of interviewees (Fig. 9.2) who then described a period of struggle to overcome the dominant norms, and how positive feedbacks made them stick to their pledge. The hope and wish to influence others acted as a reinforcing factor.¹

Simon, now finalising his PhD in sustainability science, realised how serious the situation was when he read *The Limits to Growth* (Meadows et al., 1972) in 2013. Until then, he had been more interested in equity issues, but now he clearly saw the connection to the limits of the planet.

Fig. 9.2 The figure shows the process of reducing flying over time. Filled arrows and balls represent the phases and components of the process of behavioural change; white arrows show how it is counteracted by various barriers. (The figure has previously been published in Jacobson et al., 2020.)

This determined his career choice. His decision to reduce flying was triggered by a classmate in his Masters' programme, who acted as a role model showing that long travels can also be made by train.

She influenced me quite a bit. She looked down a bit at people who fly a lot. So for me it was rather much about shaming I think. Or not shaming actually, but a combination of her looking down on it and that I thought she was right.

Cecilia, also a PhD candidate, had always been interested in nature and outdoor activities but was also raised with the value that travelling is a good thing. With two close family members with management positions within the airline sector, regular trips to Europe and the US were natural for her. During her education in a sustainability-related field, she realised combatting climate change and reducing emissions while maintaining a good quality of life will be a big challenge for humanity. She measured her carbon footprint several times, which contributed to increased knowledge.

Sometime during 2014–2015 I realised what a 2-tonne life is and what a flight corresponds to. The knowledge that air travel produces emissions was there for several years, but the understanding that it was one of the most significant things I could do came at that point. [...] I realised one trip makes a big difference.

However, for a few years, she lived in a state of cognitive dissonance, described by several interviewees, where she tried to legitimise her travelling. Then, she realised that 'if I want to live in accordance with my values I have to stop. [...] I wrote my masters theses [about a related topic] and then the knowledge really became cemented. I couldn't keep it at a distance any longer.' Cecilia's decision was strengthened by the fact that she was at a department where many colleagues also tried to live sustainably.

Tom, who has a long career as a microbiologist at a state institute, has a similar but longer journey. He describes an experience already in 2003 as important, when flying to present a poster in the US. The conference was held in a small ski resort affected by climate change, and when showing the poster, he realised that it wasn't worth the trip.

You tell yourself that your research is important and that it excuses the travelling, but if I'm brutally honest [...] when I saw the crisis increase year by year [...] I couldn't rectify this for myself. [...] It was ridiculous to be honest. It was completely disproportionate related to the emissions and the costs. I mean, the meeting wasn't that important, nor was the poster.

However, for almost 15 years he continued to fly quite frequently as part of international research collaborations and for conferences. But both at work and privately he started to engage in climate issues: 'I started to think more about it [...] and then I gathered friends who were interested in the same things [...] so you sort of became, you got into that category'.

He became increasingly active in climate-related work as a member of the environmental group at his institute, and as active in the union he led the implementation of a bonus system to promote train travelling. This description of how climate action became part of Tom's identity is interesting; becoming a kind of local climate leader, it felt impossible for him to fly—and four years ago he decided to quit completely, replacing plane with train and digital meetings.

I couldn't justify that my travels were so important that I could allow myself [to continue], I'm worth this privilege. It sounded a bit hollow, because then everybody would use the same argument. [...] So I was forced to lead by example and show another way.

Like most of my previous interviewees, all three express deep emotional engagement with climate change, with words like 'sorrow', 'grief', 'depressing', 'dystopic', 'anger' and 'frustration'. Tom describes how he 'lives with climate change every day'; it is like a vocation.

It's because I have a sorrow actually. That it goes so fast and it looks rather dark [...] how will we make it in time? [...] And then there is the frustration that politically it's so slow, the political system can't really handle these kind of emergencies [...] I am not really afraid for my own sake but I feel a grief for those who will live on this planet a bit longer.

Sustainability scientist Simon describes how his perception of the future and his moods have fluctuated over the years:

Sometimes I have felt that the way we live today won't be possible and will simply lead to some kind of collapse, but after the collapse we will be able to build a new society. ... But according to more and more research this will not be possible. And that affects me a lot. These doomsday narratives, that it might well be the end of civilisation sort of. So that can really make me depressed. And angry. When people don't act upon it.

At the same time, they have not given up. Even if things look bad, there is still meaning in working for climate and sustainability. Cecilia expresses her feelings like this:

I see that there will be big parts of the world where it will be hard to live so I believe there will be much more conflicts. Where will all the people live, sort of? I get very dystopic thoughts when I think about the future generally. It doesn't mean we should not do anything because there are different degrees in hell ... but still, it's like I perceive it as, eh, how will humanity make it?

Tom describes that even if he is pessimistic about the climate, he is, in general, a positive person who never gives up and 'even if I'm a tiny part that doesn't make any difference, I still get some satisfaction when I do achieve things'.

Individual Responsibility and the Forced Air Travel Stop

When asked why they feel a responsibility to act, both Simon and Cecilia describe themselves as persons who always wanted 'to do the right thing', which is in line with earlier results about the notion of a moral obligation (Büchs, 2016; Jacobson et al., 2020). Cecilia also explains it as a tendency not to shy away:

I want to know what's true. I don't want to live in some bubble of ignorance, even if that would feel safer [...]. I don't close my eyes even if it feels unpleasant and difficult.

Unlike Cecilia, Tom and Simon, the remaining three scientists did not make a conscious decision to reduce flying. Instead, the Corona pandemic suddenly put their aeromobile lives on hold.

Like most earlier interviewees, the scientists express that politicians bear the heaviest responsibility to mitigate emissions from air travel; the most important measures have to be taken at societal level, such as tough political decisions making it more expensive to fly. However, most of them also think that individuals have a responsibility to move in the right direction and emphasise that individual choices, norms and political decisions are interlinked.

The physicist Staffan, on the other hand, is clearly negative to the idea that individuals should reduce flying to combat climate change. His statement from the study in 2018 is still valid:

If it's a societal problem, it has to be regulated on a societal level. It can't be up to ordinary people to decide this. So that's a bit the reason, I guess, why I don't [reduce].

Reflecting on individuals who reduce flying because of climate concerns, he expressed pity, that 'it shouldn't punish them. [...] As a kind of protest, I would continue to fly, if it's the cheapest alternative, to show that it [...] has to be regulated.' (Jacobson et al., 2020)

In contrast, both Olivia and Kristina describe that they, for some time, have been frequent flyers at odds with their own climate conscience. Their intensive travelling is clearly fed by their scientific careers and academic systems and structures.

Olivia, who studied in Sweden before she got a PhD position in her home country, used to fly home a couple of times every year; she performed fieldwork on another continent and made a few trips for leisure. After her graduation, her travelling increased as her doctoral studies are part of an EU mobility project, which means mandatory exchanges, training and courses in other countries. Olivia also continued to live with her partner in Sweden, which further increased the number of flights.

The last two years when I started to work as a researcher [...] the flying got totally out of hand. [...] So during these two years before Corona [...] I

think I haven't been in one place for more than two weeks. So I have been flying really much. Both for personal and professional reasons. [...] Of course you take a job opportunity as a young researcher, and then of course you don't want to sacrifice your relationship for the job either, so it was like balancing between the two values, going for your own interest and career and maintain the relationship.

A third important value for Olivia is sustainability. She describes an awkward feeling of inner conflict when speaking to other people, introducing herself as a sustainability scientist and then revealing her travel-intense lifestyle. She describes it as a loop that is difficult to escape, even if both the inner struggle and physical travelling are tiring and draining. But as an early career researcher, it's difficult to say no to travels:

If your supervisor says 'hey you should go to that conference', of course you go, because you want to go, you want to network. But at the same time, like, at the personal level, it maybe feels like, maybe I wouldn't need to, is it really that useful for me? But of course, you also want to go, it's exciting, you meet new people, it's amazing!

Also, for Kristina, a 61-year-old professor in the medical field, air travelling has been a natural and important part of her career. She is often requested to give keynotes at conferences; she has international research collaborations and works as a consultant for medical companies abroad. The past decade or more she has had 10–20 return flights annually, many transatlantic. She describes air travel as crucial for her group to share results, to attract funding and international research partners and patients for their studies: 'We hadn't been where we are today if I had stayed at my desk, that's very clear'.

Even so, in the past few years, she has increasingly felt bad about her travel habits. She considers herself environmentally aware; she has stopped eating meat, has taken a 'shopping-free year' and never flies domestically. The reason is that she is feeling increasingly worried about the climate and environment, particularly since her grandchildren were born.

It becomes more concrete when I think about Lilly and Sam [pseudonyms for the grandchildren], what kind of life will they live?

However, to reduce flying for work didn't feel realistic. Until now.

A New Virus and New Travel Habits

The COVID-19 pandemic in 2020 has impacted Kristina's, Olivia's and Staffan's lives profoundly. Suddenly, all their planned conferences, experiments, courses and fieldwork were postponed, cancelled or went virtual. Surprisingly, none of them described this as a big problem. Similar to Olivia, as quoted in the introduction, Kristina expresses a kind of relief, and that her 'Corona year' has been really productive in terms of finalising manuscripts.

From hopping around every second weekend, there was a huge halt in the way you practiced your profession. We were lucky, as our group just finished a big study, so the patient recruitment was not impacted. Instead we could [...] analyse our data. I didn't have to take so many decisions myself about not travelling, but it happened automatically because the congresses were simply closed down. And that felt good. To get time for other things basically. There was a lot of time to work on the things I really appreciate. And another kind of tranquility.

They describe it as a kind of detox, a break, that the pandemic has paradoxically and unexpectedly revealed a healthier and more sustainable lifestyle. Olivia points out digital solutions as helpful.

At first I was really missing the travelling—or not missing, but it took me a while to be able to put my mindset like 'I'm in one place now, and it's fine'. And then when I got this mindset it felt really good. [...] Now everything is online in the project [...] there is zero pressure to travel anywhere.

Both believe that they will not go back to the frequent-flying life as it was before. Kristina has already declined several invitations to international congresses next year.

I just don't feel like flying anymore. If it's not really really needed [...] it feels so [...] unnatural and unhealthy, it feels like we have cleaned out a little bit, gotten other priorities [...] above all it's the environmental aspects, this flying, you have to sort of highlight that it's not ok, for the sake of the environment.

Flying Less Affects Personal Life More than Career

Staffan's life has been impacted in an extremely negative way by COVID-19, but this has little to do with his research. Since some time, his young child lives with the mother in the US, and Staffan has not been able to visit him for almost a year. He also describes a very challenging time as a university teacher, with all seminars, lab exercises and examinations going online. His research though seems more or less unaffected.

The other interviewees also highlight that the sacrifice of not flying is on a more personal level. Neither Cecilia, Tom nor Simon believes that abstaining from flying has affected their careers substantially and if it does, so be it. Tom, who has decided never to fly again, says it means that he has to give up the dream to discover certain places, but as he puts it:

You can still dream, but a lot of dreams in life are not fulfilled and considering what such dreams cost, you have to be a bit restrained. Because your dreams should not be at the expense of the future, nor contribute to disaster for my children and all the other young people in the long run. Then it's not really fun.

Olivia, Kristina and Cecilia emphasise the sacrifice of not being able to meet close friends or colleagues far away, or at least not as often. Often these important contacts have been made during a globalised life as a student or researcher. The main disadvantage for Kristina not being able to fly has been not being able to meet her research associate in the US—she misses the creative brainstorming over a cup of tea. Olivia describes the dilemma of international networks:

We have come to the point; it's crazy; I have friends all over Europe. And also in other countries now. How about them, am I allowed to visit them

flying? I miss them so much. So I think that's then we get to the complexity. Then it gets tough, because it's about the fundamentals of humanity, like love. And then it's like, ok, climate change or love?

Cecilia sometimes feels that friends are disappointed when she can't come and visit due to the extra time it would take to go by train. In her professional life, however, she doesn't see it as a big problem even if she is missing out on conferences and collaborations. She works in a field where it is not regarded as 'strange to choose not to fly [...] there are many like-minded in my field, so we find solutions for collaboration anyways'.

Simon, who was earlier one of the few train travellers in his institute, feels that the norms have changed the past few years with more colleagues trying to reduce flying. He attributes this to the public debate about flying. He also says his friends outside of work would find it hypocritical for him as a sustainability scientist to fly. Kristina, who is of another generation and active in another field, doesn't perceive the same awareness among colleagues and friends, which is obviously emotionally difficult for her:

I am a bit bitter [...] I'm disappointed with my friends who don't care about this. And it's sad because they are kind of my best friends. And they think it's a nuisance because I give them a bad conscience. [...] We, who love each other and always felt that we understand each other all the way to the fingertips—now we don't understand!

COVID-19 as a Testbed and Tipping Point: Academic Flying in a Post-pandemic World

Even so, Kristina is confident that she will not go back to her previous travel habits. She will restrict her trips to a few per year, and 'not hop around as soon as somebody calls me. I won't do that anymore.' For her, the pandemic has clearly been a tipping point:

It has forced us to try and to feel that it's actually nice! It's awesome to hike at Kinnekulle; I don't need to go to Nice to walk up a mountain. So, somehow one was forced into a testbed that was rather enjoyable. [...] Even if I think the research will suffer if we don't have meeting grounds [...] where you have the chance to establish contacts and exchanges experiences in a

way that is probably difficult digitally, you have to choose carefully if and when you fly.

Several of the interviewees believe that many scientists will be more 'picky' with their travelling because it has become obvious that there are now digital solutions that save time, money, the environment and that are less tiring. Cecilia calls the COVID-19 period a 'natural experiment' that has given many a chance to try the digital possibilities. For Staffan, air travelling has mainly been necessary to perform experiments with very specialised equipment. But also he thinks that he will be more restrictive, not because of the climate, but because of the insecurity that the pandemic has made obvious. Who knows when the rules will change and borders close when you are far away from loved ones? And who can plan a big event like a conference when you never know what's waiting around the corner? In his case, practices have already changed; more experiments are either performed remotely or in collaboration with local staff: 'When you do go somewhere, it will be to perform something specific. I think it will have enduring effects on how you socialise.'

All agree that digital, or mixed digital and face-to-face meetings, will probably become the new normal because it's cheaper, more secure, convenient and time-efficient. The most challenging part of academic work to replace seems to be social networking. To meet people in real life will always be important and enriching.

Concluding Remarks

Although the number of interviewees is too small to make any claims of being representative of researchers in general, they give some interesting insights into drivers and barriers to reducing flying in academia, and the possible impacts of the coronavirus pandemic on academic travel habits.

Even if many scientists do have a more travel-intensive work situation and a greater need for international networks than most professions, scientists are not fundamentally different from other people. Like others, they may be stuck in systems and structures of society in general and of their profession in particular. For researchers who reduce flying, the incentives seem very similar to that of the broader group of interviewees.

They describe a growing knowledge of climate change and deep emotional involvement and a sense of moral obligation to minimise their personal climate impact. Social support is helpful, and some of the scientists perceive a change in social norms in academia in the past few years.

But is knowledge really a decisive factor for scientists, the highest educated group in society? This cannot be concluded from a small set of interviews mainly with people who have reduced flying, without a comparable control group. Whitmarsh et al. recently showed that climate scientists (including sustainability and environmental scientists) fly even more than scholars in other fields, in particular professors (Whitmarsh et al. 2020). Although they conclude that structural and social factors are more important for travel behaviour, they also saw that providing information about the impacts of aviation lead to willingness to change travel practices in this already very knowledgeable group. Wolrath-Söderberg and Wormbs concluded that the knowledge that pushed many Swedes to change air travel behaviour included an awareness of the proportional impacts of different lifestyle changes (Wolrath-Söderberg & Wormbs, 2019) which are well in line with my earlier finding that measuring the individual carbon footprint is a decisive eye-opener for many (Jacobson, 2018). One can speculate that it is easy to avoid taking such a test if you suspect your impact is big and feel that you would lose too much on cutting down on flying if you believe that your research is important enough to justify your carbon-intense travels. In this way, ignorance can be a bliss also for a professor. Perhaps the scientific tradition to always stay neutral and objective also helps to separate knowledge from emotions—and as shown earlier, emotions seem crucial for reducing flying in the face of climate change.

The interviews with scientists confirm the findings of others that the perceived benefits of flying are very strong among scientists. To be seen on the international arena is perceived as a way to success; it is important to network, establish international collaborations and to disperse research results. To avoid flying or travel in other ways is not always a choice, due to lack of time, resources and practical alternatives.

For many, reducing flying is the last lifestyle change they want to make. As Olivia, who already is vegetarian, bikes everywhere and shops second hand, describes that ‘this kind of stuff I did already years ago. So for me, the flying is the big elephant in the room.’

However, the scientists who reduced flying already some years ago did not perceive it as a serious disadvantage for their research, as indicated by Wynes et al. who saw little connection between flying and academic success (Wynes et al., 2019).

An unexpected finding was that the scientists who had not reduced flying before COVID-19 did not perceive the forced flight stop as particularly detrimental for their research. For two of them, who had already for some time felt a cognitive dissonance when flying, the pandemic even provided a welcome chance to reconcile their values with their actions.

None of the interviewed scientists think that the scientific community will go back to pre-pandemic travel patterns. In spite of all the devastating damages of the pandemic in general, it has provided a testbed for new travel habits and meeting technologies. Olivia hopes that she will not return to her old hypermobile lifestyle, but flags that it also depends on the social norms.

The problem would be if everybody goes back to flying like crazy, and you don't want to fly, and you are missing out. But now I see there is hope, because [...] it has just opened so many more possibilities.

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Note

1. The figure has been published in *Sustainability* (Jacobson et al., 2020).

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