Academic Flying and the Means of Communication

Edited by Kristian Bjørkdahl
Adrian Santiago Franco Duharte

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1

Introduction: Ending the Romance of Academic Flying

Kristian Bjørkdahl
and Adrian Santiago Franco Duharte

All the world seems to be on the move.
—Mimi Sheller and John Urry

The whole academic world seems to be on the move. Half the passengers on transatlantic flights these days are university teachers.
—David Lodge

Since the 1960s, academic work has come to be ever more closely entwined with air travel, to the point where many academics today think of flying—even of the intercontinental variety—as an essential aspect of their work life. This situation would never have come about if it were not for the fact that 'Western societies', as Peter Adey writes, 'are made and constituted by air travel, allowing social relationships, networks and associations to be held and maintained, or conversely, to be *dis*-abled, destroyed, and ruined' (Adey, 2010, p. 6). International air travel, in other words, is central to our

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way of life, and in one sense, academics fly because that is what we all do—because, as Mimi Sheller and John Urry put it, 'All the world seems to be on the move' (Sheller & Urry, 2006, p. 207). From another perspective, however, it is clear that academics fly for reasons that are quite distinct to them. Indeed, it would be no exaggeration to say that academics have worked aeromobility into the *ethos* of science, in what might appear like a peculiar mix of necessity and romance: Globetrotting is part of the allure of being an academic, but at the same time, academics *must* fly if they are to 'stay in the game'—or so the story goes.

In the face of the climate crisis, however, academics' infatuation with flying may increasingly come across as odd, or even absurd—not to say irresponsible (see e.g. Klöwer et al., 2020; Higham & Font, 2020). How can academics carry on their jet-set lifestyle, when, every day, the world grows more conscious of the changes needed to avert catastrophic global warming? How can academics continue to maintain and even expand their own inclination to fly, when digital alternatives to this 'academic tourism' are becoming ever more viable as means of academic communication—not to mention how these same technologies have demonstrated their utility during the COVID-19 pandemic? And in a world that appears to be waking up—finally—to the inequities that attach to global warming, how do airborne academics justify the fact that they belong to hypermobile 'kinetic elites' (Sheller, 2018)—a class, in short, whose globetrotting rests on the involuntary sacrifices of less privileged groups?

This volume shines a light on how and why academic work became so entwined with air travel, and what can be done to change this flying habit. The starting point of the book is that flying is only one means of academic communication among many, and that the state of the planet now obliges us to shift to other means. A certain scholarly attention has been devoted to these issues over the past few years, and the present volume features contributions from several notable scholars in this area of research. The central issues of this book—why do academics fly, and what could make them reduce their flying—are more complex than they might seem, however, and we contend that existing scholarship has far from exhausted this topic.

To offer a first stab at capturing some of the issue, we will, in the remainder of this introduction, turn to the world of fiction, which might not always align with the world of research, but which is nevertheless an

important site for exploring the complexities of human motivation. Although novelists deal in fiction, they must still present truth of some order. What they write need not be true to the events as they actually took place, but it must, on some level, be true to human experience—as some, or even many, have felt them to be. This means that we can think of the novel too as a source of knowledge about our theme.

Concerning the theme of the present book, there is no better source of fictional knowledge than David Lodge's famous campus novels, *Changing Places* (1975) and *Small World* (1984), in which the romance of academic flying is described not just with great humour, but with unparalleled precision: While these books are hilarious and over the top, they nevertheless feel true to the experience of being an academic in our time, and since our central claim here is that academics now need to reconsider their romance with flying, these satirical romances form our runway.

The Holy Grail of Academic Aeromobility

The first of these two novels begins, in fact, in mid-air, as the aerial paths of the two protagonists, Morris Zapp and Philip Swallow, meet: 'High, high above the North Pole, on the first day of 1969, two professors of English Literature approached each other at a combined velocity of 1200 miles per hour. They were protected from the thin, cold air by the pressurized cabins of two Boeing 707s, and from the risk of collision by the prudent arrangement of the international air corridors' (Lodge, 1975, p. 5). Zapp and Swallow, we learn, are on a mission to replace each other (the first travelling from Euphoric State University (read: California) to the University of Rummidge (read: Birmingham), while the other vice versa), as part of a six-month exchange scheme. Here already we have learnt something about why academics fly: *Their institutions want them to*—so much so, in fact, that they create elaborate and costly exchange schemes to make it happen. Admittedly, the chain of causality more likely runs in the other direction: Academic institutions desire international exchange, and exchange requires, or at least is greatly facilitated by, flying.

At any rate, the so-called internationalisation of academia, and the various incentives that exist to increase and maintain that process, is one important reason why, as Lodge wrote, 'the whole academic world seems to be on the move' (1984, p. 459). As scholars have also pointed out, the institutional incentive of internationalisation has grown quite ubiquitous (Hopkins et al., 2016), and while it is particularly characteristic of countries like Australia and New Zealand (see Glover et al., 2019), which claim that their remoteness necessitates air travel, it is felt much more widely—for instance in the academic exchange schemes within the European Union, which have only grown since Lodge's books were published.

If institutional incentives were all there was to it, there would not be grounds for any romance of flying. As a matter of fact, though, academics possess a rich catalogue of motivations for getting up in the air and around the world—one of which is *status*. Again, Lodge's books provide clues: The Englishman, Swallow, is the minor academic of the two, and while he has flown before, he is anything but a frequent flyer, and hence suffers from a severe case of fear of flying. Boarding a plane, 'the sang-froid of his fellow passengers is a constant source of wonderment to him', as flying for him is 'essentially a dramatic performance' which he approaches 'like a game amateur actor determined to hold his own in the company of word-perfect professionals' (1975, p. 7). But while he feels discomfort about it, he is nevertheless forced to recognise its *necessity*: 'Flying is, after all, the only way to travel' (1975, p. 7). Meanwhile, Morris Zapp, the more highly reputed academic in the pair, is a 'seasoned veteran of the domestic airways, having flown over most of the states in the Union in his time, bound for conferences, lecture dates and assignations' (1975, pp. 7–8).

Frequent flying is a marker of academic success and prestige, Lodge is suggesting, while subtly underlining how flying, when done as frequently as by Morris Zapp, becomes second nature—not just a habit, but one's *habitus*. With a related term, Elliott and Urry (2010) talk about 'network capital', which refers not simply to a person's ability to move around and make connections to people in faraway places but to the social game in which that ability has consequences. The most typical consequence, of course, is that a globetrotting habit makes someone appear important.

Hyper-mobility is tightly connected to elite status (Sheller 2018). This point is brought out nicely in *Small World*, where we also meet Arthur Kingfisher, 'doyen of the international community of literary theorists', whose highly elevated reputation stems, not least, from the fact that he is 'the only man in academic history to have occupied two chairs simultaneously in different continents (commuting by jet twice a week to spend Mondays to Wednesdays in Switzerland and Thursdays to Sundays in New York)' (Lodge, 1984, p. 318). The frequency of an academic's flying becomes, in other words, a direct measure of his academic status: The more you fly, the more important you are. For the most important academics of all, transcontinental flights become almost as routine as taking the underground.

Once flying comes to be connected with status, it soon becomes the source of *aspiration*. While Swallow is well aware that he is an amateur flyer, the mere circumstance of being in the air is quite suggestive: 'Philip Swallow, member of the academic jet-set', he thinks proudly to himself, as he boards the plane to the United States, 'ready to carry English culture to the far side of the globe at the drop of an airline ticket' (Lodge, 1975, p. 31). This is the prospect that an academic, simply by flying, will appear more important, more elevated (in the metaphorical sense) and more well reputed than those who remain on the ground. We should not assume, of course, that aspirations like the one Swallow expresses spring from hard, measurable facts. But while flying is perhaps not the direct cause of academic success, it is nevertheless a marker of the same. Some recent scholarship found, for instance, that there is no significant link between the extent of an academic's flying and their professional success, but interestingly, the same study also found that there was indeed a link between flying and *salary*—which underlines the point that academics' perceptions of what makes for an important academic are perhaps more important than reality.

Lodge's books are satires, of course, and hence they exaggerate. There is nevertheless a great deal of truth in them. What we find there, more specifically, is *the truth of how things appear*. When it comes to academic flying, these appearances are quite central, as they create a set of mutually enforcing social-professional dynamics, that work roughly so: Opportunities to fly open up more often and more readily to an

academic who is acknowledged as important—as important scholars get more invitations to serve on panels and committees, to give key note lectures, to hold visiting professorships, and so on. If and when an academic takes advantage of such opportunities, and hence becomes a frequent flyer, this in turn sends a signal about their importance—their frequent flying tells everyone that plenty of opportunities have opened up for this particular academic, which can only be a sign that they are important, attractive and in demand. In quite a few contexts, estimations of social status in academia sidestep the question of quality, and instead fall back on an instinct that says *unimportant people do not 'globetrot'*.

This last point is brought home by another scene from *Small World*, where Morris Zapp at one point finds himself in a Rummidge taxi, on his way to (where else?) the airport. He observes the dreary, 'nearly identical three-bedroomed semi-detached houses [unwind] beside the moving cab', and these never-ending rows of depressing dwellings become an image of all that the jet-setting Morris Zapp is *not*:

> For most of these people, today will be much like yesterday or tomorrow: the same office, the same factory, the same shopping precinct. Their lives are closed and circular, they tread a wheel of habit, their horizons are near and unchanging. To Morris Zapp such lives are unimaginable, he does not even try to imagine them; but their stasis gives zest to his mobility—it creates, as his cab speeds through the maze of streets and crescents and dual carriageways and roundabouts, a kind of psychic friction that warms him in some deep core of himself, makes him feel envied and enviable, a man for whom the curvature of the earth beckons invitingly to ever new experiences just over the horizon. (Lodge, 1984, p. 319)

This, of course, is the type of description that makes many contemporary scholars impressed by the scholarship on 'mobility justice' cringe. But however uncomfortable Morris Zapp's inner thoughts might be to ponder, flying—not exclusively for the likes of Morris Zapp, but for many lesser entities as well—has in fact become an indelible part of many academics' professional identity. If one has any academic ambitions at all, one simply has to fly; reversely, not flying is a sign that one is not succeeding. Hence, a more common affliction for academics than Philip Swallow's

fear of flying is what some scholars have recently dubbed a 'fear of not flying': Because 'plane travel is perceived as a key driver for career progression', they write, academics are disinclined to drop their flying habit, even as they grow ever more aware that this habit is contributing to global warming (Nursey-Bray et al., 2019, p. 1). So strong is the drive to do what one believes will translate into a successful academic career, that one is prepared to discount most everything else. Or, as the fictional Morris Zapp more instinctively put it, 'the individual has to yield to the Zeitgeist or drop out of the ball game' (Lodge, 1984, p. 290).

Of course, even the Zeitgeist comes from somewhere, and when many academics today believe not just that flying is 'the only way to travel', but that such travelling is the only way to an academic career, this is due, in large part, to the availability and affordability of flying. While air travel took quite some time—and one might add, two world wars—to become established as a commercial enterprise, the trend from the early 1950s until today has been quite uniform: The price of flying is dramatically down, while the number of passenger flights is correspondingly up (Rodrigue et al., 2020). Once again, Lodge's fictions mirror the real world: In *Changing Places*, Philip Swallow reminisces about his honeymoon to the United States as a young man—probably in the late 1940s or early 1950s—at a time when flying was *not* yet 'the only way to travel': At the stay's end, he *sailed* home to England with his wife. In the course of the 1960s, however, flying moved from being a rare and exclusive experience to being the normal—and then the *only*—way to travel. From 1958 onwards, more people have crossed the Atlantic on planes than on ships, and in the 1960s, to sail across the Atlantic became a thing of the past, as the superbly fast and increasingly cheap airlines would outcompete the transatlantic ocean liners (Rodrigue et al., 2020). By the time Zapp and Swallow met in mid-air, in 1969, flying had been firmly established as a component of, one might even say a way of doing, academic work.

Since then, the idea that flying is necessary if one is to have an academic career has become ever more entrenched and appears now an almost inseparable part of what it means to be an academic. The progression from *Changing Places*, published in 1975, to *Small World*, published in 1984, provides an image of how increasingly pervasive flying would become to the academic enterprise. While the premise of the first novel

takes off from the mobility made possible by intercontinental flight, the premise of the second is that all academics ever seem to do is travel. *Small World* is no longer a tale of a single trip occasioned by an internationalisation scheme but of a cast of academic characters that—quite literally—jet around the world, from conference to conference, symposium to symposium, lecture to lecture. The narrative is modelled on the romance of the holy grail, the function of the grail in this case represented by a UNESCO chair in literary criticism, which is not just prestigious and well paid, but which is by definition mobile, 'a purely conceptual chair (except for the stipend) to be occupied where the successful candidate wished to reside'. The chair 'would have an office and secretarial staff at the Paris headquarters, but no obligation to use it. He would be encouraged to fly around the world at UNESCO's expense, attending conferences and meeting the international community of scholars, but entirely at his own discretion' (Lodge, 1984, p. 346).

One of the contenders for the chair, obviously, is Morris Zapp, who feels 'dizzy at the thought, not merely of the wealth and privilege the chair would confer on the man who occupied it, but also of the envy it would arouse in the breasts of those who did not' (1984, p. 346). At this point, Zapp has updated and refined his ideas about what it means to be a modern academic, and the category is now more or less co-extensive with that of the vagabond: 'As long as you have access to a telephone, a Xerox machine, and a conference grant fund, you're OK', Zapp explains to a young colleague, because 'you're plugged into the only university that really matters—the global campus. A young man in a hurry can see the world by conference-hopping' (Lodge, 1984, p. 269):

> Because information is much more portable in the modern world than it used to be. So are people. *Ergo*, it's no longer necessary to hoard your information in one building, or keep your top scholars corralled in one campus. There are three things which have revolutionized academic life in the last twenty years, though very few people have woken up to the fact: jet travel, direct-dialling telephones and the Xerox machine. Scholars don't have to work in the same institution to interact, nowadays: they call each other up, or they meet at international conferences. And they don't have to grub about library stacks for data: any book or article that sounds interesting

> they have Xeroxed and read it at home. Or on the plane going to the next conference. I work mostly at home or on planes these days. (Lodge, 1984, p. 269)

Of course, direct-dialling telephones and xerox machines no longer impress anyone, but Zapp—quite accurately—points out how one consequence of these technologies were new forms of mobility, which are intertwined with what some have called 'time-space compression' (Harvey, 1990) and which others have conceptualised as 'global sense of place' (Massey, 1994). In many ways, the more recent digital technologies have simply given us more of the same, amplifying such processes even further. As an issue of the *Harvard Business Review* recently heralded on its front page, one of the promises of digital technologies is the 'work-from-anywhere future' (Choudhury, 2020). This, of course, is precisely the holy grail as represented by *Small World*'s UNESCO chair: It no longer matters where you are; you can be anywhere and everywhere, and still be doing your job.

Ending the Romance

If Lodge's books are still eminent thick descriptions of academic lifestyle, the moral universe of those books is fast acquiring a feel of being *dated*. The roles these books leave to women, for instance, do not hold up to today's standards: With only a couple of exceptions, almost all the academics we meet in these books are men, and while the women are presented as either housewives or vindictive wives—or, alternatively, as either prostitutes or cardboard 'love interests'—the outright suspect intentions of many of the male characters are made to seem entirely normal and excusable. The question is whether the extreme aeromobility of Lodge's academic characters can also begin to seem dated and old-fashioned. Can the academic-as-globetrotter image be made to seem a thing of the past?

That is the basic question we want to raise with this book, and it is a question which we believe is now more timely than ever (see Higham & Font, 2020). While some of the problems with 'academic tourism' were pointed out quite a while ago (see Høyer & Næss, 2001), a wider

discussion about academic flying—its reasons and purposes, its consequences and ethics—has only recently begun to form. The issue has recently been the object of an unexpected boost, one might say, thanks to the COVID-19 pandemic, which 'grounded' academics, along with everyone else. That the pandemic has forced academics to reconsider their professional means of communication is clear; within a matter of days and weeks, they had begun to ponder how classes, vivas, panel meetings, seminars, workshops and even academic conferences could do without physical presence, and rely instead on digital technologies. What remains to be seen is what lasting effects the pandemic will have on academic work—if any at all.

Regardless of the pandemic, the issue of academic flying now attracts attention not only among university leadership and administration or among students and scholar-activists but also within research itself—notably in disciplines like geography, sociology, communications and other adjacent fields, which focus on how mobility shapes contemporary society. Some of this research is closely connected to what has been called the 'new mobilities paradigm' (see the hugely influential Sheller & Urry, 2006, and also Urry, 2000) within the social sciences, and it has recently begun to explore *aeromobility* as a distinct category. Books like Cwerner et al.'s *Aeromobilities* (2009) and Peter Adey's *Aerial Life* (2010) have been important in this regard. Such books have done more, though, than simply open up a new sub-field of mobilities research; they have exposed both how central and how complex the role of air travel is in our society. That said, other parts of the scholarship on academic flying have been less motivated to theorise the phenomenon and all the more set on developing practical responses to the climate crisis.

For this book, our attitude has been ecumenical. We have started from the notion that the urgency of the climate crisis presents academics with a call to confront their flying habits, and that this confrontation must include an attempt to identify pathways towards a more sustainable academic enterprise. In short, the purpose of the book is to investigate why and how we might end the romance of academic flying, in order to respond responsibly to the climate crisis. To serve this overarching purpose, we have sought contributions from scholars who engage closely with mobilities research as well as from those who do not. The result is an

interdisciplinary book—as we believe it should be, since aeromobility shapes academic work in complex ways which extend beyond the scope of any one discipline. Our main ambition with the book has been to further the somewhat scattered scholarship that has already begun to confront academic aeromobility, so that we might help consolidate and strengthen this area of research.

The ambition to strengthen research on academic flying is in turn motivated by an idea that this research can be translated into action. While we are certainly not out to 'shame' anyone, we do believe that the present moment calls for action, and that we, given the complexity of the issue, cannot expect change to emanate from the sole efforts of any single actor. To change academia's flying habit, we will need a concerted effort along several different tracks simultaneously. For that reason, we hope that this book will contribute to sustaining interest in this topic not just among researchers but also among students, activists, research funders, university administrators and others. As the chapters that follow make very clear, academic aeromobility is no coincidence, but a form of mobility that is held up by a complex set of *incentives*, which over time have become entrenched as *values* and *norms*, to a point where they have come to form part of academic *culture* and *identity*. We are, in other words, up against quite the beast—and to battle it, we need all the above actors to join forces. That said, the book does contain a series of proposals for what can be done, so the perceived difficulty of the task should not keep us from starting a process of change.

The Beginning of the End

The chapters that follow fall into three main categories, which we believe represent the three analytical steps we must traverse to get a handle on the issue of academic flying. Many of the chapters in this book branch over into several of these categories, and are involved in more than one of those steps, but most place their weight within one of the following: First is the effort to document how much academics fly, and not least, what *the consequences of this flying* actually are.

This effort is important not just for the sake of 'getting the facts on the table', but also to put the consequences of the academic flying habit on display, and force academics to really confront the costs of their aeromobility. This is done very effectively in Chap. 2 by Sebastian Jäckle, which aims to document the carbon footprint of academic conferences. Taking the General Conferences of the European Consortium for Political Research (ECPR) as his example, Jäckle measures the emissions from various installations of this conference across several years, revealing not just how carbon-intensive these events really are but also what difference location makes to the carbon accounts. Finally, he juxtaposes the carbon intensity of the various physical conferences with the 2020 installation of the ECPR conference, which—because of the COVID-19 pandemic—was organised as an online event. According to Jäckle's estimates, a physical instalment of the conference would, depending on the location, have had a carbon footprint between 250 and 530 times higher than the 2020 event.

A similar, yet at the same time very different, effort is presented in Chap. 3 by Mimi Sheller, who is also out to document the costs of academic aeromobility, but who focuses exclusively on her own record. With an auto-ethnographic inspiration, Sheller takes on a task that many academics would probably be disinclined to even consider: she takes stock of her own flight history. Recognising that she is indeed among the 'hypermobile' few, she re-reads her *curriculum vitae* as an *itinerarium vitae* and searches for answers to why she became such a hypermobile academic. This leads her to consider how her travels have contributed, or are complexly intertwined with, 'academic achievement'. Her *itinerarium vitae*, then, connects her own social mobility as an academic—the biography of how she rose in the academic ranks—to the spatial aeromobility she has engaged in during the same period. Ultimately, she too reflects on what difference the experience of being grounded by COVID-19 can make for future academic aeromobility, and urges us to begin framing the issue as one of mobility justice in the Anthropocene, which means addressing the issue of how we 'determine the distribution of the costs and benefits of long-distance travel'.

The perspective of mobility justice surfaces in several other chapters as well. For instance, in Chap. 4, Andrew Glover, Tania Lewis and Yolande

Strengers focus on the mobilities literature and its interest in the notion of 'presence', but they turn this focus on its head, as it were, to shed light on the *absences* that air travel creates. They focus, in other words, on what is pushed into the background, and thereby becomes absent, as academic aeromobility creates its particular forms of presence. They highlight two such forms of 'absent presences': The first is that travel abroad necessarily means to leave one's home—and hence, to leave those with whom one shares that home. Aeromobility thus has domestic costs which are borne by those who do *not* travel. Another form of absence is produced when air travel becomes dissociated from the environmental impact reviews of universities as if the ambitions enhanced by the former had nothing to do with the latter—a widespread practice that allows universities to uphold two contradictory commitments.

The latter problem is dealt with in even more detail in Chap. 5 by Hans Baer. Baer takes up the discrepancy—not to say hypocrisy—of many universities that on the one hand have committed to goals of environmental sustainability and, on the other, nurture elaborate internationalisation schemes. In Australia, this conundrum is particularly acute, not just because of its remote location, but because it has done much to become a major player in higher education; this sector has become the country's third largest export industry. Baer draws on auto-ethnography from the University of Melbourne, where he has worked to expose the university's commitments, and argues that the effort to change the current hypocrisies must be framed as a struggle for social justice in which one envisages a sustainable world system quite unlike the one we currently have.

In Chap. 6, Daniel Pargman, Jarmo Laaksolahti, Elina Eriksson, Markus Robért and Aksel Biørn-Hansen again highlight the inequalities of academic flying, but they focus neither on those who stay at home nor on those who cannot afford to fly at all, nor on the environment as such, but on the unequal distribution of aeromobility between researchers themselves. Based on data from Sweden's KTH, Royal Institute of Technology, they compare the air travel of different departments—to get a better sense of exactly *who* flies, that is, who enjoys high levels of aeromobility and who is relatively speaking more immobile. Their data reveal substantial discrepancies between different categories of university employees, which they

suggest are perhaps better conceptualised as 'inequalities', and which they argue exposes a need for 'discussions and negotiations about who gets to fly (or not)', and also, about what we should think of as 'unnecessary' flying. If the planet can only take a limited amount of academic aeromobility, how should that scarce resource be distributed?

If this group of chapters helpfully enriches what we understand by the 'consequences' of academic flying, by taking up effects that reach beyond those on environment, the next group of chapters takes us to another central issue, namely the issue of *why academics fly*. An attempt to find answers to that question is important to achieve this book's purposes, since we arguably need an appropriately sophisticated understanding of the reasons and purposes and functions of academics' flying before we can realistically contemplate alternatives to that aeromobility.

Elina Eriksson, Maria Wolrath Söderberg and Nina Wormbs in Chap. 7 argue that, if we aim to change the prevalent flying habits of academics, we cannot assume that 'more knowledge' will be enough. Research has clearly shown this recipe to be less than sufficient; people can live—and live seemingly well—within denial of climate crisis, for instance. They suggest, in contrast, that we need to understand better how academics frame and understand their own responsibility when confronted with the need for change—how, in other words, academics reason about their own flying in the face of climate crisis. In order to discover potential for change, then, we need first to uncover academics' values and motives. Based on a survey of academics at Sweden's KTH, they discover a spectrum of different attitudes, ranging from 'climate scepticism to a commitment to radical transformation'. The survey uncovered not only what attitudes these academics currently have, thus exposing what any programme of change needs to address, it also prompted them to propose interventions, which offers another impetus for change.

Interview studies that try to ascertain the various incentives and motivations that lead academics to fly are one notable way to gain a better understanding of academic aeromobility. In Chap. 8, James Higham, Debbie Hopkins and Caroline Orchiston take up the question of what academic aeromobility offers scholars in the global periphery, in this case academics at the University of Otago, in New Zealand. Based on interviews with academics at the university, they find that four different

themes emerge that frame and maintain these academics' flying habits. They use these themes to investigate academic resistance to change, and also take up how the disruption represented by COVID-19 might be interpreted as an opportunity for change, as a momentum from which to radically alter academics' unsustainable aeromobilities.

In Chap. 9 Lisa Jacobson takes a similar route, but her chapter is rigged more specifically to capture what difference the COVID-19 pandemic makes to the inclination to fly. She focuses especially on academics who have made a decision to reduce their flying, and in the present study, she presents interviews that add to a previous series of interviews with non-academics who have downscaled their aeromobility. As a certain corrective to the research cited earlier, that indicates that 'more knowledge' does not help, Jacobson's previous interviews suggested that more information actually did have an impact, as it could drive someone towards a 'tipping point' of behavioural change. She also found, however, that many felt 'trapped in practices, norms and infrastructures'. For the present chapter, she interviewed academics who had already decided to reduce their flying and those who had not, but were grounded due to COVID-19. While the results largely mirrored those in the group of non-academics, the pandemic appeared—at least to those academics themselves—to represent a moment of change, as none of them believed they would return to their previous hypermobile lifestyles.

In Chap. 10, Nicholas Poggioli and Andrew Hoffman suggest that academia currently suffers from what they call *flyout culture*, which is 'built on a set of shared beliefs and values about the importance of flying' for academics. In an effort to outline what this culture rests on, their chapter investigates the underlying values that animate flyout culture and identifies how those values must and could change, in response to climate change. This means looking, on the one hand, at why academics currently fly as much as they do, and on the other, look at how various 'decarbonisation' schemes might affect those reasons. In a prospective exercise, they finally look at how a set of new, decarbonised, values for academia might emerge.

Poggioli and Hoffman's contribution marks the transition to the third basic question we take up with this book, and that is the effort to think through *what can replace flying and how*. This effort will certainly not

come to an end with this book, but we hope at least to have provided a solid start. One might think that this will not require much of our imaginations—that it is, in fact, something of a no-brainer: 'Can't we simply switch to videoconferencing?' Some would argue that the almost immediate change of habits that was forced on us with the strictures of COVID-19 proves that videoconferencing is the future. We are not so sure. For one, as explained by the chapters described in the previous section—not to mention by David Lodge's books—flying is neither incidental nor marginal to the modern academic's lifestyle, but a central part of it. Our best bet is that this habit is going to be much harder to kick than what many now assume. Another reason why we are inclined to take the role of the sceptic here is that video might inherently be a lesser alternative; like all digital forms of communication, videoconferencing allows us to fill some of the functions of physical presence, but not all. The communication itself is often complicated, that is one thing, as everything from gestures, to turn-taking, to simultaneous speech, to various forms of response and so on get either diminished or lost entirely on video. But then there are all the other benefits to be had from travelling where video has nothing at all to offer.

These perspectives are explored further in the last group of chapters, firstly by Claus Lassen in Chap. 11, who begins by outlining how academic work is a subcategory of late modern work in general—having moved from the more static and hierarchical structures of industrial society to a mode that is 'more flexible, networked and mobile'. Aeromobility is key to many forms of such flexible work, and for academics, the perceived necessity of air travel is enhanced by ideas about the importance of face-to-face interaction. With the prospect of climate change, however, this mode of academic work has arrived at a junction, where the need for change is growing increasingly apparent and the call to take responsible choices weigh on us. For sustainable change to happen, Lassen argues, we need better ways to differentiate between ways of meeting, of what forms of presence are needed for different purposes—and that is what his chapter aims to contribute.

Birgit Schaffar and Eevi Beck likewise in Chap. 12 explore the issue of presence, and they too insist on placing this into a wider context, where the solution is perhaps somewhat less apparent than one might think. They begin by exploring what role the German thinkers who reconceptualised the university in the late eighteenth century—von Humboldt,

Schleiermacher and Fichte—left for presence. Their concept of *Erkenntnis* did presume collaboration between academics, even across geographical distances, Schaffar and Beck argue, but to the extent those notions still animate academic work, they have become a problem, since academics' travel habits have become increasingly carbon-intensive. Does this mean that we can and should switch to video conferencing? The authors show how such a 'switch' resembles rather too much the technological fix, and they proceed to outline some of the complexities involved in expecting *Erkenntnis* to result from digital technologies. What is needed instead, they argue, is a more fundamental reconsideration of 'what research collaboration is for', and an effort to 'develop tools suited for that purpose'.

Finally, in Chap. 13, Sherry H. Y. Tseng, James Higham and Craig Lee apply the 'cultures framework' to study academic air travel. In so doing, they highlight three elements that they suggest are key to understanding why academics fly: cognitive norms, practices and material culture. This framework is, at the same time, used to suggest ways that individuals as well as institutions can identify pathways to reduce academic flying—and in this way, they suggest, the gap between theory and realities can be bridged.

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2

The Carbon Footprint of Travelling to International Academic Conferences and Options to Minimise It

Sebastian Jäckle

Introduction: Transportation as an Important Field of Action Against Global Warming

Science is clear on this matter: The increase in greenhouse gas (GHG) emissions over the past 100 years must not only be stopped but must be reversed, in order to minimise global warming. The 2018 IPCC special report estimates that a net-zero of global CO_2 emissions has to be reached already between 2040 and 2060 in order to limit global warming to a maximum of 1.5 °C as compared to pre-industrial age. Even a limitation at this level, however, would have severe consequences for natural systems (e.g. habitats in arctic regions or warm water coral fields) and human life on earth due to extreme weather events, coastal floodings and long-lasting droughts (Masson-Delmotte et al., 2018). Yet, all these risks would be significantly higher in a scenario where global warming exceeds the 1.5 °C threshold.

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In order to achieve this goal, change requires emission cutbacks throughout all spheres of human society, from major industries to public infrastructure, as well as individual lifestyle. According to a study based on the 2018 IPCC special report, personal lifestyle carbon emissions must be reduced to 2.5 t of CO_2 equivalents per capita by 2030, 1.4 t by 2040 and 0.7 t by 2050 in order to reach the 1.5 °C scenario (IGES, 2019). In 2017, a study highlighting the four highest impact actions to reduce personal emissions within highly developed societies achieved worldwide attention (Wynes & Nicholas, 2017). The authors found that the biggest potential for CO_2 reduction lies in having fewer children (one child fewer being equivalent to 58.6 t CO_2-eq per year). This specific aspect has been subject to methodological criticism for double counting (van Basshuysen & Brandstedt, 2018), as well as to ethical criticism, since family planning is a human right (Pedersen & Lam, 2018). Nevertheless, the basic idea of the study is compelling: the authors argue that it is most meaningful to primarily push forward the actions with the highest impact on reducing GHG—instead of those that are often promoted by government agencies, NGOs and also in science textbooks for students as eco-friendly behaviour (e.g. upgrading to power-saving light bulbs or reusing shopping bags), but which in fact have a relatively low impact on emission reductions. Apart from the recommendation to have one child less, the three other recommended actions received little attention. According to Wynes and Nicholas, these actions are: 'living car-free (2.4 t CO_2-eq saved per year), avoiding airplane travel (1.6 t CO_2-eq saved per roundtrip transatlantic flight) and following a plant-based diet (0.8 t CO_2-eq saved per year)' (Wynes & Nicholas, 2017, p. 1). These numbers show that a significant part of personal CO_2 emissions in developed countries results from travelling. Thus, the intensity of a person's mobility and the chosen mode of transportation are two of the most relevant factors for reducing a person's individual carbon footprint—and are incidentally also factors that can relatively easily be changed in an individual's life.

Conferences as Part of the Academic World

In the life of an academic, conferences often play a significant role. Not only do they provide the opportunity to disseminate one's own research to interested peers, but they also allow researchers to catch the newest developments within a discipline. Furthermore, academics have the chance to exchange views and ideas face to face with their colleagues from around the world at conferences and congresses. These social gatherings may also help to build new research networks. Critics of the growing conference tourism argue instead that the professional, that is scientific, benefit of these events is minimal. A recent study reiterates this point by showing that scholars who fly much do not have more academic success (e.g. measured by the H-index adjusted for age and discipline) than those who stay on the ground. Nonetheless, one difference between these two groups becomes apparent: the frequent flyers have higher average salaries (Wynes et al., 2019). With the scientific added value of conferences being questionable, critics believe, most academics participate in conferences and congresses for two other reasons: they either travel to conferences in order to boost their symbolic capital[1] or they take the chance to enjoy a short holiday trip, which in some cases they even get paid for by their home university or a research fund (Hoyer & Naess, 2001). Many conference organisers even actively promote tourist activities such as guided tours or bus trips to nearby landmarks. And it has been shown empirically that 'sightseeing and social events' are significant pull factors for conference participation comparable in their effect size to the push factor 'career development' (Veloutsou & Chreppas, 2015, p. 117). Regardless of these points, it clearly has to be acknowledged that in today's academic sphere, conferences occupy a significant amount of researchers' time. This leads to the somehow curious fact that scientists, sometimes even those working in a field related to environment and climate change, exhibit a much higher average carbon footprint than non-scientists. For example, a study at the University of Montreal showed that professors travel more than 33,000 km per year, generating about 11 metric tons of CO_2 (Arsenault et al., 2019), whereas the average Canadian is estimated to

produce about 13 tons of household CO_2 emissions per capita (Maraseni et al., 2015).

As a result, more and more researchers, particularly from disciplines related to climate and ecology, have questioned the practice of flying long distances to attend academic conferences in the past years (Grémillet, 2008; Holden et al., 2017). Firstly, they criticise the very high GHG emissions of scientists as a result of their frequent work-induced flights, even if they otherwise lead low carbon lives (Fox et al., 2009; Grémillet, 2008). This can also be framed as an ethical debate about climate justice at the individual level, with academics representing the privileged societal groups that emit much more GHG than less privileged groups which will be more intensely affected by the effects of global warming. Secondly, they criticise the fact that a high carbon footprint from flying to conferences significantly reduces climate researchers' perceived credibility among the general public (Attari et al., 2016).

In order to better understand the relevance of travelling to academic conferences for scientists' overall carbon footprint, verifiable estimations are needed. Surprisingly, there are still only a few analyses in this regard. Some studies estimated the carbon footprint of scientific conferences in total (Desiere, 2016; Kuonen, 2015; Nathans & Sterling, 2016), per attendee, or the average emissions for presenting a single scientific paper (Spinellis & Louridas, 2013). However, it is surprising that the number of these works is still very limited, and that they are restricted to certain disciplines (e.g. ecological climatology or geography). This study updates an article published in 2019 which, at that time, was the first study that analysed not a single but a series of annual academic conferences of a major scientific organisation in terms of their carbon footprint (Jäckle, 2019).

The Example: ECPR General Conferences 2013–2020

In order to study the carbon footprint of scientific conferences, this analysis uses the example of the General Conference of the European Consortium for Political Research (ECPR GC). This academic conference can be regarded as a typical case of a major international scientific conference in many ways. The seven ECPR GCs that took place between 2013 and 2019 had an average of about 1630 participants, coming from all around the world—however, researchers from Europe dominated the meetings.[2] In comparison to other conferences in the field of political science, the ECPR GC is one of the bigger annual events. Only some conferences in the United States, such as the annual conferences of the International Studies Association (ISA), or the meetings of the American Political Science Association (APSA), both with more than 5000 participants, are larger. But within Europe, the ECPR GC is clearly the major meeting of the field. Of course, ECPR GCs are relatively small when compared to gigantic conferences in other scientific fields, such as the American Geophysical Union Fall Meeting (ca. 25,000 participants) or the annual meeting of the Society for Neuroscience (more than 30,000 participants). Nevertheless, due to its size and the geographic structure of its participants, ECPR GCs can nevertheless be regarded as relatively representative for major scientific conferences in many disciplines.

In order to estimate the travel-induced carbon footprint of ECPR GCs, I collected the publicly available information on paper presenters and their home institutions from the online conference programmes that are available at the ECPR website for the GCs from 2013 to 2019. Since the online programmes are not necessarily completely congruent to the list of actual attendees (some scholars may have been listed in the programme but did not show up, while others may have attended without presenting a paper), they are not a perfect source to determine who actually attended the conferences. Nevertheless, they are the best data available. Thus, every paper presenter mentioned in the online programme is counted as an attendee. In the rare case that more than one presenter is listed for a single paper, I expect all presenters to have attended the

conference. Due to the COVID-19 pandemic, the 2020 conference took place virtually. For this virtual conference, a new observer registration was introduced, which boosted participation numbers significantly. ECPR provided me with attendance data for this event. Table 2.1 gives an overview of all eight conferences in terms of presenters, papers and home institutions.

Method

Distinguishing between three modes of transport (airplane, coach, train) and assuming that each participant only uses one means of transportation for travelling to the ECPR GC, participants' travel-induced carbon footprints (cf) can be estimated using the following formulas:

$$cf_{plane} = 2 \times \left(d_{greatcircle} \times 1.2 \times e_{plane} \right)$$

Table 2.1 Overview of the last eight ECPR general conferences

Conference	Papers	Participants total	Independent scholars and participants with unknown affiliation	Home institutions
Bordeaux 2013	1681	1654	64	460
Glasgow 2014	1613	1541	45	449
Montreal 2015	1351	1174	14	421
Prague 2016	1902	1663	14	502
Oslo 2017	1785	1613	6	469
Hamburg 2018	2125	1930	7	493
Wroclaw 2019	1786	1810	5	437
Virtual 2020	*	2208**	5	575

Annotation: Own calculation based on data from the ECPR website (for 2020 attendance data was provided by the ECPR central services). * No data available, ** 1920 standard/student registrations (i.e. paper presenters) + 288 observer registrations

$$cf_{coach} = 2 \times \left(d_{roads} \times e_{coach} \right)$$

$$cf_{train} = 2 \times \left(d_{railway} \times e_{train} \right)$$

The distances from attendees' home institutions to the conference location (*d*) are multiplied with the average greenhouse gas emissions a certain means of transportation has per km (= emission factor *e*). The resulting value is doubled to get the emissions for a return trip.

Calculating the Travel Distances

Based on the lists of participants, I started measuring the travel distances (*d*) by web scraping longitude and latitude of the attendees' home institutions from Wikipedia. In a GIS program (QGIS), these coordinates were then used to calculate the distances travelled by airplane, (long-distance) coach and train between home institutions and conference locations. For the air travel distance, the formula of the great circle was applied (see Fig. 2.1). Yet, to use *raw* great circle distances would result in estimated emissions that would be systematically too low. In many cases, there are no direct flights from the participants' home towns to the conference

Fig. 2.1 Airplane and land-bound routes to the ECPR General Conference in Wroclaw

locations which necessitate stopovers and thus longer travel distances. Furthermore, often airplanes do not take the shortest route but fly more inefficient detours in order to pass predefined navigational points. Kettunen et al. (2005) found that the actual distances aviated by airplanes are between 6 and 10 per cent longer than the great circle routes between the departure and the destination airports themselves. In addition, particularly at large airports, airplanes have to fly extra loops before they are allowed to approach the landing runway, which adds extra lateral flying to the total distance. Once arrived, the taxi time on the ground consumes fuel as well.[3] Moreover, airports are often relatively remote from the city centres, so that travelling to and from the airports adds another portion to the GHG emissions of airline passengers. In order to account for all these factors and obtain more realistic numbers, the great circle distances are multiplied by a factor of 1.2. Second, I calculated the fastest times for a journey by car, as well as the respective routes from the presenter's home institutions to the conference venue for each conference, using the Openrouteservice API (https://openrouteservice.org/). The cartographic data underlying this endeavour comes from OpenStreetMap (https://www.openstreetmap.org/). Since Openrouteservice limits the routing to distances below 6000 km, this street-based calculation has only been performed for those home institutions within this limit. Thus, driving times and distances could be calculated for all locations within Europe (for the conferences in Europe) and the North American institutions for the 2015 conference in Montreal. Third, I calculated the shortest path between the home university and the conference locations based on a network of all existing railroad tracks. The vector data for this railroad network comes from https://www.naturalearthdata.com/. Figures 2.1 and 2.2 show the three distance measures: great circle for flying, the fastest route by car (which can also be used for journeys by coach) and shortest route by train for the example of the conference in Wroclaw 2019.

Emission Factors

The second important factor necessary for estimating the carbon footprint is how much GHG[4] is emitted per passenger and per kilometre for

different means of transportation. Various scientists, as well as governmental and non-governmental agencies, publish these so-called emission factors. Since their calculation is based on a multitude of choices and assumptions, it is no surprise that we find significant variation in emission factors between the different sources. One crucial aspect for all means of transportation is the average passenger load factor, since per capita emissions are certainly higher if a higher percentage of the seats remains empty. When it comes to railway travel, it is significant which kind of electricity mix is assumed to power the trains, whereas with travel by airplane, one major aspect is the extent of radiative forcing that describes the fact that the same amount of CO_2 emitted by an airplane at a high altitude has a more significant climatic effect than if emitted on the earth's surface.

Nevertheless, the exact magnitude of this radiative forcing index (RFI) is still a matter of the scientific debate. A recent meta-study estimates the

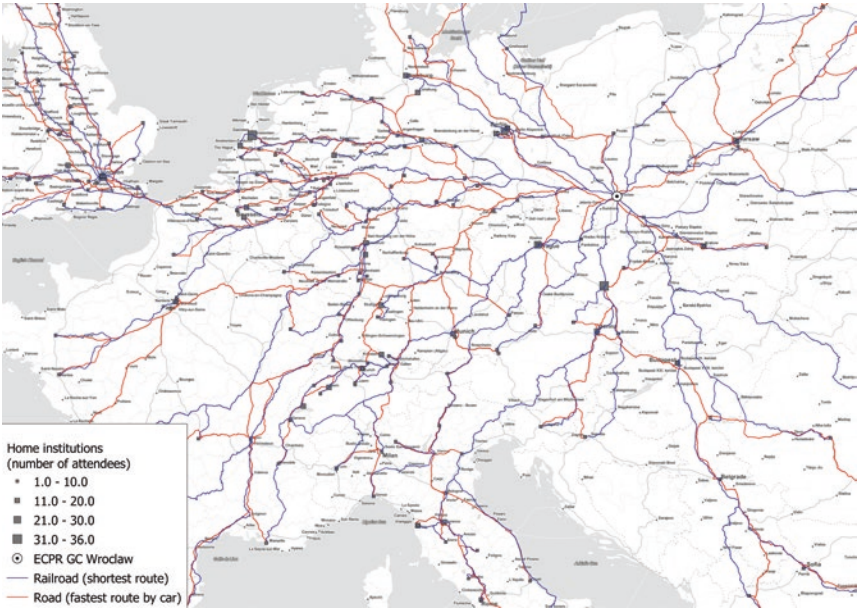

Fig. 2.2 Airplane and land-bound routes to the ECPR General Conference in Wroclaw

effect of CO_2 in the higher atmosphere to be 5.2 times higher than on the ground. When adding all airplane CO_2 emissions for a flight (considering all altitudes the plane flies at during one flight), the authors of this study conclude that an average RFI of 2.0 should be used in carbon footprint estimations (Jungbluth & Meili, 2019). In general, long-haul flights reach higher altitudes (= higher RFI), whereas the high-emission take-off and landing phases make up a bigger proportion of the total emissions in short-haul flights. In order to absorb potential biases from the use of emission factors that are based on unrealistic assumptions, I will use four different sources for the emission factors: (1) UBA: the German Federal Environmental Agency (*Umweltbundesamt*) publishes emission factors based on the Transport Emission Model TREMOD 6.03 (Allekotte et al., 2020)[5]; (2) EEA: the European Environment Agency published emission factors for different vehicle types in its 2014 Transport and Environment Reporting Mechanism (TERM) report[6]; (3) UK: the Government of the UK provides a yearly data set including the latest conversion factors for GHG reporting which also include emission factors for different modes of travel[7]; and (4) NTM: The Network for Transport Measures, 'a non-profit organisation, initiated in 1993, aiming at establishing a common base of values on how to calculate the environmental performance for all various modes of traffic, including goods transport and passenger travel'.[8] Table 2.2 shows the differences between the emission factors of these three sources. Although the table points out some major differences, the overall pattern becomes clear: Travelling by airplane is by far the most climate-damaging mode of mass transportation, whereas travelling by coach or train emits between 3.7 and 20 times less GHG than flying.[9] Only travelling by car can, at least in some instances (e.g. large petrol car with only the driver inside), produce even higher emissions. Furthermore, the biggest net differences among the four sources in the emission factors concern travelling by plane which means that the estimations based on the four sources can also be interpreted as lower and upper bounds for the carbon footprint.

Table 2.2 Emission factors per passenger-kilometre in g CO_2 equivalents

Vehicle	UBA	EEA	UK	NTM
Car	147	104–158[a]	137–278[b]	90–210[d]
Coach (long distance)	29	68	27	30
Train (high speed)	32	14	37	38/0.6[e]
Aeroplane (radiative forcing included)	230	285	146/424/585[c]	280/300/440[f]

Annotations: UBA: *Umweltbundesamt* (German Federal Environmental Agency) TREMOD 6.03, 2018, EEA: European Environment Agency TERM-report, 2014, UK: Government of the United Kingdom conversion factors, 2019, NTM: Network for Transport Measures. (a) dependent on size (small car vs. large car); (b) dependent on size (small car vs. large car) and fuel type (diesel vs. petrol); (c) long haul to/from UK in economy class/business class/first class; (d) dependent on occupancy (1.13–1.7) and fuel type (diesel vs. petrol); (e) EU average electricity/EU green electricity; (f) regional (< 785 km)/continental (785–3600 km)/intercontinental (> 3600 km), RFI = 2.0

A Realistic Estimation: Who Flies, Who Travels by Coach or Train?

It is not possible to deduce with perfect certainty which means of transportation a participant uses when merely looking at the data at hand. In order to estimate the carbon footprint, it is therefore necessary to make an assumption about which attendee uses which means of transportation. While a researcher from Australia probably has only one option, attendees from Europe can choose between a variety of vehicles: airplane, coach or train. I assume that participants base their decision primarily on the duration of the journey ahead. As I have calculated the journey times by car (which can be assumed to be proportional to the travel times by long-distance coach), for the baseline estimation I assume that attendees travel land-bound if they can reach the conference venue within five hours. Otherwise, they would take the airplane. For shorter travel times, the saving of time by the high flight velocity would not compensate the longer waiting times for security checks and boarding and the on average longer travel times for reaching the airport compared to train and coach stations which are located more often in the city centres. The following estimations will also show what impact it would have if presenters chose to travel land-bound, even if it takes them considerably longer than five hours.

Estimation of Carbon Footprint: Baseline Results

Total Emissions

Figure 2.3 shows the total GHG emissions of travelling to the seven ECPR GCs between 2013 and 2019, using the four different sources for the emission factors under the assumption that attendees travel by long-distance coach if they can reach the conference venue within five hours. For those participants with no affiliation available (see Table 2.1), the average individual GHG emissions of the participants with an affiliation were used to calculate the total GHG emissions. This estimation will be referred to as *baseline estimation* in what follows.

For all the conferences within Europe, the lowest estimation is based on the UK governmental emission factors. According to these numbers, travelling to each of these conferences emitted at least 905 tons CO_2-eq. The NTM and EEA emission factors produce the upper limits, which are between 1825 and 2325 tons CO_2-eq. To set these numbers into comparison: According to Eurostat data,[10] an average ECPR GC lasting three

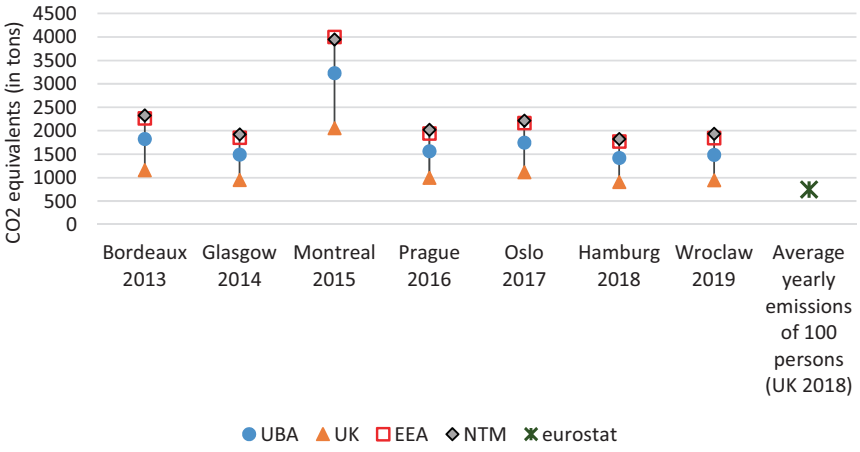

Fig. 2.3 Total GHG emissions of travelling to ECPR General Conferences (journeys < 5 h travel time: by coach; > 5 h: by airplane)

to four days has about the same carbon footprint (just from the travel-induced emissions) as 120–310 average British persons within a whole year. The Montreal conference with estimated total emissions of 2050–4000 t CO_2-eq is clearly standing out. Even though this conference had the lowest number of participants (1174), the fact that all European attendees had to travel by plane to Canada made it by far the conference with the highest carbon footprint.[11]

Figure 2.4 depicts the comparison between long-distance coach and train in terms of total emissions. Assuming that average travel times are similar between coach and high-speed train (a fully functional high-speed train network is not available everywhere in Europe and train passengers probably need more time for transfers), the group of attendees being able to reach the conference venue within five hours by car/coach is also used for the comparison with travelling by train.[12] The figure shows that for the conferences in Bordeaux, Montreal and Oslo, it virtually did not make any difference if participants who could reach the conference venue land-bound within five hours would travel by coach or by train. The biggest differences can be seen looking at the Hamburg conference when

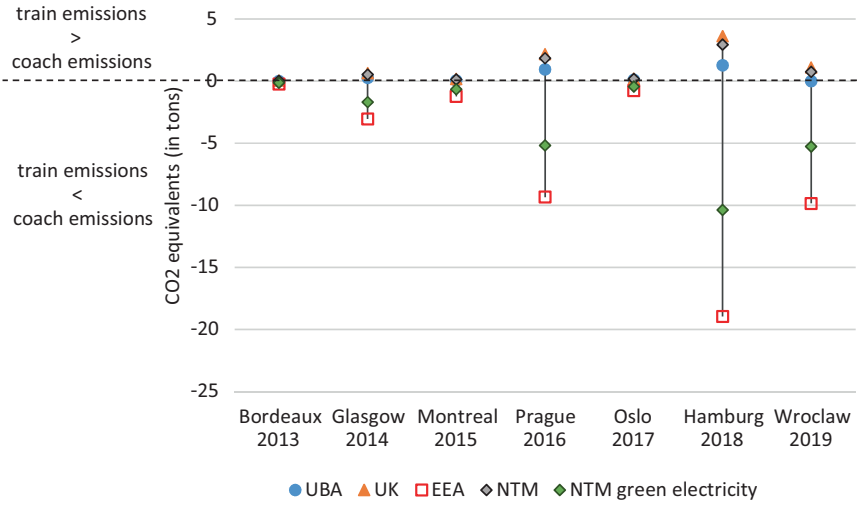

Fig. 2.4 Comparison of total GHG emissions for travelling by coach or by train (journeys < 5 h travel time: coach or train; >5 h: by plane)

applying the EEA emission factors which state relatively low numbers for the train emissions. This is because Hamburg is well connected to the European high-speed train network and is located quite centrally. Thus, a bigger proportion of presenters is able to reach the conference venue by train. Yet, compared to the total emissions of 1770 tons CO_2-eq (EEA emission factors), it is evident that the decision whether attendees who travel land-bound choose the train or a coach is only of marginal relevance for the total carbon footprint of a conference. This picture might change substantially, if a higher proportion of participants abstained from flying and if trains were operated exclusively based on green electricity.

Emissions Per Participant

The average GHG emissions per attendee can easily be compared to country-specific average per capita emissions or to the average global lifestyle per capita emission needed to reach the 1.5 °C goal. Figure 2.5 depicts the average GHG emission of participants as compared to the 2.5, 1.4 and 0.7 tons of CO_2-eq which every human, on average, should maximally emit per year in the long run (by 2030, 2040 and 2050 respectively) to limit global warming to a maximum of 1.5 °C (IGES, 2019). This estimation is again based on the assumption that everyone who can reach the conference venue within five hours, relying on the street network, uses the long-distance coach, while the other attendees travel by plane.

Compared to the conferences which took place in Europe, the 2015 conference in Montreal stands out with its estimated per capita carbon footprint of up to 3.4 tons CO_2-eq. Even the lowest estimation for this conference, based on the UK governmental emission factors, presents a picture in which, by travelling to this Montreal ECPR GC, an average attendee emitted nearly 80 per cent of the GHG a single person would on a global average be allowed to emit by the year 2030 to limit global warming to 1.5 °C. The conferences within Europe, instead, had carbon footprints between 500 kg and 1.4 tons CO_2-eq, which correspond roughly to the estimated yearly per capita budget for personal lifestyle

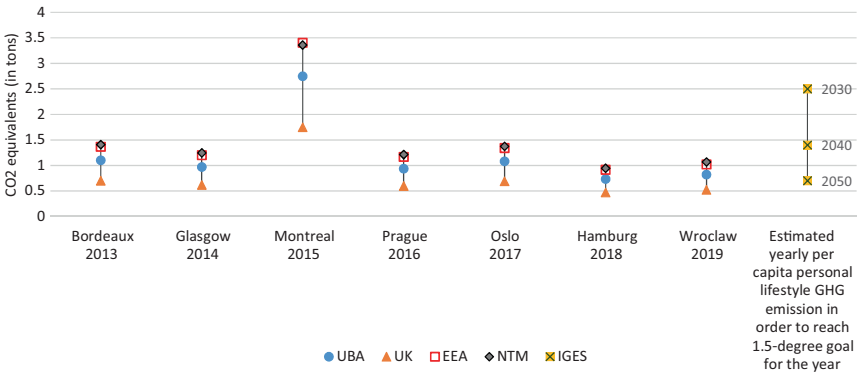

Fig. 2.5 Average GHG emissions per attendee of travelling to ECPR General Conferences (journeys < 5 h travel time: by coach; > 5 h: by plane). The IGES estimation is based on the IPCC special report 2018. (IGES, 2019; Masson-Delmotte et al., 2018)

emissions allowed for the years 2040 and 2050. Compared with today's average citizen's carbon footprint, even the lowest limit of GHG emissions we found (ca. 500 kg) accounts for about 3 per cent of an average US American, 7 per cent of an average British and 21 per cent of an average Indian footprint in 2016 (World Resources Institute, 2019). Earlier studies, estimating the carbon footprint for conferences in other disciplines, came to somewhat lower values. The GHG emissions per attendee of the 14th Congress of the European Association of Agricultural Economists, in Ljubljana in 2014, were estimated between 308 kg and 322 kg (Desiere, 2016), and for the case of the European Geography Association Annual Congress 2013 in Wasilkow (Poland), Kuonen (2015) came to an estimation of 401 kg CO_2-eq per participant. The differences to the results in this study can partly be attributed to the use of different emission factors, methodological differences in the estimation process (e.g. the calculation of the land-bound travel distances) and to the fact that, contrary to the ECPR conferences, participants of both of these meetings came solely from European scientific institutions.

The conference location matters not only when comparing Montreal to the five European locations but also regarding a comparison of the conferences which took place in Europe. For example, the average per

capita GHG emissions for the Hamburg conference were estimated between 219 kg and 430 kg lower than for the preceding event in Oslo. A more centrally located conference venue can, therefore, contribute to a significant reduction in GHG emissions.

However, the presented average numbers can be misleading since there is a large variation between the participants' carbon footprints (see Fig. 2.6). The Lorenz curves show that a comparatively small number of participants account for most of the emissions. Apart from the Montreal conference, where only a small number of participants had the possibility of travelling land-bound, all distributions are heavily skewed. Between 13 per cent (Oslo) and only 7 per cent (Hamburg) of the participants accounted for 50 per cent of the total emissions. To give an example, the largest carbon footprint for a participant (from the University of Canterbury, NZ) at the 2018 conference was estimated at 6.4–12.5 tons CO_2-eq, which is about three to five times the per capita emissions

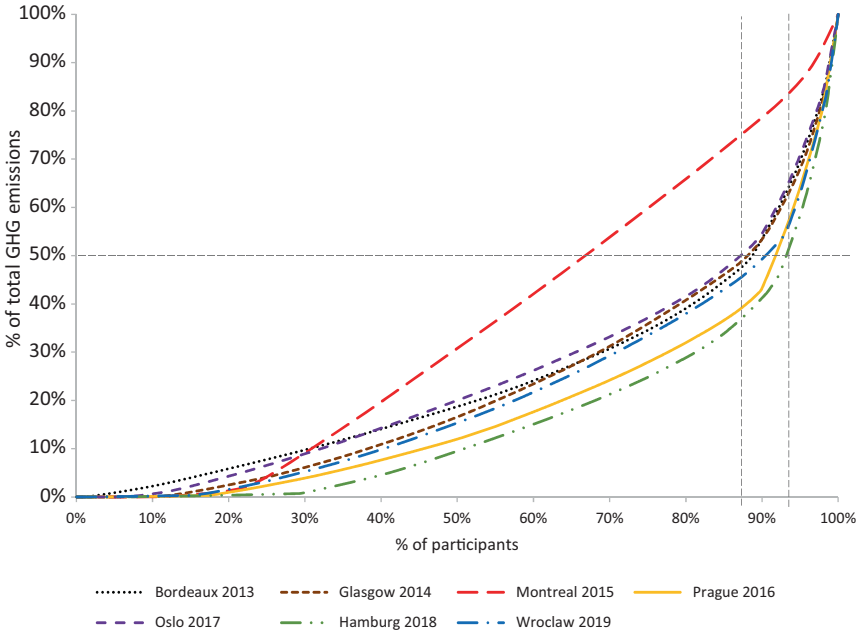

Fig. 2.6 Distribution of GHG emissions among participants

allowed per year by 2030 to reach the 1.5 °C goal. This also indicates that if the total carbon footprint of conferences shall be reduced, focusing on these heavy emitters has high potential.

Estimating the Impact of Carbon Reduction Measures for Academic Conferences

The preceding estimations have shown how significant the GHG emissions from travelling to the ECPR GCs have been in total and per attendee. Compared to per capita emissions that experts regard to be necessary in order to limit global warming to about 1.5 °C, the carbon footprints of these conferences are very high. In the following paragraphs, I will present ideas on how conference organisers could contribute to the cutback of emissions of scientific meetings and estimate how significant the potential for GHG reduction of the respective measures is.

Choosing More Central Conference Venues

The estimations above have shown that the location of a conference is important for the size of its carbon footprint. The GC 2015 in Montreal is an outstanding example, but there were also significant differences in the GHG emissions for those conferences that took place in Europe. Thus, a more centrally located conference venue, which can be reached via land-bound means of transportation within a reasonable amount of time by a larger proportion of participants, has the potential to reduce the carbon footprint. In order to see how big this potential is, I performed the same estimations as above, again using the four different emission factors but changing the conference venue for all conferences to Frankfurt (Germany). Frankfurt is quite centrally located in Europe and is very well connected to the European high-speed train network, which makes it a suitable comparison for the real conference venues.[13] Figure 2.7, presenting the minima and maxima of the possible reductions (dependent on the different emission factors), demonstrates that if the conference venue had been in Frankfurt, the GHG emissions for each of the

seven ECPR GCs would have been significantly lower. Even a relatively small relocation from Hamburg in northern Germany to Frankfurt in central Germany—the distance between the two cities is only about 400 km—results in up to 4 per cent lower emissions.

Promoting Low-Emission Travel Options

The estimations showed that particularly flying is a bad option. Travelling by coach or by train would both be an improvement in terms of the carbon footprint. All the above estimations assumed that only presenters who can reach the conference venue in less than five hours using the street network would choose not to fly. Stimulating the attendees to choose land-bound travel options, even if this increased their travel time compared to flying, could result in significantly lower carbon footprints. In order to estimate the possible emission reduction, I recalculated the emissions under the assumptions that attendees choose to travel by coach or train for journey times below 10 h/15 h/20 h. Figure 2.8 again shows

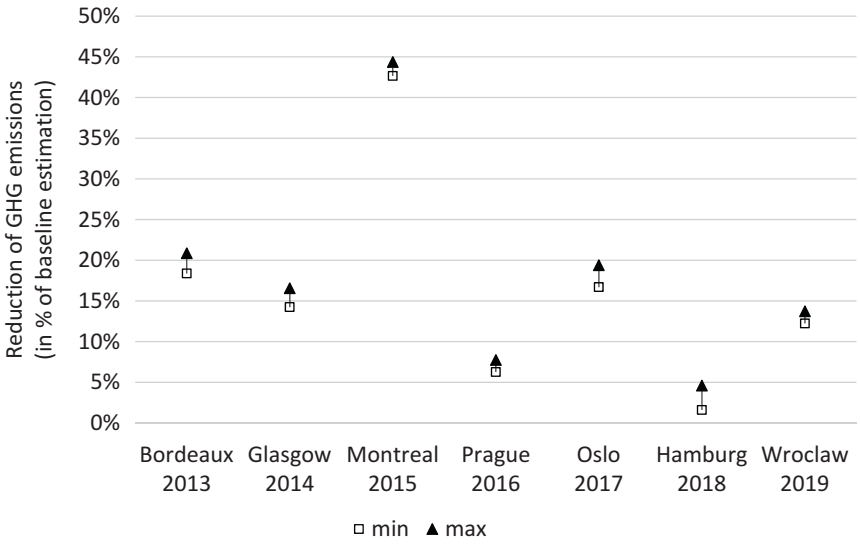

Fig. 2.7 Potential reduction of total GHG emissions if the conferences had taken place in Frankfurt (in percent of baseline estimation from Fig. 2.3)

the minimum and maximum possible total reductions in the percentage of the baseline estimated emissions. While the effects are negligible for the Montreal conference, where most of the participants arrived by airplane from Europe, accepting longer travelling times by coach and train would have reduced the total GHG emissions for the other conferences considerably. Yet, there are substantial differences. For the conferences in Bordeaux, Prague, Hamburg and Wroclaw, all 15-hour estimations result in a reduction of 15–25 per cent, while the same estimations only make up 5–15 per cent for the two more remote European conferences in Oslo and Glasgow. This shows that a more central location which is easy to reach by coach and/or train can in combination with the promotion of low-emission land-bound travel options result in a significant reduction of the carbon footprint. Figure 2.8 also reiterates the fact that with a higher number of attendees choosing to travel by coach or train, the question of which of the two land-bound means of transportation is better in terms of carbon emissions, becomes more significant (which of course also depends on the way they are powered).

Hybrid Conferences as an Alternative to Regular Attendance

As Fig. 2.6 has shown, a relatively small group of participants accounts for a large part of the total emissions. Thus, one obvious option for reducing the carbon footprint of scientific conferences would be to reduce the number of participants who come from far away (for the ECPR GCs: e.g. everyone travelling there from outside Europe). Modern communication solutions such as remote conferencing services make it possible for panellists to attend a conference from home. They could present their research and take part in discussions just as any regular attendee. From a technical perspective, such hybrid conference solutions are possible and work well, particularly if not too many panellists join virtually. Within a conventional panel-structure with 3–4 paper presenters per panel it should be no problem to have one or two presenters joining online. The presentation and the discussion of papers as well as a Q&A time can be put into

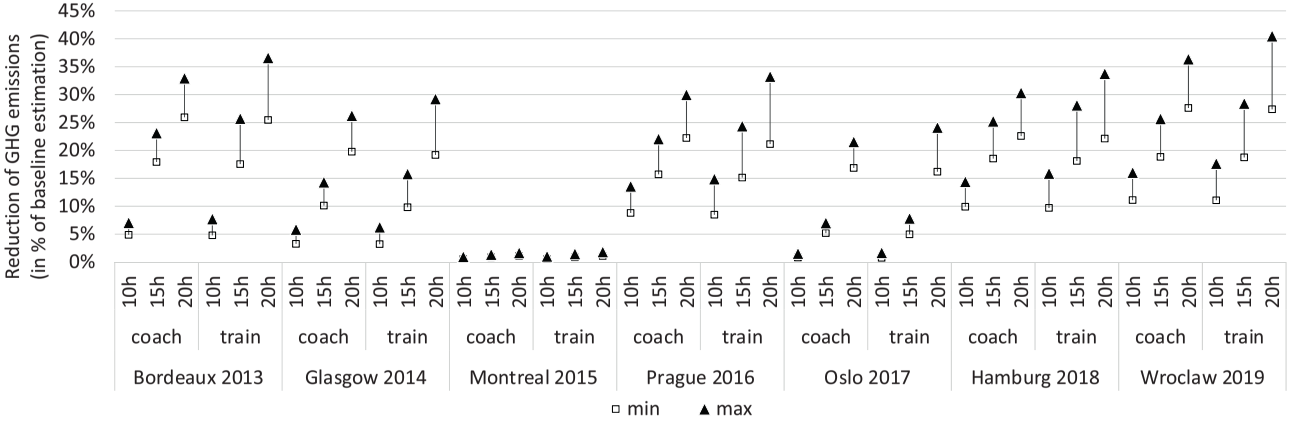

Fig. 2.8 Potential reduction of total GHG emissions if attendees accept longer travel times than 5 h by coach or train (in percent of baseline estimation)

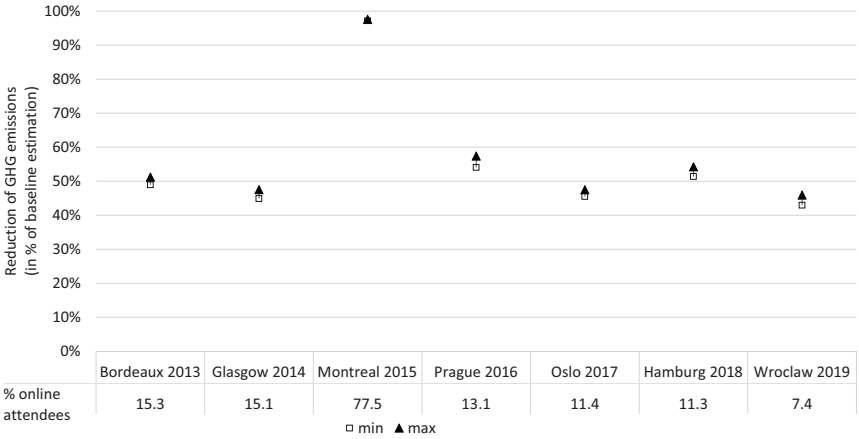

Fig. 2.9 Potential reduction of total GHG emissions if those participants with a flight distance > 4000 km attend the conference online (in percent of baseline estimation)

practice. Figure 2.9 shows the potential for reducing the travel-induced carbon footprint if those participants whose flying distance is longer than 4000 km attended the conference online. Except for the special case of the Montreal conference, where 77.5 per cent of the participants would have attended virtually under these circumstances, only between 7 and 15 per cent of the participants came from a place further than 4000 km away regarding all the other conferences. Figure 2.9 shows that if these persons did not travel to the conference venue in person, this would mean an estimated reduction of 43–57 per cent compared to the baseline estimation, depending on the respective conference and the source of emission factors.

For this estimation, I assumed that online participants to have zero emissions. While this is not entirely true, the next paragraph will show that emissions associated with online participation are indeed negligible compared to emissions from travelling. Before that, it will be shown to what extent a combination of the three measures discussed could lead to even lower carbon footprints than each measure individually.

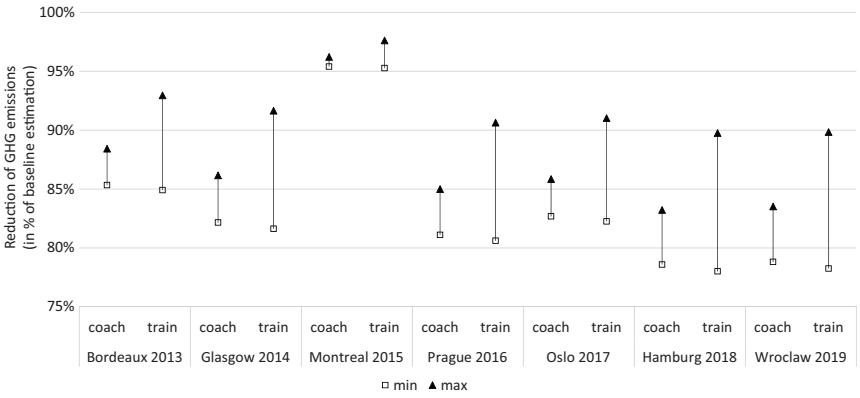

Fig. 2.10 Potential reduction of total GHG emissions if all three actions are applied (in percent of baseline estimation)

Combined Effects of All Three Actions

Figure 2.10 compares the baseline estimation (see Fig. 2.3) for the maximum reduction case in which the conferences had taken place in Frankfurt, attendees travelled land-bound for travel times shorter than 20 h and all participants whose flying distance was greater than 4000 km did not attend in person but online from home. This maximum reduction scenario shows the vast potential for reducing the carbon footprint of ECPR GCs: depending on the source of the emission factors and on the conference venue, between 78 and more than 97 per cent of the travel-induced GHG emissions of these conferences could have been saved. In total numbers, this would mean that for example the GHG emissions of the Hamburg conference could have been reduced from 906–1825 to 177–379 tons CO_2-eq—or expressed as average emissions per participant: from 469–945 to about 92–196 kg CO_2-eq.

The Carbon Footprint of Online Conferences: The Example of the Virtual ECPR GC 2020

Due to the COVID-19 pandemic, ECPR decided to switch the 2020 GC to a virtual format using the online conferencing software, Zoom. Of course, also a virtual conference produces GHG. In order to get an

impression of the carbon footprint of this first-time online-only ECPR GC, I estimated the electricity consumption of online streaming as well as of the personal devices of the participants. Comparing these emission estimates to the emissions that would have been produced by travelling to the conference, if the conference had taken place in Innsbruck, Austria, as originally planned, exaggerates the vast potential of online conferences for the reduction of carbon emissions.

For an online conference, the GHG emissions can primarily be attributed to the electricity needed for such an event. The electricity consumption of an online conference, in turn, can mainly be ascribed to two factors. First, the electricity needed to power the participants' devices, and second, the electricity needed at servers to provide the necessary video and audio transfer. The virtual ECPR GC took place from August 24 to 28. In total, a maximum of about 40 hours of online activities was possible (including not only panels and round tables but also refreshers, pauses, virtual social gatherings and online sport exercises).[14] Assuming that all 2210 participants using a desktop PC[15] on average attended 60 per cent of the time of the online conference (which is probably a too high assumption), the overall electricity consumption ($EC_{devices}$) of the devices can be estimated as:

$$EC_{devices} = P \times A \times D \times EC = 2210 \times 0.6 \times 40h \times 0.2kW/h = 10{,}608\,kWh$$

with $EC_{devices}$: total electricity consumption of all participants' devices for the overall conference in kWh, P: number of participants, A: attendance rate, D = total duration of conference in hours and EC: electricity consumption of device in kW/hour.

Similarly, the electricity consumption of the video and audio data transfer on the internet can be calculated as follows, applying an estimated average upload and download data usage of 1.35 GB for 1 hour at Zoom (720p quality),[16] and assuming an average electricity intensity for internet transfers in 2019 of 0.015 kWh/GB[17]:

$$EC_{internet\_transfer} = P \times A \times D \times U \times I$$
$$= 2210 \times 0.6 \times 40h \times 1.35GB/h \times 0.015kWh/GB$$
$$= 1{,}074\,kWh.$$

with $EC_{internet\_transfer}$: total electricity consumption of all data transfers in kWh, P: number of participants, A: attendance rate, D = total duration of conference in hours, U: data usage for one hour at Zoom and I: average electricity intensity of internet transfers in kWh/GB.

From the electricity consumption, it is possible to estimate the carbon footprint of the online conference. Of course, this depends very much on the way the electricity is produced. For example, data from the European Environmental Agency shows that in 2016 producing 1 kWh of electricity in France emitted ca. 58 g of CO_2, whereas producing the same amount in Poland led to 773 g of CO_2 emissions.[18] More recent estimates report 233 g for the UK and 402 g for Germany.[19] Table 2.3 presents the carbon footprint of the virtual ECPR GC 2020, using the (in the EU comparatively high) German numbers for the CO_2 emissions per kWh and compares it to the hypothetical case, in which the conference took place in Innsbruck, Austria, as originally intended. For the latter estimation, I use the same emission factors and assumptions as in the baseline estimations above. Even without including the higher heating, electricity and catering carbon emissions produced by hotels and conference centres compared to the location from where to join a virtual conference—at home or at the regular workplace (Balanzat, 2020)—the travel-induced carbon emissions are between 250 and 530 times higher than the emissions resulting from the online conference! In fact, the numbers could even be much more pronounced, given that much of the carbon footprint of the virtual conference must be attributed to participants' devices.

Table 2.3 The carbon footprint of the virtual ECPR GC 2020 compared to the situation if it had taken place in Innsbruck as initially planned (in tons CO_2 eq)

Carbon footprint of	Virtual	Innsbruck (baseline estimation)
Participants' devices	4.26	–
Internet transfers (Zoom)	0.43	–
Travel	–	1210–2493
Total	4.70	1210–2493

Since scientists nowadays primarily work with these electronic devices anyhow, it does not have any significant impact on the average day carbon footprint of a scientist, if he or she joins a virtual conference or works otherwise at the computer.

For Comparison: Other Possible Actions to Reduce Conference Emissions

Many scientific organisations have started to promote policies and programmes to reduce the carbon emissions caused by their conferences. Unfortunately, some of these measures are not very effective. One of these policies is eliminating printed conference programmes since the production of paper and the printing process itself has a considerable carbon footprint. ECPR, for example, offered the attendees for the 2018 GC in Hamburg to choose whether they wish to receive a printed conference programme in addition to the online version. Yet, as the following estimation shows, this action is mostly symbolic. The estimation of the carbon footprint of printing the conference programme is based on emission factors (per page) from a Finnish study (Pihkola et al., 2010) that applies a life-cycle approach—from paper production to disposal—to estimate the emissions for a heatset offset printed magazine (which is a similar print product as the ECPR GC conference programme). Figure 2.11 shows the potential reduction of GHG emissions if the ECPR completely abstained from handing out printed conference programmes. The emissions from the whole life-cycle of the 215 pages long Hamburg conference programme are estimated between 565 and 930 g CO_2-eq (mostly depending on whether recycled paper and green energy are used for production, and particularly whether it is recycled or comes to a landfill after usage). Abolishing the printed programme would have resulted in a GHG reduction of 1.1–1.9 tons CO_2-eq, which is about two times the average carbon footprint of an attendee at the Hamburg conference (baseline estimation). Thus, while every action taken to reduce the carbon footprint of conferences is very welcome (also from the point of raising awareness), the optional choice to not take a printed conference programme as offered by the ECPR indeed has a very limited impact on the emissions.

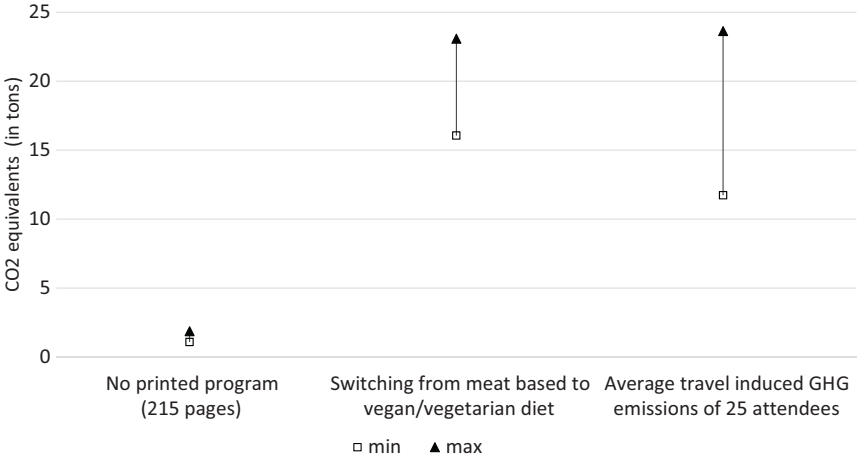

Fig. 2.11 Potential reduction of total carbon footprint by alternative approaches at the ECPR GC 2018 in Hamburg

Another option to reduce the carbon footprint of conferences could be to switch the catering to vegetarian or vegan. According to a British study, daily GHG emissions are 5.93 kg CO_2-eq for meat-eaters, 3.85 kg for vegetarians and 2.94 kg for vegans (Scarborough et al. 2014). Thus, if all 1930 participants of the Hamburg ECPR GC follow a strict vegetarian/vegan diet instead of eating meat during the entire four days of the conference, this would mean a GHG reduction of 16.1 t for vegetarian and 23.1 t for a vegan diet (see Fig. 2.11).[20] While the reduction potential of vegetarian/vegan catering is significantly larger than that of abolishing the printed conference programme, it would still have only a small impact compared to the 905–1825 t of CO_2-eq that participants emitted by travelling to the Hamburg conference.

Conclusion and Recommendations for Concrete Actions

In this article, I estimated the carbon footprint (total and per attendee) of the ECPR General Conferences as an example for major scientific meetings. It became evident that the pattern of today's conference business is

far from being sustainable. Average emissions per attendee of 0.5–1.4 tons CO_2-eq (for the six conferences that took part in Europe)—not to mention the 1.7–3.4 tons for the Montreal conference in 2015—cannot be justified when climate experts tell us that every human is only allowed to emit about 2.5 t CO_2-eq per year in the medium run (by 2030), and even only 0.7 t by 2050, in order to limit global warming to 1.5 °C compared to the pre-industrial age.

The good news is that significant improvements are possible! My estimations have shown that a combination of three measures has the potential to reduce the travel-induced carbon footprint of ECPR GCs by 78–97 per cent. All these measures are not ECPR-specific but could also help to reduce GHG emissions of other conferences. These measures are: (1) selecting a more centrally located conference venue; (2) promoting low-emission land-bound travel options, so that attendees choose means of transportation that emit less carbon, even if this comes along with longer journey times; and (3) introducing the option of online participation in the form of hybrid conferences, particularly for colleagues from far away. Other disciplines already show that the goal of climate-neutral conferences is not a phantasm but can become a reality if the organisers take the problem seriously (Balanzat, 2020; Bankamp & Seppelt, 2013; Bossdorf et al., 2010).

According to the results above, I have the following recommendations for conference organisers:

1. While it may be unrealistic to have conferences only in very centrally located cities such as Frankfurt, the potential GHG emissions associated with the location of the conference venue should also be taken into account when organisers decide about where conferences should take place. For a European conference, such as the ECPR GC, venues taking place outside of Europe (as 2015 in Montreal), or on islands which require all participants to fly (as 2011 in Reykjavik), should be avoided, whereas cities well accessible via the European high-speed network should be prioritised.
2. Organisers should test the options of introducing hybrid formats and the opportunity of online participation at conferences. The estimations above have shown that online conferences produce only a negli-

gible amount of GHG compared to the travel-induced carbon footprint of regular conferences. Encouraging examples of workshops and panels with online attendance, and even conferences that take place entirely in the virtual sphere, have already existed for some years and can hence serve as examples to learn from (Avery-Gomm et al., 2016; Balanzat, 2020). With a great many conferences that had to switch to online due to the COVID-19 pandemic in 2020, organisers, as well as participants, were able to gather a multitude of experiences in that regard. Of course, this helps to further enhance these types of scientific meetings. Throughout one of these COVID-19-caused virtual conferences, many researchers might have experienced for the first time that—albeit not delivering the full experience of a regular in-person meeting—these online events work surprisingly well. Furthermore, switching to online or hybrid formats could not only reduce the carbon footprint enormously but could also promote the inclusion of non-European/non-North American researchers and non-funded junior scientists who otherwise would not have the opportunity to attend the conferences due to high travel costs. Of course, this argument also holds for researchers who are parents or family caregivers for whom travelling for a couple of days is often more challenging to organise. In these regards, online or hybrid conferences are perhaps also a means to advance diversity and equal opportunities within the academic world.

3. In order to promote land-bound travel options which in the estimations have shown to be much less climate-damaging than flying (whether participants choose a coach or a train, makes only a minor difference in contrast—at least as long as the electricity for the trains is not produced primarily by renewables), organisers could also take concrete actions. These actions could take on different forms, from giving simple information during the online registration to raise awareness for the issue of travel-induced carbon emissions, up to voluntary or even obligatory carbon-offset options. Awarding prizes to participants who make the most outstanding efforts in shrinking their carbon footprint of travelling to conferences could, on the one hand, be an additional option to incentivise attendees to choose carbon-neutral means of transportation. On the other hand, it would present

academics as truly caring about climate change and present science positively to the general public. Such a positive picture within the public is particularly relevant for our credibility as scientists.[21]

4. Finally, organisers should document all the actions they take to reduce the impacts on the environment of their conferences—even if these actions are minimal. This is also a matter of awareness and transparency and might help to send a strong signal out to other scientists as well as the general public (Holden et al., 2017).

Implementing these actions could help to reduce the impact of scientific conferences on climate enormously. However, in the end, this transformation can only be successful if we as scientists start to question our conference-hopping behaviour. To be clear: attending two to three international conferences per year in person—and most of us probably know colleagues for whom these numbers may even be too low—can never be sustainable in terms of the carbon footprint. These changes at the individual level will only happen if academia at large—meaning also the institutional level—moves forward in this direction. As a recent article reiterates: 'we need to develop systems that allow academics to become more effective and efficient at doing their jobs in a less carbon intense way' (Higham & Font, 2020, p. 7). In the end, such a transformation necessitates more than just calling on individual scholars to reduce their personal, academic footprint and also more than implementing some technical carbon reduction schemes at the department or university level. It requires instead a comprehensive paradigm shift towards decarbonisation in the ways that we cooperate as scientists, measure academic excellence and reward scholars for their academic activities.

Notes

1. Being accepted as a presenter at a prestigious conference is seen as an indicator for scientific achievements. That is also why we find conference participations as a prominent feature of most scientific CVs. In that sense academic conferences are important for scholars as they create 'a reputation for competence and an image of respectability and honorability' which is exactly how Bourdieu defines social capital.

2. At the ECPR GC in Hamburg 2018 for example, 3 participants came from home institutions in Africa, 75 from Asia, 29 from Australia, 15 from Central and South America, 76 from North America and 1725 from Europe.
3. See https://www.transportmeasures.org/en/wiki/manuals/air/air-methods/extra-distance-taxi-time/.
4. In accordance with the general usage of the term, I subsume not only carbon dioxide (CO_2) to GHG, but also methane (CH_4) and nitrous oxide (NO_2). The overall GHG emissions are presented in CO_2 equivalents.
5. https://www.umweltbundesamt.de/themen/verkehr-laerm/emissionsdaten#verkehrsmittelvergleich_personenverkehr.
6. https://www.eea.europa.eu/publications/term-report-2014.
7. https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020.
8. https://www.transportmeasures.org/en/about-ntm/.
9. If trains are operated completely with green electricity (see NTM), or air passengers fly in business or first class (see UK), the difference between flying and coach or train rides is even bigger.
10. https://ec.europa.eu/eurostat/databrowser/view/t2020_rd300/default/table?lang=en.
11. The 2011 ECPR GC in Reykjavik had probably a similar or even higher carbon footprint. Yet, for this conference, as for the others before, no paper/presenter details were available.
12. In order to come to a more realistic estimate, it would be necessary to know the average speed of a train on a given route section of the railway network (just as Openrouteservice offers for the street network). Yet, such data is unfortunately not available.
13. A further argument for Frankfurt would be that it has one of Europe's largest airports (4th after London Heathrow, Paris Charles de Gaulle and Amsterdam Schiphol), which serves a lot of direct flights to major cities, thus minimizing the need for longer travel distances due to transfers.
14. Mo-Th 8:45–17:30, Fr 8:45–14:00.
15. A desktop PC consumes about 200 W/hour, Laptops only about 50–100 W/hour.
16. https://www.whistleout.com.au/Broadband/Guides/How-much-data-does-Zoom-use?

17. Aslan et al. (2018) estimate an average electricity intensity for internet transfer in 2015 of 0.06 kilowatt-hours per gigabyte. They also show that every two years this value is halved. So, for 2019 a value of 0.015 kWh/GB can be assumed. This value will also be used in this estimation for the year 2020.
18. https://www.eea.europa.eu/data-and-maps/daviz/sds/co2-emission-intensity-from-electricity-generation-2.
19. https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020; https://www.umweltbundesamt.de/presse/pressemitteilungen/bilanz-2019-co2-emissionen-pro-kilowattstunde-strom.
20. These estimates are probably too high, given the fact that a number of participants already are vegetarians or vegans (no more reduction possible), and that ECPR as the conference organiser only offers lunch catering and one reception, so that the majority of meals taken during the conference cannot be influenced by the ECPR.
21. Such a prize already exists at the Society for Conservation Biology, which in 2015 awarded the Swarovski Optik Green Travel Award to two researchers from England who travelled to the Society's conference in Montpellier (France) by boat and bicycle (Rosen, 2017).

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3

The End of Flying: Coronavirus Confinement, Academic (Im)mobilities and Me

Mimi Sheller

Introduction: The Hypermobile Academic

As I sit here at my home in Philadelphia on a rainy day, nine months into the pandemic (during which I have mostly not travelled at all), my Facebook page keeps sending me photos of 'memories' that I posted long ago: here I am one year ago enjoying a warm, hearty meal with friends in South Korea; here I am visiting a Christmas market in Vienna in 2018; here I am on a beautiful turquoise shore on Rottnest Island, off Perth, Australia, in 2017. These travel memories (all arising from academic work-related trips) precipitate from 'the cloud' as reminders of a time before COVID-19 halted travel. But they are also reminders of what seems like a past age of academic travel. If reducing CO_2 emissions in the face of climate change were not enough to get academics to reduce their mobility, perhaps these grim epidemiological and economic realities will force change upon us. As we look towards institutions of higher

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education facing constrained budgets, cutbacks on research funding and staff reductions, will we hold onto the necessity to limit academic travel?

As Higham et al. argue, 'Academics and their institutions are high emitters that have been generally unwilling or unable to respond to the urgency of aviation carbon mitigation' (Higham et al., 2019: 612), generating a crushing sense of 'climate hypocrisy' (Higham & Font, 2020). Academic 'jet-setting' has been identified as especially problematic (e.g. Høyer, 2009; Smyth, 2010; Nevins, 2014) and seems to be indicative of the extreme differentials in 'mobility capital' of 'kinetic elites' (Sheller, 2018). I count myself among those kinetic elites, despite the fact that I study mobility justice and devote my career to a critique of inequities in mobility. The field of mobilities research has been studying 'aeromobility' for some time (Adey et al., 2007; Urry, 2010), and many studies have shown it to be 'a site of social and environmental injustice' (Higham et al., 2019: 612). Yet we continue to hold many events around the world, to build international networks of research and to meet frequently with our colleagues.

While the work-sociology of academic aeromobility has focused on the importance of co-presence and 'meetingness' (Urry, 2003), and the degree to which these might be substituted by 'virtual mobility', the COVID-19 pandemic has introduced a drastic new factor into this discussion. The COVID-19 pandemic caused the sudden closure of borders and brought to a halt much air travel around the world. Globally air travel experienced a 60–90 per cent decrease in daily activity during confinement level 3. In some ways, this prefigured a world of radically reduced mobilities as climate activists like Greta Thunberg have demanded. What is the impact of this reduction of air travel on academic work and how can it be extended into the future?

According to a comprehensive analysis by Le Quéré et al. in *Nature Climate Change*, the decrease in CO_2 emissions from surface transport during the pandemic accounted for 86 per cent of the total reduction in global emissions; however, the aviation sector 'yielded the largest relative anomaly [in emissions] of any sector' and contributed 10 per cent of the decrease in global CO_2 emissions (Le Quéré et al., 2020: 648, 650). While reducing surface transport had a larger impact on emissions, it also came with extreme economic pain. If air travel is a more discretionary

activity, it seems like a good target for emissions reduction, especially when it engages a small percentage of 'kinetic elites' (Sheller, 2018), including academics.

Civilian aviation is calculated as contributing about 2.8 per cent to global fossil CO_2 emissions, which does not seem like that much compared to other human activities such as power generation (44.3 per cent), industry (22.4 per cent), surface transportation (20.6 per cent) or even residential (5.6 per cent) (Le Quéré et al., 2020: 648). On the other hand, most of these other emissions-producing activities are utilized by the majority of the population in the industrialized world. Air travel is used only by a small percentage of people, including many academics. We know that a minority of people do the majority of flying. In the United Kingdom, for example, 15 per cent of the population is responsible for 70 per cent of flights (Carmichael, 2019). In the United States, two-thirds of adult airplane trips were taken by those flying 6+ times per year in 2017. Fewer than half of Americans fly at all in any given year, and around the world, only one in five people have ever flown (see Fig. 3.1).[1] Thus academic aeromobility is a crucial example of mobility injustice.

Among frequent flyers, academics 'are part of the hypermobile lifestyle', as Klöwer et al. point out through an analysis of the carbon footprint of one major conference: 'The sum total of travel associated with attendance at one large scale academic conference can release as much CO_2 as an entire city in one week' (Klöwer et al., 2020: 356). They show that one meeting of the American Geophysical Union (AGU) attracted 28,000 delegates who travelled a collective 285 million kilometres, emitting about 80,000 tonnes of CO_2 (tCO_2e). Academics have been aware of this anomaly for some time, and many have already taken action to reduce or even fully eliminate air travel (e.g. Tyers, 2019; Høyer, 2009). This phenomenon of 'decarbonizing academia' and challenging 'climate hypocrisy' (Higham & Font, 2020), however, has not taken hold widely in the United States, where I am based, and is only just starting to emerge.

I can count myself among this minority of hypermobile academics, among the 12 per cent of American adults who have averaged 6+ flights per year over the past ten years. What would it look like to track the carbon footprint of a decade of my own academic travel? How does this

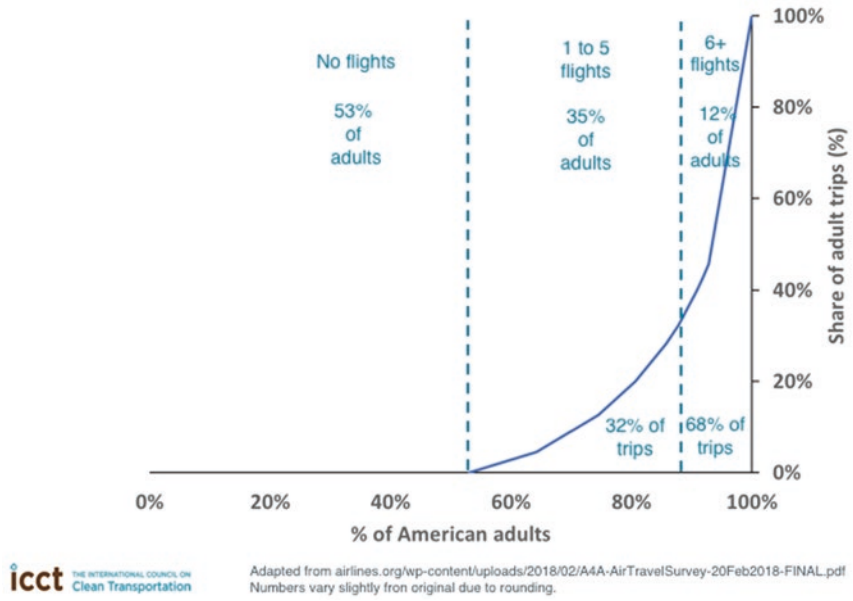

Fig. 3.1 Cumulative share of airplane trips by American adults, 2017. From the International Council on Clean Transportation

travel correlate with some measure of academic productivity, network connectivity or public impact? And what other more qualitative measures of intrinsic 'value' could be attributed to such academic travel? I decided to set out to try to quantify my own air travel, and to try to assess its value both quantitatively and qualitatively, and what would be required to reduce it.

In the first part of this article, I present my academic travel profile, measure my personal CO_2 emissions from professional air travel and assess it against other equivalent measures of emissions. I seek to re-read my *curriculum vitae* as an *itinerarium vitae*, as well as to analyse some of the reasons that contribute to my academic 'hyper-mobility'. The C.V. is an interesting record of academic 'achievement', which is full of expectations of travel and the baggage of showing 'international' scholarship. Postcolonial scholars have for some time criticized such measures of international distinction that are often far more difficult to afford from

places on the peripheries of dominant airline networks. Yet few have unveiled the C.V. as an actual travel itinerary that is an accounting system to measure the material impact of carbon footprints. My method, therefore, is to transform the vertical social mobility of academic achievement, which the C.V. is meant to represent, into an unintended carbon calculator of spatial aeromobility.

In the second part, I seek to evaluate my *itinerarium vitae* in terms of both quantified academic 'productivity' (i.e. publications, H-index) as well as considering the qualitative aspects of what my international travels have contributed to my life experiences and my scholarship. Following Cresswell (2021), I interrogate the meanings of travel, the embodied experience, what we value in travel and what might be lost in giving it up. In the final section, I look at the rise of virtual academic events in 2020, during the period of pandemic confinement, and consider the extent to which online meetings can substitute for physical travel. I will take into consideration my post-pandemic participation in virtual events and consider how these might be encouraged moving forward.

Coming Clean: My Academic CO_2 Footprint

While an academic *curriculum vitae* is often read as a proud accumulation of accomplishments, in the era of *flygskam* (or 'flight-shaming') (Coffey, 2020), it can also be read as a litany of excessive travel. My own C.V. records a weighty tonnage of CO_2 emissions, averaging more than six flights per year and adding up to nearly 35.5 metric tonnes of CO_2 over the past decade, 2010–2020 (see Table 3.1; see appendix for individual flight data). In Table 3.1 I have included all academic professional events to which I flew over the past decade, divided into domestic flights within the United States, and international flights, with the emissions calculated for each flight using the carbon emissions calculator of the International Civil Aviation Organization.

The events counted include travel for delivering invited lectures and keynote addresses, attendance at conferences, workshops and annual meetings, teaching at PhD summer schools, consulting or international advisory work and funded research fieldwork. It includes destinations in

Table 3.1 Total academic work flights taken by author over the past 10 years, with total CO_2 kg/flight calculation (see appendix for individual flight data)

	Domestic	International	Total Trips/yr	Total CO_2
2010	5	5	10	4403.4
2011	1	3	4	2815.0
2012	4	7	11	5364.1
2013	1	4	5	2344.7
2014	0	3	3	2093.0
2015	2	4	6	3298.8
2016	0	5	5	3118.4
2017	3	3	6	4013.1
2018	1	5	6	3781.8
2019	2	4	6	3802.8
2020	0	1	1	382.6
TOTAL	19	47	66	35,417.7

North America, Latin America, the Caribbean, Europe, Asia and Australia. The tally excludes regional travel for events in the Northeast of the United States, for which I travelled by train, that is, all events in Greater Philadelphia, New Jersey, New York, Delaware and Washington, D.C., all of which I could reach by local trains or Amtrak national rail service, which operates one of the few higher-speed rail services in the United States. It also excludes any personal travel unrelated to work obligations. In many cases, though, I engaged in 'trip chaining' by linking together multiple work obligations in nearby places, and I also left time around work to engage in more social meetings and various forms of tourism.

Almost all the travel recorded here was paid for either by hosting organizations who invited me, or research grants, apart from a handful of conference events that were paid for by my departmental travel funds. Such travel funding generally includes reimbursement for ground transport to and from airports, hotel rooms and most meals. In that sense, these trips were 'free' for me personally, and that is one of the key incentives of academic travel and indeed a perk of the job. With that said, it should be noted that this entire practice of academic hypermobility is underwritten by the unpaid domestic labour of my partner, who stayed home and took care of our two children during my travels, occasionally assisted by my mother. I am lucky that he is an artist who works from a

home studio, so was flexible and available when needed, and that we live near extended family in the city where we both grew up.

Clearly, this amount of travel is not available to all academics, depending on their career stage, bodily abilities, family circumstances, health status and other personal factors. Travel may also be constrained by citizenship, visa rules, racial/ethnic discrimination and other exclusions. It should be said that I have valued and had the opportunity for such travel throughout my life, and in that regard, I come from a very privileged position of 'mobility capital' (Sheller, 2018). I had travelled throughout Europe, the Caribbean and even Peru and Egypt before the age of 13. I fully understand and speak some French, and I can read and partly understand Spanish, Italian, Portuguese and Haitian Kreyol. I am familiar with navigating new cities, using public transit internationally and communicating in restaurants. My own ease with travel feeds into my propensity to travel, and my travel *habitus*, which adds to further comfort in international contexts in a kind of feedback effect that instigates further travel.

So how do we interpret what this 35.5 metric tonnes of carbon mean? The United States Environmental Protection Agency (EPA) greenhouse gas equivalency calculator tells me that my air travel emissions are equivalent to 7.7 passenger cars driven for one year, or 3985 gallons of gasoline consumed or 4.1 homes' energy use for one year.[2] It also tells me that to offset this amount of emissions by carbon sequestration would require 586 tree seedlings grown for 10 years or 46.3 acres of U.S. forests in one year. As the EPA explains,

> The greenhouse gas equivalencies calculator can help you understand what reducing carbon dioxide (CO2) emissions by 1 million metric tons means in everyday terms. It is a web-based calculator to help communicate your greenhouse gas reduction strategy, reduction targets, or other initiatives aimed at reducing greenhouse gas emissions. It helps by translating abstract measurements into concrete terms you can understand.

While this was helpful in understanding the scale of my personal impact, I also doubted the veracity of such measures. Given that the United States has weak regulation of the energy efficiency of cars and homes, I also checked the numbers against a similar Canadian calculator. For Canada,

I found that my emissions would be equivalent to 10.9 passenger vehicles, 15,000 litres of gasoline consumed, of 8.3 homes' energy use for one year. My carbon footprint is even worse when measured in Canadian terms and shows how relative such measures are; imagine if I were comparing to households in Europe or India.[3] In any case, it was clear that I had a binge-flying problem as a 'high-flying' academic.

What drives such extreme air travel? This period of 2010–2020 in some respects represents my 'peak travel' period, when my career was well established, my international contacts were extensive and my work was extremely international. By whatever measure of the impact, this is an exceptionally high degree of air travel due to several converging professional factors:

a) Having established my career in the United Kingdom before moving back to my home country, the United States, my academic networks were already connected to Europe, hence were likely to be more widespread than academics who have worked solely within U.S. institutions.
b) My research focus on the Caribbean region also connected me with work in that region, including several trips to Haiti and the Dominican Republic for research, as well as presentations at conferences held in the Caribbean region during this period.
c) I also became president of the International Association for the History of Transport, Traffic and Mobility, from 2014 to 2017, which contributed to wider travel commitments because our conferences were held in different countries each year.
d) My research is also highly interdisciplinary, which means I attended conferences related to multiple disciplines and was invited to give talks at a wide range of venues, spanning for example, sociology, geography, communication and media studies, regional and area studies, history and cultural studies.

However this pattern of travel occurred, and however I might justify it, all of my travel came to a screeching halt in February 2020, with my last flight taken only one month before the COVID-19 pandemic shut down most air travel, a topic I return to later. But first I want to consider some

measures of the *value* of this academic aeromobility, both quantitatively and qualitatively measured. What value is gained from such travel, both professionally and personally? And what would be lost in ending it?

The Value Proposition of Academic Travel

One way of measuring the 'value' of an academic career is in terms of research productivity, that is, publications and impact. This is a measure often used in annual assessments of faculty, and in research quality assessments of departments and universities. One of the key justifications of academic aeromobility is that it is necessary for the production of 'national' and 'international' research. In my own case, many of the talks that I wrote for various conferences and events, or travel to conduct research, did directly result in a publication. We can measure this productivity through an enumeration of journal articles, chapters in books, co-edited books or journal special issues, sole-authored books or other published work in this ten-year period. Table 3.2 offers an annual overview of my publications and shows a cumulative 110 publications, averaging 11 publications per year over this decade.

Table 3.2 Total number of academic publications by the author, 2010–2020

	Journal articles	Chapters in books	Co-edited books or special issues	Sole-authored books	Other published work	Annual total
2010	1				3	4
2011	4	3			1	8
2012		4		1	1	6
2013	5	7			5	17
2014	7	6	1	1	2	17
2015	5	3	2		3	13
2016	6	1	4		5	16
2017	3		1		1	5
2018	4	6	2	1		13
2019	1	2			4	7
2020	1	3		1	4	9
TOTAL	**32**	**35**	**10**	**4**	**29**	**110**

While these are not all equivalent in terms of the amount of work time going into their production or their potential impact, we could broadly say that in terms of CO_2 emissions due to air travel, that I have averaged around 322 kg of CO_2 equivalent per publication. There is no way to correlate publications directly with air travel in any given year given the variability of publication time frames, nor does this represent the total 'carbon footprint' of publishing itself, which of course involves paper production, shipping and digital energy consumption. Rather, my aim here is to discuss the ways in which academic hypermobility might (or might not) be justified in terms of productivity. Nor is this meant to be representative of all academics. I simply want to explore whether in my individual case, we might say that high mobility has some kind of measurable value if it can be correlated with high productivity.

Presenting work to a live audience is an important way to focus one's ideas and communicate them to specific groups. For me, it helps to elicit ideas that then feed into publications. The purpose of academic conferences and invited lectures is sharing and circulation of knowledge, exposure of ideas to feedback and critical dialogue, and the chance to learn from others working in related or adjacent fields. It is also seen as a way of growing professional networks, gaining potential readers and spheres of influence, thus creating an 'international impact' for one's work. While print culture, libraries and electronic distribution achieve some of these aspects of circulation across borders, they are not the same as facing a live audience, engaging in dialogue and the give-and-take of live conversations. The personal interactions before, during and after live events help to crystallize ideas into publications and feed publications into conversations that become knowledge networks.

Another way to measure the impact of one's work would be in terms of the H-index, which measures academic citations. On Google Scholar, my citations grew from 733 in 2010, rising steadily to 1442 in 2015, and then averaging over 2000 per year, from 2016 to 2020. This adds up to an H-index of 37 since 2015, or 44 overall. This suggests that my publications are being widely cited and have made an international impact in terms of their circulation within the scholarly literature. This suggests an 'extrinsic' value apart from any 'intrinsic' value this work might have for me. When seeking jobs, tenure or promotion, academics are required to

show objective measures of the impact of their work, and being able to show international citations, along with invitations to international events, is part of the measurement of such 'success'. But it also brings with it the feeling of being part of a larger conversation happening around the world, and the give-and-take of academic fields that are constantly growing along a fractal edge.

Yet these numbers do little to convey the importance of academic mobilities in a more personal or experiential sense. Higham et al. note the increased blurring of 'the lines between work and non-work spaces, business and leisure time, and colleagues and friends', leading to an 'interplay of professional, social and personal factors' that encourage academic travel (Higham et al., 2019: 616). This has certainly been my experience of work-related travel. Part of the mobile academic lifestyle also involves getting to know people around the world, experiencing other cultures and having the opportunity to make connections with researchers in multiple regions of the world.

Academic travel gave me incredible opportunities to experience other cultures and places, to meet people around the world and to connect my work to many others. I savour my experiences of the major Asian cities such as Tokyo, Hong Kong, Singapore and Seoul, all of which I might never have visited otherwise. In Seoul, to give just one in-depth example, I am deeply grateful to my generous host, Jin Hyeoung Lee at Konkuk University, who served not only as an academic organizer but also as a tour guide. I got to eat incredible Korean meals (see Fig. 3.2), visit stunning historical sites around Seoul (see Fig. 3.3) and learn about Korean history in museums and heritage sites. I learnt more about Korean history and culture than I had in my life.

Moreover, this was not simply to give a talk there, but also part of establishing a long-term research relationship with the new Academy for Mobility Humanities (AMH), joining their advisory board, assisting them in creating a new journal, signing a Memorandum of Understanding with my university and becoming part of an ongoing research project. This relationship of 'network sociality' (Urry, 2003) will undoubtedly lead to future virtual events as well as possible in-person visits, building up 'network capital' at both ends (Higham et al., 2019). AMH also have a commitment to translate texts into Korean, including my own book

Fig. 3.2 The author dining with Jin Hyeoung Lee and Geun-Sung Lee at a Seoul Restaurant

(see Fig. 3.4), thus contributing to intercultural exchange and conversation across national academic locations and disciplines. Taken together, then, this academic travel experience had many positive qualities and high value.

Likewise, I benefitted immensely from travel throughout major cities in Europe, as well as smaller regional cities that I might not have visited otherwise. Despite limited time for each trip due to work obligations, in each city I visited I usually had time to visit a museum, dine on the local cuisine and learn about the culture. And I had opportunities for rich immersion in Latin American capitals like Mexico City and Santiago, Chile as well as Caribbean capitals like Kingston (Jamaica), Bridgetown (Barbados) and Port-au-Prince (Haiti). I was incredibly moved by my research in Haiti after the 2010 earthquake, and further research there in 2013 that involved crossing the Dominican Border for the first time, a

Fig. 3.3 The author visiting a historic heritage site in Seoul

research experience that became part of my latest book (Sheller, 2020a) which reflects on my travels there over the entire decade.

My academic travel, in other words, is inseparable from academic 'tourism' as a chance for cultural experience and international exchange, but it is also part of my research topic which is the study of mobilities. As someone who studies mobilities, my own experiences of travel become part of what I study, including passing through various airports, the affective experience of being an air passenger (Budd, 2011), observing border checkpoints and reflecting on citizenship and racial inequalities in various countries. My research also involves knowledge of various transportation systems, so a wide experience of a wide variety of different train, tram, bus, ferry and bike systems is important to my knowledge base.

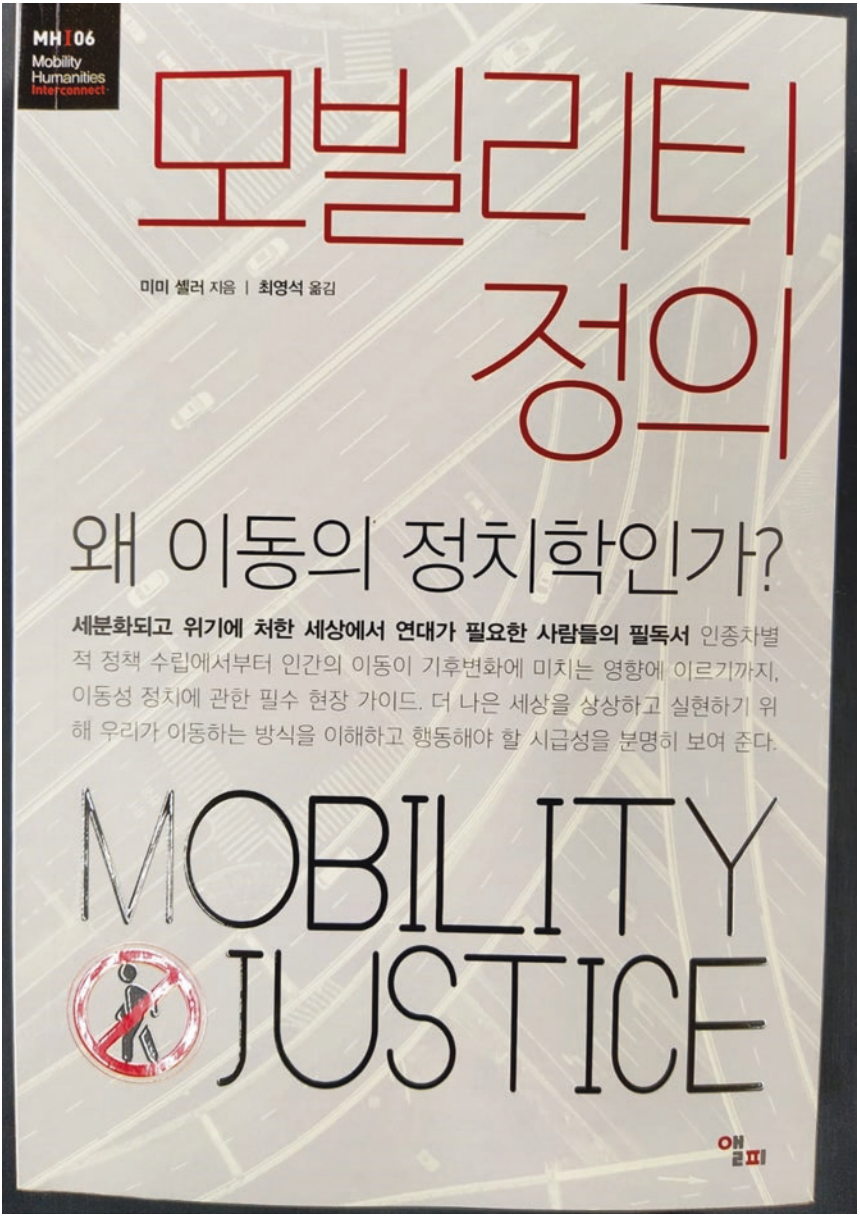

Fig. 3.4 My book, *Mobility Justice*, translated into Korean

And, indeed, tourism itself is one of the subjects I study, so as I travel I am always also reflecting on these different dimensions of mobilities, and associated immobilities, moorings and meanings. From the perspective of my own field of study, therefore, travel is a catalyst to new ideas, triggering research questions that might not otherwise have occurred to me, and thereby contributing to my research productivity. I can write more knowledgeably about various modes of transport, or different international airport experiences because I have travelled through them.

Finally, in a few cases, I was able to take my family with me to academic events, enabling my partner and children to enjoy tourist experiences, for example in Hong Kong and Macao, or in Barbados and Guadeloupe. Many academics find it difficult to juggle home life and travel obligations or to afford familial travel. Junior academics, first-generation graduates, academics from groups discriminated against in travel contexts and simply those with less travel experience and without a reservoir of 'mobility capital'—not to mention financial capital—might find it much more challenging to engage in these practices, even though it may be a professional expectation. Yet, for others, flying may help them to balance this work/family dynamic because circumstances have led them to work in different places. Air travel is that which divides us but also that which connects us.

The Virtues of Virtual Mobilities

While calls for flight reduction had been growing across academic circles, especially in Europe and the UK for some time, in the United States it took the coronavirus to halt academic travel. The pandemic demonstrated our ability to transform academic events and accelerated the use of remote meetings. A key question then arises: How do we find ways of extending this abnormal situation into the post-pandemic reopening of travel? Klöwer et al. (2020) make several recommendations on how to cut down on academic travel. In calling for academic conferences to be reimagined, they argue based on their measurements of one major international conference that three policies would have the greatest impact on reducing CO_2 emissions: (a) choosing accessible venues (based on

modelling attendee journeys to reduce long-haul flights); (b) increasing virtual attendance and (c) major conferences becoming biennial rather than annual, with virtual events every other year.

My own experience of switching to online events during the pandemic confinement might be instructive, especially when contrasted with my previous hypermobility. Apart from a single flight to an event in Jamaica in late January 2020, all my academic activities moved online. My virtual participation in conferences, webinars and invited talks in 2020 is summarized in Table 3.3, along with several cancelled events and where they would have been.

Overall, my experience in 2020 is that, initially, I had event cancellations that led to avoiding two domestic flights (FL, GA) and two international flights (Belgium, Canada). Then, as event organizers adapted to online environments, I was able to keep up my usual pace of activities. This included delivering online 7 invited talks or keynote lectures, attending 9 invited panels or workshops and holding 15 other remote meetings or events (excluding my own university's events and meetings). In so doing, I avoided 4 international flights, participated in many international events that I might otherwise have missed and was able to conduct a number of remote interviews and other international activities. This list excludes many other webinars that I was able to watch simply as an audience member. Indeed, over the past 10 months, if anything, I participated in more events than usual: I fully replaced my physical hypermobility with a kind of virtual hypermobility.

While publications that might result from this period of activity are still in progress, I can attest that I have an unusually high number of works in progress and forthcoming (which I know because I have to report on and quantify this in a Faculty Annual Review each year). This tally includes a book completed in the summer of 2020 that will be published in March 2021, a journal special issue I am co-editing that will be published in February 2021, at least six refereed journal articles and book chapters already submitted and at least a dozen other invited book chapters, commentaries and other small pieces in progress. Indeed, it appears there may even be a quantitative increase in my productivity since the hurdles of international virtual participation are lower than having to travel, and many virtual events lead to a publication of some kind.

Table 3.3 Online events the author participated in during the 2020 COVID-19 pandemic confinement

	Invited talks or keynote lectures	Invited participation in workshops/panels	Other online events, webinars, meetings
March	1 Keynote cancelled (FL)		
April	1 Talk cancelled (GA) 2 Talks cancelled (Belgium)		
May		2 events cancelled (Montreal, Philadelphia)	
June		1 Conference panel (Canada)	1 Research meeting (Aalborg University) 1 Webinar (CA) 1 PhD viva (NC)
July		1 Workshop (Ontario)	1 Virtual island summit
August	1 Lecture & online Q&A (Aalto)	1 Online broadcast (Phila)	1 Interview
September	1 Invited talk (U Penn) 1 Invited talk (British Columbia)	1 Remote panel (LSE)	1 Radio show (Jamaica) 1 Webinar (Dublin)
October	1 Invited talk (Aberystwyth) 1 Keynote panel (Lancaster)	1 Workshop (U Penn) 1 Academic conference panel (HSA, Washington) 1 Online forum (EU)	1 Virtual symposium (Princeton) 1 Interview (Belgium)
November	1 Invited lecture (Paris)	1 Invited panel (EU)	
December	1 Invited class lecture (NY)	1 Online conversation (Phila)	1 Advisory board (UK) 1 Training event (US) 4 Online events
TOTAL	**7**	**9**	**15**

It could be concluded, then, that the move to virtual academic mobility has not quantitatively impacted on the number of events I have been involved in, and possible publications that might result from these events. At least for me as a social scientist, not requiring lab space, my ability to

work from home has only required a good broadband internet connection. On the other hand, has there been a qualitative diminishment in the quality of interaction with colleagues? I first note that in about half of the events listed here I already knew 'in person' the host or organizer, so my pre-existing face-to-face contacts had created the circumstances for the virtual invitation. But this is not always the case, and in some cases, people may have reached out with virtual invitations who might otherwise have been unable to fund my travel. The quality of interaction is sometimes impacted because virtual events do not always go smoothly, and sometimes there are difficulties in internet connections. And there is a lack of casual conversation that takes place before and after meetings, which may lead to a more 'thin' connection to the host and audience.

Second, I lost out on the opportunity of what I have described as academic 'tourism' that usually accompanies some of these events. I had to cancel a trip to Belgium, and I did not get to visit the University of British Columbia, nor go to Aberystwyth or Lancaster, where I would have seen old friends and colleagues. On the other hand, I was able to participate in many remote events that there is no chance I would have travelled to, such as the Island Studies conference which was initially supposed to be in St. Johns, Newfoundland. I also discovered *digital native* events that were always planned to be online, such as the Virtual Islands Summit. Being forced to move their work online, many academics in 2020 have discovered new methods of digital delivery of meetings, events and conferences which have opened them up to wider participation. Qualitatively, this was an important gain in digital experience, if not quite as satisfying as meeting with people and places in person.

Third, the experience of the COVID-19 confinement and the closure of air travel have ultimately changed the meaning of air mobilities for everyone, including academics. Many people are now fearful of travel in confined spaces. Others long to return to the air, but will perhaps value the experience more highly and appreciate that they are able to travel. Many have reconsidered what they value most, which for some includes revaluing activities closer to home, but for others includes missing far-flung family and friends whom they have been unable to visit in other countries. The mixture of work-life, home-life and travelling takes on a

new 'hybrid space' quality (de Souza e Silva & Sheller, 2014) as we all have found creative ways of connecting our physical presence and digital worlds, perhaps for the better.

Conclusion: Flying After the End of Flying

The COVID-19 confinement has instigated a reorganization of many aspects of academic travel that seemed to be 'locked in' and difficult to change (Higham et al., 2019). It has pushed the pace of change in adopting digital communications and virtual meetings; it has normalized these practices and it has left no excuse for not meeting virtually. Moreover, with or without flight shaming, many academics may be forced to reduce their flying for economic reasons. As the pandemic continues, airlines and airports are under extreme financial pressure causing them to cut back routes and flight schedules, as are universities. Some airlines and airports may go bankrupt (especially smaller regional ones), and some universities may downscale travel budgets (if indeed they are not also forced to close). We may never return to the 'heyday' of flying as a way of academic life. What, then, can we learn from this period of no flying?

Taking up the three suggestions by Klöwer et al. on decarbonizing conference travel, we could expand these to think about decarbonizing all academic travel. Academics can continue to build regional networks involving mainly train travel; we can continue to hold regional conferences with perhaps networked hubs connecting remotely to other regions, and we can plan for biennial or triennial face-to-face events for major professional organization meetings. If we could do all this while maintaining our networked connections in the hiatuses of travel, we would lose little in terms of academic connectivity and productivity. This will require continued investment in digital tools and meeting technologies and will need universities and professional organizations to make commitments to this transformation. From the perspective of my research and my discipline, I see nothing stopping us from such a travel reduction and no reason to return to the prior expectations of hyper-travel.

Furthermore, we will also lose out on some of those more personal and ineffable aspects of travel that I have described above, which for a social

scientist are also forms of learning about the world. I will not be able to savour a steaming bowl of Samgyetang (Ginseng Chicken Soup) from the most famous soup-restaurant in Seoul, which was part of a visit to the former U.S. command centre during the Korean War, which I also learnt about. I will not be able to tour new cities, learn about ancient cultures and observe cultural differences, which is part of being a good social scientist. I will not be able to make personal connections with Caribbean colleagues who may find it harder to travel to the United States, like those in Haiti, which is crucial to building academic networks that support thinkers outside the metropoles. For these reasons, perhaps we will hold onto some forms of academic aeromobility, but it cannot simply be in the service of tourism for the kinetic elite to enjoy as a benefit to work travel. As Higham et al. conclude, building on the arguments of John Urry (2003) about social networks, travel and talk, 'At the very least it is necessary that the institutional context foster new interplays of corporeal and virtual mobilities that facilitate co-presence and meetingness in ways that take account of social and environmental inequalities' (Higham et al., 2019: 627). In other words, we need to introduce what I call a mobility justice perspective into planning academic travel.

In other words, professional travel for co-presence should be for the benefit of those least able to engage in such trips; it should aim to build academic capacity in places that are geographically, economically and geopolitically dis-privileged by partnering with local higher education institutions and including students and faculty there; it should be in the service of academic objectives that cannot be met virtually or from a distance, and should be justified in relation to its necessity for meeting those objectives, and it should be more carefully limited for those who are simply enjoying benefits of being at the top of the academic hierarchy. These are the kinds of difficult conversations we need to have within our disciplines and institutions: how will we determine the distribution of the costs and benefits of long-distance travel? And which activities can be replaced with virtual meetings at no harm to the academic enterprise?

We should, therefore, place academic aeromobility within the context of wider discussions of mobility justice and 'Anthropocene mobilities' (Baldwin et al., 2019). I, for one, will consider how I can continue to value some forms of getting together and long-distance travel, while also

being more careful about its impacts and exclusions. We should also acknowledge the impact of past forms of excessive travel and consider the payment of climate reparations on behalf of those whom it has harmed. In my own work, I have started arguing for climate reparations to be paid through the U.N. climate fund especially to small island states where I do research in the Caribbean, and through lawsuits against fossil fuel companies for loss and damages (Sheller, 2020a, 2020b). Beyond individual responsibility, I believe there is wider institutional responsibility and changes must be made at the macro-structural level, not just in individual behaviour.

Kinetic elites owe a 'climate debt' to others impacted most by climate change. Countries in the Global North and metropolitan centres owe a climate debt to those on the peripheries who have contributed the least to climate change. Universities and individual academics should account for their air travel carbon emissions, and take measures both to reduce them and to offset past emissions; but also should examine the kinds of networks through which academic prestige is built and reflect on supporting and rewarding more local social and environmental transformation in their own regions. But we must also find ways to continue cross-regional and international communication and connection, learning and cultural immersion, so that we do not simply retreat into a dark age of disconnection. To the extent that we can replace physical mobility with digital connections, we must continue to do so; but where cultural exchange is still possible, we must make the most of it.

Appendix: *Itinerarium vitae of Mimi Sheller, 2010–2020*

Date	Origin	Destination	CO_2/journey (kg)
05/03/10	Philadelphia	Miami	280.5
25/03/10	Philadelphia	Pittsburgh	164.7
03/2010	Philadelphia	Port-au-Prince	393.2
10/04/10	New York*	Vancouver/Victoria	631.6
27/05/10	New York	Barbados	513
07/2010	Philadelphia	Port-au-Prince	393.2
27/08/10	New York	Isle of Ven (CPH)	716.8

(*continued*)

(continued)

Date	Origin	Destination	CO_2/journey (kg)
27/10/10	Philadelphia	CPH/Aalborg, DK	801.6
11/11/10	Philadelphia	Providence, RI	152.2
17/11/10	Philadelphia	New Orleans	356.6
12/4/11	Philadelphia	Seattle	563.2
29/4/11	New York	CPH, Denmark	716.8
6/6/11	Philadelphia	CPH/Aalborg	801.6
20/10/11	Philadelphia	Berlin	733.4
22/2/12	Philadelphia	Los Angeles	575.2
17/3/12	Philadelphia	Durham, NC	160.2
01/2012	Philadelphia	Tokyo	943.4
04/05/12	Philadelphia	Oxford/Aalborg	877.8
05/12	Philadelphia	Oakland	298.9
30/06/12	Philadelphia	Guadeloupe	377.6
05/07/12	Philadelphia	Cagliari, Sardinia	841.3
24/10/12	Philadelphia	Chicago	233.1
9/11/12	Philadelphia	Toronto, CA	235.8
17/11/12	Philadelphia	Madrid, SP	660.6
14/12/12	Philadelphia	Durham, NC	160.2
03/2013	Philadelphia	Port-au-Prince	393.2
05/2013	Philadelphia	Montreal, CA	216
23/08/13	Newark	Hong Kong	966
06/09/13	Philadelphia	Lancaster (MAN)	613.2
04/10/13	Philadelphia	Boston	156.3
13/10/14	New York	Santiago, Chile	708.6
05/11/14	New York	Copenhagen, DK	716.8
11/12/14	Philadelphia	Paris, FR	667.6
19/03/15	Philadelphia	AMS/Eindhoven NL	637.7
22/04/15	Philadelphia	Chicago	233.1
05/05/15	Newark	Karlstad, SW	786.4
14–18/09/15	Newark	Caserta (NAP)+CPH	865.3
14/10/15	Newark	Leiden, Hanover	620
09/10/15	Philadelphia	Boston, MA	156.3
26/02/16	Newark	Singapore	1299.8
10/07/16	New York	Port-au-Prince	393.2
30/09/16	Philadelphia	Montreal, CA	216
28/10/16	Philadelphia	Mexico City, MX	474.6
30/11/16	New York	Stuttgart/Berlin	734.8
01/03/17	Philadelphia	Grinnell/DesMoines	389.8
28/03/17	New York	Vancouver, CA	631.6
03/04/17	Philadelphia	Boston, MA	156.3
09/2017	Philadelphia	Storrs, BDL, CT	146.4
27/11/17	Philadelphia	Sydney & Perth	2330.6
03/12/17	Perth	Melbourne, AUS	358.4

(*continued*)

(continued)

Date	Origin	Destination	CO_2/journey (kg)
23/03/18	Philadelphia	Waterloo, CA	235.8
11/04/18	Philadelphia	New Orleans	356.6
20/04/18	Philadelphia	Amsterdam/CPH	761.3
08/06/18	Philadelphia	Rome/Florence, IT	853.6
07/08/18	Philadelphia	YYZ/Kelowna, CA	725.1
18/11/18	Newark	Vienna/Geneva	849.4
25/04/19	Philadelphia	Reykjavik	446.8
19/09/19	Philadelphia	Manchester, UK	613.2
02/10/19	Philadelphia	Miami	280.5
13/10/19	Philadelphia	Venice/Paris	817.8
1/11/19	Philadelphia	San Francisco	298.9
11/12/19	Philadelphia	Seoul, KO	1345.6
01/30/20	Philadelphia	Montego Bay, JA	382.6

Calculated for Roundtrip Economy flights or multi-destination itineraries using https://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx.

*In some cases New York or Newark have been substituted for flights that may have involved a flight from Philadelphia with a transfer at a second city, in order to simplify the calculation as a direct flight.

Summary of the methodology used:

CO_2 Emissions per passenger take into consideration the load factor and are based only on passenger operations (i.e. fuel burn associated with belly freight is not considered). The steps for the estimation of CO_2 emissions per passenger:

Step 1: Estimation of the aircraft fuel burn

Step 2: Calculation of the passengers' fuel burn based on a passenger/freight factor which is derived from RTK data

Step 3: Calculation of seats occupied (assumption: all aircraft are entirely configured with economic seats). Seat occupied = Total seats * Load Factor

Step 4: CO_2 emissions per passenger = (Passengers' fuel burn * 3.16) / Seat occupied

Note: for flights above 3000 km, CO_2 emissions per passenger in premium cabin = 2 x CO_2 emissions per passenger in economy

Notes

1. https://www.vox.com/business-and-finance/2019/8/7/20756833/climate-change-flying-calculator-arctic-ice
2. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
3. https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/calculator/ghg-calculator.cfm

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4

The Absent Presence of Aeromobility: A Case of Australian Academic Air Travel Practices and University Policy

Andrew Glover, Tania Lewis, and Yolande Strengers

Introduction

Over the past fifteen years, the mobilities paradigm has focused primarily on the movement of people and objects across space and time (Sheller & Urry, 2006). It seeks to understand how these movements form patterns of travel, migration, transferal and pilgrimage. Thus, it focuses primarily on the movement itself, the destination to which various subjects and objects are moving to and what purpose this movement serves. These mobilities capture our attention, as an entity on the move is generally more interesting to an observer than one that is static. When something, or someone, is on the move, questions immediately arise: Where have they come from? Where are they going? Why are they going there?

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Like many types of professionals working in the contemporary globalised economy, academics are increasingly 'on the move'. Those who travel to attend a conference in a far-flung destination are more likely to arouse interest than those who are sitting in an office. The image of a field-leading academic travelling across the world to give a keynote address at conferences is one that many academics aspire towards and a marker of success. Travel has become one of the primary ways in which academics demonstrate value to their peers and their institutions, by disseminating knowledge, in conference presentations and guest lectures. Travel also facilitates the acquisition of new knowledge, as interacting with those from other institutions and incorporating new ways of thinking into one's own research have become a highly normalised academic practice (Petersen, 2018).

Travel of this kind is an opportunity to develop (as well as a reflection of) 'network capital', now considered a highly prized commodity amongst academics, as well as professionals more broadly (Larsen et al., 2008). This refers to the extent to which an individual has connections with other academics, institutions and stakeholders, and is able to leverage those connections towards measures of success such as research collaborations, journal publications, high-quality books and research grants. These connections typically involve physical bodily co-presence, allowing academics to develop the necessary interpersonal relations and rapport that would support professional collaboration. Travel, particularly air travel for those who are more isolated in the Global South (Connell, 2007; Higham et al., 2019), is all but necessary to cultivating these simultaneously professional and personal relationships that are typical of successful academic endeavours (Urry, 2003; Storme et al., 2017).

Network capital, however, and the associated mobilities that it is constituted by, are not evenly distributed. Mobilities and hypermobilities for certain individuals and groups create 'immobilities' for others (Hannam et al., 2006). What is more, there is often a relationship between the two. That is, in order for certain individuals and groups to be mobile, others tend to be rendered immobile. In academia, immobilities are seen in those without sufficient research funding to travel, in those whose teaching obligations coincide with conference dates, in those with parenting or caring responsibilities or in those whose geographical remoteness makes

international travel unfeasible. Immobility also undergirds academic mobility in the domestic sphere, as partners—some of whom may also be academics—often stay behind to care for family and other dependents.

Following Elliott and Urry (2010), we are interested in how professional academic 'mobile lives' are undergirded by other 'immobile lives'. The hypermobile academic, a mode being encouraged and celebrated within contemporary and neoliberal academia—particularly in Australia and the Global North—is embedded in an array of relatively hidden practices and structures of support that generate often hidden inequities. We are also interested in how the hypermobile academic archetype, which is widely aspired to, is in direct conflict with the commitments to environmental sustainability that many universities (and academics themselves) hold. University sustainability policies appear to have been 'immobilised' when it comes to considerations of the environmental consequences of air travel for climate change. Is it that these policies are not taken seriously, or have other policies—which tend to encourage academics to fly—rendered them less visible, and therefore more absent from discussions about the sustainability of academic life?

We explore such questions through the concept of *absent present* mobilities, where certain aspects of mobility are foregrounded and central to our attention (i.e. present), whilst others are obscured, marginalised and remain somewhat hidden (i.e. absent). We propose the term *absent presence*, as a way of exploring the hidden dimensions, immobilities or *absences* that are generated by the overt presence and focus on academic air travel.

The chapter draws on our research on academic air travel and virtual collaboration in Australian universities to develop the concept of absent present mobilities and uncover some of its effects on environmental sustainability and equity. In the following sections, we explore how academic experiences of air travel illustrate absent presence in three domains. First, we discuss the inequities raised by academics who are present globally, whilst others—be they family members and dependents, or less mobile academics—remain at home. Second, we draw on an analysis of Australian university strategic plans and internationalisation policies to reveal how these institutional ambitions mean regular air travel by academics and other people associated with the sector. We show how

aeromobility also has an absent presence in these policy orientations, frequently assumed rather than explicitly articulated. Third, we draw on past analysis of Australian universities' sustainability policies, where air travel is largely absent within the heightened contemporary presence of sustainability. Finally, we discuss what the concept of absent present mobilities might offer researchers in the future, as a way to confront inequalities in mobility and the potential for alternative scholarship.

Conceptual Framework

The concept of absent presence is not restricted to policies relating to mobility and has been deployed in a number of ways elsewhere. In discussing the phenomenon of race in public discourse in Europe, M'charek et al. characterise absent presence as 'something that oscillates between reality and nonreality, which appears on the surface and then hides underground' (2014, p. 459). Here, absent presence is conceptualised as a *dynamic*, alternating between distinct phases of prominence at certain times, and obscurity at others. Absent presence has also been used in discussions of household consumption. In a discussion of disposal and waste, Hetherington (2004, p. 159) argues that waste often retains a trace semiotic presence in the home, despite it being made materially absent. In this case, absent presence refers to the lingering effect of objects moved from one space to another, where their presence can be felt even after they are physically removed.

In the realm of social interaction, it has been argued that people's use of mobile information technology devices creates the 'challenge of absent presence' (Geyer & Zacarias-Farah, 2003). While one may be physically present with other people, Geyer argues that mobile phones create a 'diverted or divided consciousness', because the primary focus of attention is to the stimuli provided by the device rather than those in their immediate surroundings: 'We are present but simultaneously rendered absent; we have been erased by an absent presence' (ibid., p. 227).

Each of these uses of the term absent presence highlights how it has conceptualised different aspects of social life. In the most general sense, we use the term 'absent presence' to illustrate our contention that social

phenomena have aspects that are easily observed because they are central to discourse and practice, as well as aspects that are more hidden and require reflection and research to uncover. For something to be considered absent, it may be marginalised, in the sense that it is deliberately considered peripheral and unimportant in common discourse and practice. Absences may also be overlooked or forgotten in a non-deliberate manner. In this case, the concept of absent presence may draw attention to previously unexamined contradictions and injustices that exist in social life—the so-called elephant in the room.

There are also other arenas where there are competing assumptions about the nature of academic life in policies that govern contemporary universities. For instance, Royston et al. (2018) argue that energy demand policy in higher education is largely 'invisible', meaning that the practices for which energy is used, and might increase or decrease energy consumption, are dictated primarily by policies whose focus is elsewhere. For instance, policies that seek to improve the student experience by allowing the library to remain open for 24 hours have significant energy implications (lighting, heating) without explicitly claiming to do so. Likewise for policies that seek to grow the university, as this growth and the additional infrastructures and services that this growth entails, tend to involve the creation of new demand for energy use within an institution. In other words, mobility and energy demands can be seemingly absent in university policies whilst having an obvious and immediate presence in the day-to-day practices of academics and university life.

The absent-presence dualism we develop in this paper captures Goffman's (1959) front-stage/back-stage distinction. Famously describing social life as performance, Goffman argued that there are both public and private aspects to the self. The public audience generally only sees the 'front stage' activity, whilst the private 'back-stage' remains hidden from view. In the case of academic aeromobility, the front stage can be seen as the academic who attends and is 'present' at international and national conferences, and whose presentation of self thereby conforms to expectations of academic mobility and success. 'Back-stage', however, are those whose groundedness enables such forms of hypermobility to occur: family, dependents and sustainability policies that do not confront the environmental impact of flying.

The concept of absent presence can also be considered in terms of normativity. Describing social relations in terms of their relative mobilities and immobilities can highlight the unequal power relations they are constituted by, providing a justification for more evenly distributed mobility (Hannam et al., 2006, p. 15). In applying to certain phenomena, we argue that which is absent *should*, for reasons of sustainability, equity, diversity or simply consistency, be made more present. We conceptualise absent presence as a means to address and redress forms of inequality and marginalisation that are unjustified, regardless of whom or what this applies to. In the context of the mobilities paradigm, we hope to draw attention to instances where dichotomies of mobility and immobility are reflective of unsustainability, inequity, homogeneity or inconsistency within the academy and university sector.

In this vein, absent presence can also be conceptualised through the discourse of 'hidden labour' (Crain et al., 2016). In the case of academia, hidden labour is the internal service roles that—while necessary to the functioning of academic departments—are generally uncompensated and which are unlikely to be considered as valued academic output. Examples of academic service roles are faculty governance, faculty recruitment, evaluation and promotion, internal awards, student admissions and scholarships and so on. Academic women tend to perform a significantly higher proportion of this work, which can be considered labour that is generally hidden from the view of academic performance metrics and scholarly outputs (Guarino & Borden, 2017). It can be said, then, that hidden labour has an absent presence in academic life: absent from the scholarly metrics that often dictate an academic candidacy for employment or promotion, whilst having a (necessary) presence in the day-to-day functioning of the academic departments. Likewise, some academics—who are more likely to be male—may have a significant presence in their field through promotion and hypermobility, whilst being more absent from the academic service roles they are otherwise obliged to fulfil.

As a concept for the mobilities literature on air travel, absent presence seeks to examine that which often gets overlooked in the academic practice of flying. This is not to say that mobilities scholars have completely overlooked what gets left behind when the focus is on that which is most present. Gustafson (2014) and Bergström (2010) highlight the stresses

and impacts that frequent business travel has on travellers who are away from home frequently. Likewise, researchers of business travel have described the tensions between work and life commitments (Espino et al., 2002; Black & Jamieson, 2007). The experience of jet lag is also one that could be characterised as absent presence, with travellers being expected to perform professional obligations despite temporal and geographical dislocation (Anderson, 2015). However, we seek to operationalise this concept of 'absence' further, highlighting how various absences and presences act simultaneously to mediate mobility itself. It is not merely that these absent presences have unfortunate side effects, as is the case with jet lag, that could potentially be overcome through technological innovation. The very practice of academic air travel is enabled and constituted by the various forms of absent presence that we discuss here. The goal of this chapter then involves understanding what types of 'absences' manifest in practices and policies of academics and contemporary universities.

Methods

In the first analysis section of this paper, entitled 'Mobile Academics', we draw on two data sources. The first is an online survey (N = 301) of Australian-based academics about their experiences and views of work-related air travel and their use of non-flying alternatives. Respondents were recruited through a combination of social media (Twitter, Facebook), emails to disciplinary associations, and through institutional emails and newsletters. The survey was designed and hosted on the Qualtrics platform in 2015 and took approximately 15–20 minutes to complete. Quantitative responses were analysed in Qualtrics. Upon completing the survey, respondents could nominate themselves to be interviewed on similar topics in more depth. This series of in-depth, semi-structured qualitative interviews with 24 Australian academics forms the second source of data for this section. These interviews were conducted in 2015 and 2016 over Skype, phone and in-person, and generally took between 40 minutes and one and a half hours. Interviews were recorded and transcribed using a professional transcription service, then coded and analysed in NVIVO qualitative analysis software. These interviews went into

more depth from the survey questions, discussing academics' air travel practices, their views regarding the importance of air travel to their careers, and their use of non-flying alternatives. Both data sources include participants from a range of disciplines, stages of career progression, workload (full time, part-time, or casual) and proportions of teaching or research.

In the second section of the paper, entitled 'Absent Presence in University Internationalisation', we draw on data from a qualitative textual analysis of the strategic plans and internationalisation policies of a sample of fourteen Australian universities. This sample included city and regional campuses in different states and territories, as well as universities both within and outside the prestigious 'Group of Eight' (a network of older, larger, research-intensive) academic institutions. This approach ensured we did not overly focus on any particular type of university that was more or less concerned with internationalisation than was typical for the sector. These documents were coded thematically and analysed to understand how academic air travel was understood in the context of these university policies and plans. We describe the key policy areas in which academic travel has a clear presence in the assumptions made about academics flying, but are absent from explicit articulation.

In the third section, entitled 'Absent Presence of Sustainable Air Travel Policy', we draw on research published elsewhere where we analysed sustainability policies of all 43 Australian universities that sought to understand the extent to which air travel is acknowledged as a source of carbon emissions and environmental impact (Glover et al., 2017). We did this by reviewing university websites and their various policies and strategies that relate to sustainability, searching for material related to air travel, business travel, flying, carbon emissions and so on. Relevant content was downloaded and coded in NVIVO according to any references that were made to academic air travel. On the basis of these policies and online documents we then categorised each of the universities into one of three categories: 'air travel ignorers', 'recognition without intervention' and 'air travel substituters'. We briefly discuss examples from this analysis, insofar as it illustrates the concept of absent presence, in the relevant section.

Mobile Academics

The demand for physical presence abroad entails an absence from home life, both professionally, in terms of being away from one's home institution, and personally, in terms of being away from family, dependants and friends. In this section, we discuss how the prominence of academic mobility practices entails corresponding absences that the demands of professional life often obscure. Understanding the ambiguities and disconnects between academic work life and home life brings the true costs of air travel to the fore, allowing us to understand what enables academic mobilities 'behind the scenes'.

One of the most common reasons for Australian academics to undertake air travel is to attend conferences. When asked what the primary reasons are for undertaking work-related air travel, 92 per cent of Australian academics indicated that they flew to attend conferences, symposia and workshops. Meetings with other academics were the next most common reason for flying (56 per cent of respondents), followed by undertaking fieldwork or data collection (37 per cent), meetings with industry partners (25 per cent), attending industry events (13 per cent), other (14 per cent), and commuting (2 per cent) and only 1 per cent indicating that they do not fly. Given these responses, we can conclude that conferencing and meeting are the primary reasons why academics fly. While other forms of air travel can clearly form part of academic practice in particular fields, these appear to be the most relevant for academia as a whole. More importantly, for this paper, they are the parts of academic life that highlight the specific occasions of mobile presence in the academic career.

Conferences and smaller events such as symposia and workshops are one of the primary forums in which academics can develop and maintain a presence in their field. For early-career academics, conference attendance affords the opportunity to gain exposure for themselves and their work, thereby making themselves more widely known to prospective employers. For more established academics, conferences are often seen as a way to develop and maintain professional networks, as well as staying up to date on current research developments in their field. The data from

our survey indicated that frequent air travel, and the opportunities for presence that it provides, are associated with academic seniority and career success—however, this association is contested elsewhere (Wynes et al., 2019). In our study, of those academics that took over eight domestic return flights in the past twelve months, 64 per cent of this group of respondents hold Associate Professor or Professor positions at their institutions. This speaks to the roles that physical presence plays in academic networking and knowledge creation, as those who are able to afford to travel to meet with others are likely to progress in their career in a way that more immobile academics do not.

This ability to build and maintain networks for collaboration was highlighted in an interview with Aaron, a full-time Associate Professor in Computing and Information Systems based in Wollongong, who recalled his itinerary for the past twelve months, six months of which was on study leave. The first three months of the year were 'normal work', which nevertheless involved several conferences. In April he travelled to a conference in Amsterdam, primarily for its educational value, followed by a flagship conference in New York, primarily to meet people. In September he delivered a keynote presentation in Bangkok, then another keynote in Nanjing in October. Finally, he travelled to Texas in December for an information systems conference, where he did not attend the main conference event, but where his presence was required at committee meetings and for consultation work. While this may not be a common academic flying profile, it nevertheless points to the role that air travel plays in facilitating Australian research that is internationally focused, or which has a globalised industry associated with it. Air travel of this kind is constitutive of the highly internationalised orientations of many Australian universities, and the research networks that they seek a presence in. The role of this academic's physical body is central to this expectation—that his body being physically present at the events, as opposed to attending via a video conference, is currently seen as a requisite part of presenting and networking practices.

However, this increasingly normalised practice of flight-enabled academic mobility is not embraced by academics across the board. When asked whether they would like to undertake more or less work-related air travel, 35 per cent of our survey respondents indicated they would like to undertake more, 52 per cent were satisfied with the amount they

currently undertake and 13 per cent would like to undertake less. Of those academics who indicated they would like to fly more, they typically cited the opportunities for career progression and intellectual fulfilment that attending remote events and meetings in person brought. Of those academics who indicated that they would like to undertake less work-related air travel, the two overwhelmingly most common reasons were due to its environmental impact and the impact on their home and family life. These reasons were also common for those who were satisfied with the amount of air travel they do, often citing a conflict between the benefits to one's academic career on the one hand, and the effect of being absent from one's home and the environmental impact on the other.

Within all these views about the opportunities that networking brings, is the assumption that having a presence at these events, and in order to engage and participate in these events effectively, one must be physically and *bodily* present. While academics events are slowly starting to become digitised, such as by broadcasting a live stream of events online, it is still widely assumed that the only way to 'be there' is to be there *physically*. Presenting one's work physically through the body is how academics conventionally present much of their work. However, conferencing mobilities of this kind are largely reliant on corresponding immobilities that make such travel possible and desirable.

This was clearly evident in our interview with Sarah, a single mother academic with two children aged 10 and 16. She regularly travelled interstate and throughout the Pacific region, managing and implementing education and capacity-building projects, as well as invitations to specific events. For each work trip she takes she has to make care arrangements for her children, either with their father, from whom she is separated, or with a house sitter at the cost of $50 a day. Sarah describes these difficulties arranging 'home life' for the time she is away:

> So there was a bit of a hiccup in the family life the other day that has put the suggestion that the children may not stay at their dad's for the whole six weeks and so I'm still trying to work that out … by chatting to them online, on Facebook and all that sort of stuff. I'm trying to think 'Oh my God, what other options have I got?' So, it does have an impact. (Sarah, Associate Professor, Research & Teaching, Full Time, Education, Regional NSW)

Sarah's case highlights how, in the practice of academic conference travel, there is a hidden and highly gendered domestic labour associated with academic mobility. The infinitely mobile researcher tends to be premised upon a masculinist model of academic labour and 'presence' in the academic world. Babies and child care are often absent or not taken into account at conferences; although occasionally child care will be provided at academic events, and foreground the absent-present dichotomy. Expectations of and by academics to travel abroad assume that others will remain at home to care for family and dependents while they are away. By limiting the likelihood of those who cannot fly to succeed in academia, the normalisation of air travel presents a potential reinforcer of existing inequities within the academic community. So long as mobilities remain absent from discussions about academic inclusion, less-mobile groups are likely to remain more absent from academia more than others. This immobility may be due to a range of reasons, such as air travel being incompatible with caring responsibilities, personal illness or health concerns, inadequate funding, or ethical objections to flying.

An increasingly common form of absent present mobilities can be seen in concerns about the environmental impact of academics' (often frequent) flying. Sally, an interview informant, describes how she has difficulty in explicitly acknowledging the environmental impact of her work-related air travel:

> I feel like I can't really. There's a lot of things I can do in my life like not using plastic bags and things, the air travel is necessary for me to do my job properly so I don't feel like it's in the category of things that I can worry too much about in terms of my agency to do, to make good choices, yeah, and when I did the questionnaire I was feeling very guilty about it. (Research Fellow, Full Time, Research, Communications studies, Melbourne)

This illustrates how concerns about the environmental impacts of air travel can be made absent in the consciousness of environmentally aware academics, despite air travel's obvious presence in common understandings of the successful academic career. Air travel's impact appears to have been rendered largely absent from explicit acknowledgement, as performing the role of the mobile academic compels Sally to fly to fulfil her work

obligations. Here, absent presence manifests itself in the tension between striving to progress in one's chosen career, often accompanied by a desire to improve the state of the world, whilst reckoning with an excessive carbon footprint (Higham et al., 2014).

This section has shown how the mobilities and immobilities of academic air travel highlight the absent-presence dichotomy. From the survey data, we can see how air travel has a strong presence in the careers of highly successful academics. However, as the testimonies of Sarah and Sally show, this presence obscures the more hidden aspect of air travel, be it the difficulties of those academics with caring responsibilities or the environmental concerns about excessive flying. In the next section, we move on from academic practice to understand how absent presences manifest in university policies with regard to air travel.

Absent Presence in University Internationalisation

Mobilities can be conceptualised not merely in the actual movement of people, objects and information, but in the forms of organisation that assume and encourage such movements. For instance, institutional policies may deal with these mobilities explicitly, such as through travel policies that specify professional obligations whilst travelling. However, mobilities can also be implicit in policies that seek to direct institutions to operate in particular ways. Certain institutional orientations can have the effect of creating practices that are more mobile than they might otherwise be, or creating entirely new practices where mobility is necessary to their performance. We argue that these latter policies are mobilities characterised by another form of absent presence. Recognising the embedded mobility in these policies requires a 'reading between the lines' approach, where references to movement may not be immediately obvious but nevertheless have a presence in their application. Understanding how these policies play out in practice is necessary to see where absent present mobilities exist.

We find these absent presences in Australian university's strategic plans and internationalisation policies with regard to air travel. These plans articulate how the broad strategic objectives of the Australian universities are to become increasingly internationalised and global in their reach and impact. This includes ambitions for institutions to be global in their reach and impact, by conducting research abroad and disseminating new knowledge at national and international events. For instance, the University of Canberra states an objective to 'increase the proportion of publications co-authored with international collaborators' (University of Canberra, 2013, p. 6), where such collaborations tend to involve physical co-presence facilitated by air travel. The plans also often include objectives to recruit academics from a global pool of potential applicants, fulfilling ambitions to be globally renowned institutions. For instance, the University of Adelaide aims to attract 'high citations researchers who count amongst the top 1% in the world in their fields' (University of Adelaide, 2012, p. 12). Finally, it includes strategies to recruit and teach international students as well as Australian students, as evidenced by the number of Australian universities establishing international campuses in Asia, Europe and the Middle East (Lane, 2011). Each of these areas entails a vast amount of air travel by academic staff and students in increasingly internationalised Australian universities.

Absent from these strategic plans and internationalisation policies, however, is what implications this will have on academic life and day-to-day practice. Air travel is embedded in many of the core assumptions about the increased internationalisation of the university, without being explicitly acknowledged as such. Increasing international impact, collaboration with international colleagues and pursuing international sources of funding for research all assume that academics will be flying to the necessary meetings and conferences where these endeavours are cultivated and pursued; the previous interview informant Aaron being a prime example of this. As such, academic air travel has an absent presence in these policies—rarely, if ever, being acknowledged as the primary form of mobility that is and will be required to actualise the vision of an increasingly internationalised university.

The aeromobility that is implied, but rarely articulated explicitly, in these plans, speaks to the normalisation of air travel in everyday

consciousness, including that of policymakers. Air travel has come to be an expected and somewhat routinised part of academic life as a means to attend conferences, symposia, meetings and conducting fieldwork—all of which are necessary elements to fulfil the internationalisation strategies. The absence of air travel in these university strategies and policies, then, speaks to its sheer presence in the daily lives of academics. It appears that air travel is a thoroughly expected facet of academic life, and as such, is not even acknowledged as the central means by which academics will implement a highly mobile institutional orientation. This absent presence of mobility is particularly important, given that the primary form of mobility assumed—that of air travel—has particularly significant implications for sustainability. Unsurprisingly, many university sustainability policies also fail to acknowledge air travel in any substantial way—an issue we discuss in the following section.

Absent Presence in University Sustainability Policy

Another guiding ambition of many Australian universities is sustainability. Many universities have signed the Talloires Declaration, indicating a commitment to the values of environmental sustainability for their whole institution (Talloires Declaration Institutional Signatory List, 2016). This involves commitments to reducing the institution's environmental footprint, through initiatives such as energy and water efficiency in buildings, resource recovery and waste prevention, and lower carbon emissions in transport. University buildings are often subject to sustainability construction methods and retrofits to ensure they do not waste energy and water in their operation. Most universities encourage commuting practices that are less energy-intensive, such as public transport, bicycling and car-pooling, where appropriate. With much sustainability research taking place at universities, it is unsurprising that these institutions are generally progressive in embracing sustainability principles and practices—particularly in Australia.

In research we have previously published, we found that over half (22 out of 43) of the universities could be classified as 'ignorers', as they did not acknowledge the sustainability implications of air travel. This included universities that had no sustainability plan at all, as well as those that did have sustainability plans, initiatives or reporting, but that did not include air travel. A further 13 universities did recognise air travel as a sustainability issue but did not describe any concrete means by which they would seek to reduce its impact on their overall environmental footprint. Typically, this involved stating generalised ambitions to reduce the carbon emissions from flying or simply naming it as a source of these emissions. Only six universities described ways in which their air travel emissions could be reduced by flying less. These overwhelmingly focused on substituting air travel with digital 'alternatives' such as video conferencing. However, as mobilities scholars (Faulconbridge et al., 2009; Haynes, 2010; Storme et al., 2017; Jones et al., 2018) have found, video conferencing and other forms of digital communication tend to *supplement* rather than substitute for air travel. Overall, we concluded that the Australian university system lacks a comprehensive recognition and strategy for reducing air travel emissions.

This general lack of engagement with the environmental implications of air travel is also indicative of an absent presence in these university sustainability policies. Given air travel's intensity as a carbon-emitting activity, it should be highly prominent in these policies. The environmental impact of flying arguably justifies it having a central presence in university sustainability planning, alongside the impact of other policies around university buildings and transport provisioning. However, our analysis revealed these policies were completely absent of comprehensive measures to reduce air travel, and often absent of any acknowledgement of its impact at all. One could argue that this absence from sustainability policy speaks to the centrality of air travel in the contemporary higher education sector. As we have discussed in the previous sections, the strategic objectives of universities have been formulated with an assumption that academics will engage in regular air travel. Sustainability policies, then, appear to be incapable of seriously challenging these assumptions, because they would challenge many of the fundamental goals of the contemporary university.

Absences of explicit acknowledgement of air travel can also be seen in university health and workplace safety policy. Health policy for university employees tends to assume that these people will be located on or near campus, not flying internationally. Therefore, the physical demands of (particularly) international travel around fatigue and jet lag are generally unacknowledged. This speaks to the place that air travel has in other university policies we have discussed—an assumed, hidden and seemingly absent role rather than the normalised and prominent role it often plays in the practices of academics themselves.

Conclusion

This paper has identified how mobility can be understood as having an absence-presence dualism; on the one hand, with aspects that are easily observed and foregrounded in academic practice and policy, and, on the other hand, with those that are less obvious. This absent presence concept captures many of the inequities and unsustainabilities of contemporary academia. As we have discussed, certain forms of mobility may appear marginal in certain contexts, such as university internationalisation policy and strategic plans, whilst being absolutely central in practice. Likewise, academics who have a presence at events such as conferences and workshops are idealised and rewarded in academia, whilst the immobilities and support structures that enable them are largely absent from recognition. Drawing attention to these absent presences moves mobilities scholarship towards a critical politics of presence, giving a more nuanced understanding of how aeromobility is positioned within the broader academic work-life ecology.

How do issues that should be of central concern, such as carbon emissions from air travel or inequities in access to flying, come to have an absent presence in academic practice and policy? Has the normalisation of work-related air travel in everyday life, and its integration with tourism and other recreational travel, contributed to this? It seems likely that there is something about the specific materiality and spatiality of air travel itself that makes it easier to render absent in our everyday discussions. Unlike, for example, car dependency, which is foregrounded so clearly in

the minds of the residents of congested city dwellers (Bissell & Fuller, 2017), air travel is relatively obscured from view most of the time for most people. The obvious sensory impact of air travel is restricted to airports and their proximate suburbs, where aircraft noise is more prominent. Disruptions to the aviation network are rarely noticed by those who are not flying at the time. It seems possible that this relative absence from everyday perception, and particularly from perception when located on a university campus, has allowed air travel to evade scrutiny as an intensely high carbon-emitting activity to which academics have become highly reliant on.

In contrast, it may also be that the pleasures and benefits that air travel affords—the exploration of new places, meetings and reunions with colleagues abroad, an 'escape' from daily work and home routines—actually mean that many of us have an interest in maintaining and perpetuating air travel 'entitlements'. In this case, many academics and university administrators may prefer to have air travel remain absent from everyday consciousness and policy, even if they are working specifically on issues that relate to climate change and sustainability.

Regardless of how accurate these speculations are, this paper has demonstrated the need for an increased understanding of the different types of absent presences in mobilities scholarship, in the context of both the university sector and elsewhere. In this respect, this work could provide a basis for greater critical examination of how certain forms of presence are privileged over others, and how certain absences are made possible in the context of imperatives that demand their presence. Critical reflection is needed about the practices and policies that constitute and reinforce meanings of academic success and how these both enable and require particular forms of mobility and immobility.

The demand for physical presence at academic events normalises air travel in the academic career, making career progression more difficult for those who cannot fly as readily, or at all. This is especially the case for geographically remote academics located in Australia and the Global South (Glover et al., 2019; Higham et al., 2019), where international travel to the Global North generally requires long periods of time away from home. The archetypal conference-hopping academic is arguably hypermobile, male and free of any caring obligations or domestic duties

that might keep them 'grounded' at home. Consequently, one could argue that the demand for air travel in academia tends to disadvantage women generally, and particularly those women with primary caring obligations, since it is they who more often take these duties on compared to their male partners (Suitor et al., 2001). With this expectation for mobility at all stages of the academic career becoming so normalised, irrespective of the life circumstances of academics themselves, air travel is yet another dimension whereby gendered inequities are reproduced in academic life.

In drawing attention to the absent presence of mobilities in contemporary academic practice, we are simultaneously highlighting other salient characteristics of the culture within the profession. Academia's current model is arguable premised on long hours, and on a thorough blurring of home life and work. Air travel is emblematic of this blurring, as tourism and business travel may be combined on the same journeys, and 'travel time' is also often 'work time', as academics become increasingly capable of working on the move with mobile devices and ubiquitous data connections.

In describing mobilities as being at once absent and present, the potential for alternative forms of academic practice also comes into view. Just as we have asked what gets left absent when certain forms of presence are normalised, we might also ask what alternative forms of academic practice are possible, given the absent presence duality. What other forms of academia might be 'left behind'? Slow academia (Hartman & Darab, 2012) is one such formulation, which seeks to address questions of ethical academic labour in an increasingly individualised, neoliberal academic culture. Slower academia, in contrast to the hypermobile, globally expansive form of academia facilitated by air travel, may focus more closely on the local community. Collaboration may be emphasised more highly than competition. Domestic labour and care, so often marginalised and made absent in contemporary understandings of academic success, would be integrated into academic culture. As we have alluded to in previous sections, we believe this may go some way to addressing the inequities in who is more likely to succeed in the academic career.

Finally, the 2020 COVID-19 pandemic has—at least temporarily—shifted academic air travel practices significantly, grounding most

academics for extended periods of time. Travel budgets were impacted due to the financial precarity of many institutions, and many conferences and other academic events shifted into a more virtual form. The domestic spaces that travelling academics often left behind were made more present, as academics worked, presented and interacted from home. While academic mobility does appear to be on the increase by the end of 2020, it is unclear what trajectory academic air travel will take in the future. Will academia's culture of air travel return to pre-pandemic levels or has the pandemic shifted practices in more durable ways?

From concerns about climate change to work-life balance to gender inequity, we can see how different types of absent presences manifest themselves in different parts of academic life. We argue that, in drawing attention to the concept of absent presence itself, mobilities studies will be better equipped to recognise them in other settings. Each instance of absent presence will likely be context dependant, requiring different strategies to respond to the specific forms of inequity or unsustainability they describe. Most importantly, though, it will encourage us to look beyond what is most apparent in any given social context, promoting a more critical and curious form of mobilities scholarship.

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5

How Environmentally Sustainable Is the Internationalisation of Higher Education? A View from Australia

Hans A. Baer

Introduction

In a world of increasing awareness of the many drivers of anthropogenic climate change, all of which fall under the larger rubric of global capitalism with its emphasis on profit-making, economic growth, and a strong dependence on fossil fuels, many universities, particularly in developed societies, have proclaimed a staunch commitment to the notion of environmental sustainability. Conversely, the growing emphasis on internationalisation of higher education, particularly in Australia, entails a considerable amount of air travel on the part of university staff, particularly academics but also support staff, and overseas students and occasionally domestic students. Australia is a generally highly affluent country which is situated in the driest inhabited continent and increasingly finds itself functioning as a 'canary the coal mine' with respect to the ravages of anthropogenic climate change. Ironically, climate scientists and other

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observers often refer to various regions, such as the Arctic, low-lying islands, the Andes, and Bangladesh, inhabited by indigenous and peasant peoples as the canaries in the coalmines when it comes to the adverse impacts of anthropogenic climate change. It is often said that those people who have contributed the least to greenhouse gas emissions are the ones suffering the most from climate change, a more than accurate observation.

Australia as a relatively affluent society finds itself at a critical juncture in an era of socio-ecological crisis with three overarching in the pursuit models to pursue in the era of climate change (Burgmann & Baer, 2012). The first one is an entrenched model which has been fostered by multinational corporations and the two major political parties, the Coalition and the Australian Labor Party. While at times purporting to take action on reducing greenhouse gas emissions, for the most part it is committed to ongoing economic growth heavily reliant on fossil fuels for some time to come. The second model adopts a green social democratic or green capitalist approach and calls for some structural reforms which would reduce social inequality and make a transition to renewable energy sources. Adherents of the second model include the mainstream of the Green Party along with large sections of the environmental and climate movements. The third model is eco-socialism which seeks to function as part and parcel of a growing international movement seeking to promote a socially just, deeply democratic, and environmentally sustainable world system. Adherents of this model by and large operate on the margins of the Australian society but include eco-socialists within the Green Party and members of various eco-socialist groups who consider themselves in solidarity with climate justice activists, in contrast to climate activists per se, who call for 'system change, not climate change.'

Australia is contributing more than most developed countries, more or less on par with the United States, in terms of contributing to greenhouse gas emissions, not only from domestic consumption of coal but due to massive export of coal. Over the past decade or so, Australia as the driest settled continent has been experiencing rising temperatures, droughts accompanied by water shortages and raging bushfires, storm surges and flooding, and the bleaching of its iconic Great Barrier Reef. As part of a larger process of globalisation, Australian universities have increasingly

been seeking to internationalise themselves in various ways, by encouraging their academics to attend conferences and research meetings in far-off places, particularly Europe and North America.

Furthermore, Australian universities often sponsor visiting academics from faraway places to collaborate on research and even to visit briefly to present a keynote address at a conference or some other event. Furthermore, international higher education had become the third largest export industry in Australia, at least prior to the COVID-19 pandemic, only superseded by the export of iron ore and coal. Cutbacks in government funding since the 1980s have compelled Australian universities to derive an increasing amount of their incomes from full-fee paying overseas students, particularly from China but also other developing countries, such as India, Indonesia, Malaysia, and Singapore. The growing internationalisation of Australian higher education is highly dependent upon air travel, a growing source of greenhouse gas emissions, thus belying frequent claims on the part of Australian universities to being committed to environmental sustainability.

As a critical anthropologist and a scholar-activist, in addition to relying upon published materials, my findings in this chapter rely on an auto-ethnography drawing upon my involvement as a representative of the National Tertiary Education Union branch at the University of Melbourne on sustainability issues and frequent attendance at academic conferences, panel discussions, and seminars, particularly at Victorian universities, on sustainability issues.

Australian Universities and the Sustainability Imperative

Australian universities, to a greater or lesser degree, have enthusiastically embraced sustainability discourses, as have universities in Europe, North America, and in various developing countries. Nineteen of the 28 Australian universities are signatories to the International Tailloires Declaration (n.d.) initiated in 1990 by 22 presidents, rectors, and vice-chancellors around the world which states that 'universities bear profound responsibilities to increase the awareness, knowledge, technologies, and tools to create an

environmentally sustainable future.' Conversely, the deeper question is the extent to which Australian universities as well as universities elsewhere are capable of being environmentally sustainable, given their increasing ties with the corporate world, including its reliance on airplanes for purposes of transporting people for both business and pleasure and cargo (Baer, 2018). While an appreciable number of Australian universities have exhibited some progress towards a policy that Raffertry and O'Dwyer (2010) term *greenshift* and that I and Arnaud Gallois (Baer & Gallois, 2018) term *greensheen*, this policy is uneven and inconsistent. In an effort to internationalise themselves, Australian universities, particularly those belonging to the elite Group of Eight (Go8) group have come to rely upon air travel both for staff and international and, to a lesser degree, domestic students.

Air Travel on the Part of University Staff

Attendance at professional conferences has become an integral component of academic life around the world. Many academics are involved in air travel, a practice that appeared to be spreading, at least until the advent of the COVID-19 pandemic, and which may return to 'business-as-usual' if and when the pandemic subsides. Academic air travel often increases with seniority and affiliation with elite universities and funding from granting agencies. As Parker and Weik (2013, p. 168), observe, 'Setting aside package tourism to sunny beaches, the elite nomads from the traveling classes include academics from the elite institutions of the Global North.' While Australia is situated in the southern hemisphere, in political-economic terms it is part of the Global North. In order to participate in academic life with their colleagues in Europe and North America, Australian academics are forced to travel even longer distances when participating in international academic events and activities.

Australian academics fly to facilitate a range of collaboration, networking, research, and educational activities with colleagues at other universities, although they may combine air travel with non-academic activities, such as tourism before and after academic events, escaping family obligations, and time away from their home institutions. Universities and academic programmes encourage early career academics and PhD students

to engage in air travel to conferences and other academic events through scholarship funding or by accessing travel grants. Australian academics often fly to Europe and North America, but increasingly to Asian countries, particularly China, India, and Indonesia. Jonathan Symons, an academic based at Macquarie University, states:

> Virtually everyone in rich countries such as the United States, the UK or Australia, is a part of the most polluting 10%. I'm a childless, vegetarian who has never owned a car, but I'm part of the most polluting, 1%. Why? Because I travel by air a few times a year. (Symons, 2019, p. 99)

Rather than lamenting his own environmentally dubious behaviour, he boldly states:

> Personally, I find the vision of global convergence on a low-energy future quite miserable. For example, I think international travel can be enormously enriching. In my vision of a good life, any ordinary person might hope to spend a semester studying overseas, perform the hajj, visiting family during Golden Week, or attend the World Cup. (Symons, 2019, p. 102)

Furthermore, in their efforts to position themselves in a competitive international arena, which includes research rankings and recruitment of students, including international ones, Australian universities often recruit overseas academic staff, particularly from European and North American universities. Glyn Davis (2010, p. 22), the Vice-Chancellor of the University of Melbourne from 2005 to 2018, boasted that Australia hosts the 'most internationalised higher education system in the world,' a system including both international scholars and international students. While many academics situated in Australian universities hail from European and North American countries, Asian academics now constitute 15.4 per cent of teaching and research staff Australia wide, thus reflecting the growing recognition of Australia's position in the Asia-Pacific region (Song & McCarthy, 2020, p. 137). In my own observations of colleagues at the University of Melbourne, such academics often retain ties with colleagues in their countries of origin and may periodically return to visit relatives and friends for non-academic purposes.

Glover et al. (2017, p. 1) assert that Australian and New Zealand scholars are under pressure as their universities promote global connectivity and have made international collaboration, often in terms of attending meetings and conferences, in North America and Europe an 'increasing central requirement for promotion and career success.' Based upon their qualitative textual analysis of strategic and internationalisation policies at 14 Australian universities, they found that none of them 'had a detailed or coherent strategy for reducing air travel' nor did any of them question the need for air travel (Glover et al., 2017, p. 5).

In a later article, Glover et al. (2019, p. 2) assert that a sense of geographical *remoteness* both within Australia and with the outside world 'has shaped the knowledge economy of Australia in a way that is highly dependent on air travel,' even though it is highly environmentally unsustainable. Based upon an online survey of 301 Australian-based academics, they found they averaged three domestic return flights and 1.72 international flights over the 2014–2015 year for work-related reasons. A hypermobile cohort of Australian-based academics, who generally held a senior rank of professor or associate professor, took eight or more return domestic flights during this time period. In terms of primary reasons for academic air travel, 92 per cent of their respondents cited conferences, symposia, or workshops; 56 per cent meetings with other academics; 37 per cent undertaking fieldwork or data collection; 25 per cent meetings with industry partners; 14 per cent unspecified reasons (such as perhaps teaching); 13 per cent industry events; and 2 per cent for commuting. In terms of the extent to which their home universities encouraged or discouraged air travel, 16 per cent asserted that their employer strongly encourages air travel, 32 per cent that it somewhat encouraged it, 39 per cent that it neither encouraged nor discouraged it, 11 per cent that it somewhat discouraged it, and only 2 per cent that it strongly discouraged it. In terms of the benefit of air travel to their careers, Glover et al. (2019, p. 13) found that 61 per cent of them found it strongly beneficial, 28 per cent somewhat beneficial, 7 per cent neither beneficial nor detrimental, and 1 per cent strongly detrimental.

The research of Glover and his colleagues strongly suggests that Australian academics experience considerable institutional pressure from their universities to fly for academic purposes, aside of whether or not

they enjoy doing so. New Zealand academics situated across the Tasman Sea are even more impacted by the 'tyranny of distance' than their Australian counterparts with New Zealand universities subscribing to the rhetoric of international connectivity while at the same time espousing a commitment to environmental sustainability (Hopkins et al., 2016).

Air Travel on the Part of University Students

The presence of international students in Australia began to increase under the auspices of the Colombo Plan beginning in the 1950s and continuing into the 1980s. The plan involved 27-member nations, particularly ones from various Southeast Asian countries, particularly Malaysia, Singapore, Sri Lanka, and Hong Kong (Ong, 2009, p. ix). A second wave of international students arriving in Australia began in the 1990s, many in particular from India and China (Ong, 2009, p. 9). The vast majority of this later cohort of international students rather than coming on scholarships under the auspices of the Colombo Plan pay full fees. Many of these students found Australian universities as second option given the intense competition for university entry in their home country, particularly true of China and India. Croucher and Waghorne report:

> A growing Asian middle class, the lack of places in their own country's universities, the opportunity to live in Australia and, later, the high ranking of Australian universities in global league tables, made Australia appealing. The strategy to attract international students was initially viewed by the government as a vehicle for international engagement, overseas aid and an "export" industry. (Croucher & Waghorne, 2020, p. 183)

Indeed, globally various universities in developed societies have increasingly become dependent on international students as a source of revenue. In 2013, for example, 'thanks to the intensive cultivation of emerging student markets in Asia and elsewhere, higher education ranked as the UK's seven-largest 'export industry" (Mulhern, 2020, p. 118).

The corporatisation of Australian universities in part has resulted from a drop of government from around 90 per cent of university budgets in

the 1970s to around 42 per cent in 2010 (Connell, 2019, p. 118). In Australia, in contrast to the United States that has a far-flung system of state universities, the federal government, not the six states and the Australian Commonwealth Territory (ACT), established public universities. Federal government funding of higher education in Australia 'as a proportion of GDP is among the lowest in the OECD—around 0.7% on 2011 figures compared to an average of 1.1%' (McCamish, 2016, pp. 32–33). Full fee-paying students, particularly overseas students, many of them Chinese, have become the principal source of revenue for Australian universities (Connell, 2019, p. 120).

Reliance upon overseas students particularly picked up steam during the Coalition government under Prime Minister John Howard between 1996 and 2007 when it relaxed visa requirements for international students. International students constitute Australia's 'largest source of skilled migrants' (Davis, 2017, p. 96), thus in essence constituting a form of 'brain drain' from developing societies from which the vast majority of them hail (Davis, 2017, p. 96).

Australian universities have urged the government to support the recruitment of international students at its Asian diplomatic missions and consulates (Croucher & Waghorne, 2020, p. 184).

Rea observes that the Howard government facilitated this course of action on the part of universities, essentially turning international students into what many have come to term 'cash cows':

> The Government assisted in this by also relaxing visa requirements. To be more precise, international students were no longer neighbours, they became the new revenue stream, and now Australia's public universities are hooked on this line. The reality is that today international students are subsidising the education of domestic students as their fees are used to partially make up the funding gap. (Rea, 2016, p. 11)

In a similar vein, Connell (2019, p. 191) asserts that the 'international market in fee-paying students sucks money out of developing countries to pay universities in richer ones,' including Australia. This process constitutes yet another example of the unequal economic exchange between the core, on the one hand, and the semi-periphery and periphery, on the

other hand, or between the Global North and the Global South. Australian academic Richard Hil (2015, p. 204) asks, '[I]n enrolling large numbers of full-fee paying international students, universities might ask themselves whether they are exporting 'Western' values overseas and, into the bargain, reproducing hazardous neo-colonial relations.' Whereas international students are lured to leading Australian universities, such as Melbourne, Sydney, and ANU by their international rankings appearing in the London Times Higher Education listing or the Shanghai Jiao Tong listing, determined primarily by research output rather than quality of teaching, they 'may never encounter the academics behind the research that attracted the funding' but instead 'are often taught by sessional staff [including post-graduate student] and those on short-term contracts' (Simons, 2019, pp. 30–31).

While overall international tertiary education constitutes Australia's third largest export industry, in the case of Victoria, the country's second most populated state, it constitutes the number one export industry. Australia is not alone in its reliance on international students for revenue, however, proportionally is the highest in the world in this regard. Levatino reports:

> [Australia] is one of the countries with the greatest reliance on trade in international education services. After the US and the UK, it is the third preferred destination country for students from abroad. Australia is also the OECD country with the highest share of international students and the largest presence overseas relative to the size of its domestic tertiary sector. Its institutions started to offer THE [transnational higher education] early on—since the mid-1980s—and its government had a key role in promoting the liberalisation of higher education. Australian THE is particularly present in Asia, the continent with the biggest supply of THE, and particularly in East Asia, the most important sources of international students worldwide. (Levatino, 2017, p. 641)

While in 2015, Australia's total investment, both public and private, in tertiary education as share of GDP was 'above the OECD average and the fourth highest, behind the US, Chile and Canada,' its public investment in higher education as a 'share of GDP was among the lowest in the

OECD—ranked 24 out of 34 countries' and was '0.77 per cent of GDP in 2015 compared to 0.98 per cent of GDP for average OECD countries' (Universities Australia, 2019, p. 14).

Australian Bureau of Statistics indicates that, 'in 2017–18, international education was worth $32.4 billion to the Australian economy, up from $28.1 billion in 2016–17)' (Parliamentary Library, 2019, p. 1). Furthermore, the Parliamentary Library reports:

> Higher education accounted for 68.5 per cent ($22.2 billion) of international education export income in 2017–18 and 45.6 per cent of all overseas student enrolments in 2018. Overseas students also enrol in Australian vocational education and training (VET), schools, English Language Intensive Courses for Overseas Students (ELICOS), and non-award courses. However, each of these accounts for few students and has less economic impact than overseas student enrolments in higher education. (Parliamentary Library, 2019, p. 1)

During the 2008–2018 period alone, the number of overseas higher education students almost doubled from 202,581 to 398,553 (Parliamentary Library, 2019, p. 2). Of these students in 2018, 38.3 per cent (152,591) were from China, and 18.0 per cent (71,857) were from India, with the remaining top seven nationalities being Nepal, Vietnam, Malaysia, Pakistan, Sri Lanka, Hong Kong, and Singapore (Parliamentary Library, 2019, p. 3). In 2019, of 1,562,520 higher education students in Australia, 108,255 were domestic students and 479,987 were international students (Universities Australia, 2020). One report indicated that several universities derived over 50 per cent of their students' fees revenue from international students in 2018, 58.5 per cent in the case of the University of Sydney, 58.5 per cent in the case of the University of Melbourne, 27.5 per cent in the case of the University of New South Wales, 55.1 per cent in the case of Monash University, 51.6 per cent in the case the University of Queensland, and 51.2 per cent in the case of Federation University of Australia (Carey, Hunter, & Heffernan, 2020b). International students' tuition fees reportedly provided 26 per cent of all university revenue in 2018 in contrast to 10 per cent in 2000 (Carey, Prytz, & Hefferman, 2020c).

While there is a growing concern about the contribution that academic air travel makes to greenhouse gas emissions, there has been relatively little research on the contribution that international and domestic students make in flying to universities or academic-related events away from home (Davies & Dunk, 2019; Arsenault et al., 2019). As Shields observes:

> There are no data on the number of trips mobile students make to their home country. The number of trips could range from less than one (e.g., one trip to the home country every other year) to several trips per year. (Shields, 2019, p. 597)

Obviously the number of trips that an overseas student can afford to take to his or her home country depends upon his or her finances or at least those of his or her parents:

> The results indicate that GHG emissions associated with international student mobility were between 14.01 and 38.54 megatons of CO_2 equivalent in 2014, having increased from between 7.24 and 18.96 megatons in 1999. To contextualize these figures, the low estimate is comparable to the national annual emissions of Latvia (13.94 megatons) or Jamaica (15.47 megatons), while the upper estimate is comparable to those of Croatia (30.42 megatons) or Tunisia (39.72 megatons). (Shields, 2019, p. 598)

Shields modelled two scenarios for international university student travel, a low one entailing one return trip per year and high one entailing two return trips per year. The vast majority of these students make their way between their home countries and their host countries by airplanes, although it is difficult to say how often they make the trip, whether once or several times during the course of their overseas studies.

In addition to seeking to attract international students, most of whom are full-fee paying students, many Australian universities have created overseas satellite campuses. For instance, the University of Canberra has satellite campuses in Hong Kong, China, and Bhutan; the University of Wollongong has satellite campuses in Dubai and Malaysia; and Monash University has satellite campuses in China, India, Italy, and Malaysia

(Universities Australia, 2020). Davis reports: 'Some thirty-two Australian universities offer programs internationally, predominantly in Malaysia, Singapore, China, Hong Kong and the Middle East.' It is difficult to say how much air travel is required in the administration of the overseas satellite campuses complex. Undoubtedly it entails periodic travel on the part of administrators and lecturers from their home institutions, although some of the administrators and lecturers are probably more or less permanently situated in the locations of the overseas satellite campuses (Table 5.1).

Although some international students hail from relatively affluent families, Hil (2015, p. 43) reports that three out of five international students survive on $20,000 or less per year. Furthermore, many international students work part-time, often in the shadow economy where they are poorly paid, and have to draw on savings to get by. Sparrow (2020) asserts that even prior to the COVID-19 pandemic, which had placed many international students based in Australia in dire straits due to a lack of governmental support, international students had 'been regularly exploited by unscrupulous bosses, with one report finding that 77% of them received less than the minimum casual wage.' In Melbourne many international students reside in multiple-student households, sometimes having 3–5 bedrooms with 10–20 students (Hil, 2015, p. 133).

While Australian universities often maintain that the presence of international students adds to the cosmopolitanism of their campuses, in reality many of them have difficulty becoming close with Australian students

Table 5.1 Australian universities with satellite overseas campuses

University	Overseas satellite campuses
Australian Catholic University	Rome
University of Canberra	Hong Kong, China, Bhutan
Curtin University	Malaysia, Singapore, Dubai, Mauritius
James Cook University	Singapore
Monash University	China, India, Italy, Malaysia
Murdoch University	Dubai, Myanmar, Singapore
University of Newcastle	Singapore
RMIT University	Ho Chi Minh City, Hanoi
Swinburne University	Sarawak (Malaysia)
University of Wollongong	Dubai, Malaysia

Source: Universities Australia (2020)

and are ghettoised in terms of where they live, study, and socialise (Hil, 2015, p. 124). Displaced Asian students often confront both cultural and learning differences. Some Australian academics strongly resent the presence of Asian international students in their classes (Song & McCarthy, 2020, p. 103). Conversely, other Australian academics have embraced transcultural teaching modalities to integrate their students more into their university settings. However, Australian academics have been limited in reaching out to both domestic and international students because of increasing workloads and large lecture classroom and tutorials and increased pressure to obtain research grants and publish (Song & McCarthy, 2020, p. 106). Despite efforts on the part of the National Tertiary Education Union to challenge such trends, academics have had to confront a managerial corporate university structure that has over time become more hegemonic. Forty-one per cent of international students in Australia reportedly experience substantial levels of stress from homesickness, cultural shock, loss of educational and personal support, financial problems, and racial discrimination (Song & McCarthy, 2020, p. 115).

While the internationalisation of higher education has been characteristic of developed societies, including Australia as this chapter illustrates, China recently has entered the competition for international students. Davis reports:

> The Chinese government has approved the opening of publicly owned Chinese universities in Laos, Malaysia, Thailand and Japan, with further ventures announced for Cardiff and Seattle. One day, Chinese universities may open in Australia to attract outbound Chinese nationals seeking study abroad, and so compete directly with Australian public universities for the international market. (Davis, 2017, p. 108)

China has embarked upon developing world-class research universities and may be transitioning from being a 'sending nation' to being a 'receiving nation' as it seeks to 'regain or retain its best and brightest scholars'. Pacific University situated in Shanghai has attracted a large number of returnee academics from Western countries since 2004.

Australian Universities in the Aftermath of COVID-19

The COVID-19 pandemic created a crisis for Australian universities in that they have become highly dependent for a substantial amount of their revenue from full-fee paying overseas students. Australian universities went into lockdown and shifted to online teaching classes in late March 2020 resulting in loss of revenue from reduced overseas student enrolments and were hoping to reopen their campuses during semester 2 with guidelines around social distancing. Some international students at least for semester 1 opted to remain enrolled in Australian universities and accessed their classes from their home countries via teleconferencing. Most Australian universities resumed on-campus studies during semester 2, but this was not the case for Victorian universities that remained in lockdown due to a flurry of new COVID-19 cases, resulting in a four-month stage hard lockdown implemented in late July 2020 due to a flurry of new COVID-19 cases. Fortunately, due to stringent governmental regulations, the numbers of new cases were drastically curtailed by early November 2020.

Matthew McGowan, the General Secretary of the National Tertiary Education Union, addressed the potential impact of COVID-19 on Australian tertiary institutions in early 2020:

> We know that the damage to our sector could be severe, and the impact may spread much further than the university budgets. The political debate is focused on whether universities have become too dependent on overseas students. (McGowan, 2020, p. 3)

Victoria University's Mitchell Institute projected that the Australian university sector will lose between $10–19 billion between 2020 and 2023, depending on how quickly borders are reopened to international students, with a further $20–38 billion in wider benefits to national economy being lost (Carey, Hunter, & Heffernan, 2020b). As of May 2020, the number international students in Australian higher education stood at 330,000, down 30 per cent since a year ago (Hunter, 2020). China's Ministry of Education forewarned Chinese citizens about studying in Australia due to reports of racist incidents given that the COVID-19 pandemic first broke in Wuhan (Carey, Hunter, & Bungard, 2020a, p. 4).

Tanya Piblersek, the Australian Labor Party education spokesperson, said that the government's university funding model needs to be revisited in a post-COVID-19 Australia. Duncan Maskell, the Vice-Chancellor of the University of Melbourne stated: 'Next year, with the baby boom coming through and more people looking to improve their employment prospects during these extremely challenging times, we will need more places for home students' (Preiss, 2020). Both the University of Melbourne and the Victorian state government have urged the Coalition federal government to lift its cap on domestic student numbers amid fears that plummeting international enrolments would impose major financial damage to Victorian universities. However, Peter McDonald, a professor of demography in School of Population Health at the University of Melbourne, argued that Australia could have the corner on the international student market by early 2021 in that it has not been as adversely impacted by COVID-19 as had been the US and UK (Megalogenis, 2020). Jon Faine (2020), a former Australian Broadcasting Network radio talk host based in Melbourne, contended that Australia in a post-COVID-19 world would constitute a bargain for the 'bourgeoisie of South East Asia looking for high-quality English education for their kids' because it had not been hit as hard by the COVID-19 as had the US and UK.

A Case Study from the University of Melbourne

In this section, I discuss air travel on the part of both staff and students at the University where I have been situated since 2006, during 2006–2013 as a full-time academic and since 2014 as an honorary research fellow.

Air Travel on the Part of University Staff

The University of Melbourne repeatedly boldly proclaims that it constitutes 'Australia's number one' university, thus defying the old Australian proscription against acting as a 'tall poppy' which needs to be cut down. As part of its effort at global connectivity, numerous programmes, schools, and faculties at the University of Melbourne regularly invite international

speakers, particularly from the United States, the UK, Europe, but also increasingly China, India, and Indonesia. While some of these speakers stay at the university for a few weeks or even a few months as visiting research fellows, others come in for a few days, thus constituting a special category that I call the 'fly-in, fly-out academic.' The University of Melbourne Law School regularly invites overseas academics to conduct short courses or intensives on a wide assortment of topics, such as international law. The University of Melbourne is not unique in such practices, although it has more funding available due to its elite status to engage in such practices than most other Australian universities.

The Melbourne Sustainable Society Institute (MSSI, 2017, pp. 20–23), an interdisciplinary think tank based at the University of Melbourne, has its share of affiliated academics who engage in international travel. MSSI focuses on research clusters on climate transformation, future cities/urban futures, and sustainability in the Anthropocene. Many of its personnel regularly travel overseas by air. In late 2015, several MSSI representatives travelled to the UN Congress of Parties (COP) 21 conference in Paris; one person travelled to the UK and three times to China; another person travelled to Vancouver; yet another person travelled to Europe and Quito; and a Climate Reality Project-affiliated representative, a former CEO of the Australian Conservation Foundation and an Enterprise Professor at the University, regularly has numerous overseas trips. More recently, the MSSI annual report states:

> A further highlight of MSSI's work has been the Institute's collaboration with Al Gore through his Climate Reality Project and his work on Paris Agreement implantation. Specifically, Don Henry regularly joins Al Gore on high level policy meetings with political leaders internationally. In 2018 these activities focused on Mexico, Germany, California, and the COP 24 in Poland. Don Henry also sits on the Board of Al Gore's international Climate Reality Project. (Melbourne Sustainability Society Institute, 2018, p. 13)

The Energy Transition Hub at the University of Melbourne is an endeavour that collaborates with the Australian National University and the Potsdam Institute for Climate Impact Research, the Mercator Research Initiative for Global Commons and Climate, and the University

of Muenster, all of which seek to foster energy transitions to renewables in both Australia and Germany. While much of the research collaboration between these institutions in locations on opposite ends of the globe are conducted vis-à-vis teleconferencing, I have attended numerous seminars sponsored by the Energy Transition HUB, whose director is a transplanted German, which have been presented by visiting German researchers. Thus far, I have not had the temerity to ask how the HUB accounts for the air emissions miles that it has generated over the years due to its collaboration with its German colleagues.

On May 5, 2016, the University Sustainability Executive launched its Sustainability Plan 2016–2020. Ellen Sandell, a Greens Victorian Parliamentarian, moderated the meeting and I posed the first question:

> Flying is the single fastest growing source of greenhouse gas emissions, now in the order of 5–6 percent per annum. There is a campaign to get academics to fly less. Kevin Anderson has not flown in 13 years and took the train to attend a conference in Shanghai. I sometimes tell my colleagues to watch their emissions miles which is an obnoxious thing to do.

Allan Tait, the University Chief Financial Officer and Chairperson of the Sustainability, passed my question onto David Karoly, a world-renowned climate scientist based at the time at the University of Melbourne, said that he had wanted to touch on this issue in his remarks. He added that in the past 'the University found it too hard to deal with flying in meeting in its emissions target and tabled the issue.' Karoly noted that he offsets his flights and claimed that the 'cloud is an even faster growing source of emissions.'

Sustainability Policy on Staff Air Travel at the University of Melbourne

The 2018 University of Melbourne Sustainability Report (2019) reports:

- 'Air travel was the second largest contributor to the University's carbon emissions in 2018, after electricity, at approximately 28,000 tCO_2-e' (University of Melbourne, 2019, p. 60).

- 'The reported air travel emissions per Full-Time Equivalent (FTE) staff member increased from 2.9 to 3.2 T CO_2-e/yr/FTE, from 2017 to 2018, which is an increase of 10%. It is likely this increase is mainly as a result of improving air travel data collection' (University of Melbourne, 2019, p. 59).

It also reports that University aims to offset air travel emissions to 50 per cent by 2018 and 100 per cent by 2020 and that aims to reduce air travel emissions per staff member by 5–10 per cent for international travel and 10 per cent for domestic travel by 2020. The University reportedly for 2018 purchased 'air travel 1,500 tonnes of National Carbon Offset Standard (NCOS) accredited offsets is being purchased from the Aboriginal Carbon Foundation and 13,500 tonnes from South Pole' (University of Melbourne, 2019, p. 59). In reality, there is much debate as to whether emissions offsetting schemes such as these constitute well-intended mitigation strategies or yet another genre of greenwashing. Pearse contends:

> Offsets have become the airline greenwash tool of choice because they put the onus on the customer to cut emission, and the airlines don't have to make public any information on the quantity of emissions. British Airways revealed that in 2008 passengers offset 55,000 tonnes of emissions from their flights, but this reportedly was less than 0.5 percent of the airline's total emissions in that year. On average, it's estimated that less than one in fifteen passengers chooses to offset their flights—a 3 to 4 percent take-up is considered good. (Pearse, 2015, pp. 99–100)

In contrast, the 2019 University of Melbourne Sustainability Report states:

> Air travel emissions per Full-Time Equivalent (FTE) staff member decreased from 3.2 to 2.9 t CO_2e/yr./FTE, from 2018 to 2019. As the distance travelled increased from 124 to 132 passenger km, this decrease in reported air travel emissions is most likely due to changes in carbon emissions factors rather than a reduction in actual air travel' (p. 47). In contrast, the University of Melbourne aims to 'reduce air travel emissions per staff member by 5 to 10% for international, 10% for domestic by 2020.' (University of Melbourne, 2020, p. 47)

Ironically, due to air travel restrictions resulting from the COVID-19 pandemic, these targets undoubtedly inadvertently will be more than achieved, by how much remains to be seen.

Observations at Two University of Melbourne Events

On August 7, 2019, I attended a panel discussion on 'Higher education: Has internationalisation gone too far?' at the University of Melbourne. The panellists were Helen Bartlett, Vice Chancellor of the Federation University of Australia (a regional multi-campus university based in Victoria); Jonas Larsen, President of the University of Melbourne Student Union International; Anthony McClaran, CEO of the Tertiary Education Quality and Standards Agency, and Chris Ziguras, an academic from the Royal Melbourne Institute of Technology. All of the panellists spoke positively about the internationalisation of Australian higher education. I posed the first question of the event to Helen Bartlett:

> You said that universities can help students to work in the global economy. Should universities also not encourage both domestic and international students to critique the global economy which is characterised by growing concentration of wealth and persisting poverty and contributing to an ecological crisis, particularly manifested in the form of climate change?

Bartlett contended that a critique of the global economy already occurs in universities and another panellist agreed with her assertion. After the panel discussion, I approached her and asked what is the emissions footprint from all the flying on the part of both academics and students that international education entails. Bartlett admitted that this is an issue, but added that international students at Federation University probably fly less than those at the University of Melbourne because they are generally not as affluent.

On July 9–10, 2019, I attended the 'Living the French revolution' symposium at the University of Melbourne that served as an illustration of the high emissions impact of even a small-scale international academic conference. The symposium constituted a celebration of the research of

Table 5.2 Carbon dioxide footprint of a small academic symposium

Presenter	University	Return flight	CO_2 kilogrammes
A	UCLA	Los Angeles–Melbourne	8469
B	UCLA	Los Angeles–Melbourne	8469
C	Carleton	Ottawa–LA–Melbourne	10,127
D	Western Sydney	–	–
E	National Gallery of Victoria	–	–
F	Regina	Regina–LA–Melbourne	9461
G	Hawaii	Honolulu–Melbourne	4799
H	UCLA	Los Angeles–Melbourne	8469
I	UC–Irvine	Los Angeles–Melbourne	8469
J	Paris Diderot	Paris–Dubai–Melbourne	9368
K	UC–Irvine	Los Angeles–Melbourne	8469
L	Maryland	DC–Los Angeles–Melbourne	9843
M	Deakin	–	–
N	Adelaide	–	–
O	Kingston	London–Dubai–Melbourne	9601
P	Warwick	Skyped presentation	
O	Johns Hopkins	Baltimore–LA–Melbourne	9968
Total			105,512

Source form emissions: www.atmosfair.ed/standards/emissions

Peter McPhee, a well-renowned French Revolution historian and former Provost at the University of Melbourne. Twelve overseas speakers appeared in person and one skyped, although he lamented he could not be physically present at the symposium (Table 5.2).

The symposium included only two presenters from Victorian institutions and two from other Australian institutions, the latter two of whom probably flew to Melbourne for the symposium but may have taken the train, bus, or driven. As airplanes emit nitrous oxide and other exhaust fumes, a 'factor between two and three is normally applied to CO_2 impact.' (Tickell, 2008, p. 79). Furthermore, as a point of comparison with other transport modes, Clark (2009, p. 14) reports that a flight between London and Edinburgh results in 140 kg of CO_2e (CO_2 equivalent) per passenger, whereas a one-passenger trip of the same distance in a Ford Mondeno 2.0 results in 120 kg of CO_2 in emissions, a trip in a Toyota Prius with four passengers results in 16 kg of CO_2e per passenger,

a trip in an ordinary train results in 15 kg CO_2e per passenger, and a trip in a coach results in 18 kg CO_2 per passenger.

At no time during the conference was the issue of its environmental sustainability ever raised nor did I raise it, although I attempted to do so. In my conversations over the years with colleagues about their academic flying, I have found three broad responses: (1) a nearly total unawareness of its environmental impact; (2) some awareness but assertions that they are engaging in our sustainable behaviours, such as not driving a car or being vegetarian; and (3) a more or less full awareness but an assertion that they pay emissions for their flights and/or that flying is an essential component of maintaining their academic careers.

Air Travel on Part of University of Melbourne Students

While the University of Melbourne has begun to tabulate the emissions impact of air travel on the part of its staff, it has not embarked upon a similar exercise for student air travel, particularly on the part of international students. In a casual conversation that I had with a member of the University of Melbourne's Sustainability Exchange, she estimated that the most overseas students at the University of Melbourne take one to two trips to their home countries per annum.

The Melbourne Business School promotes study abroad or exchange programmes for its postgraduate students, both domestic and international, with institutions in faraway locations. These include Erasmus University Rotterdam, Durham University, Manchester Business School, Kings College London, HEC Montreal, Harvard University, HEC School of Management in Paris, Copenhagen Business School, the University of Copenhagen, Bocconi University in Milan, Shanghai Jiaotong University, the University of Oslo, the University of Auckland (Melbourne Business School, 2020, p. 9). Needless to say, there are numerous other exchange programmes at the University of Melbourne. Furthermore, my first-hand observations of graduation events at the University of Melbourne suggested prior to COVID-19 that family members of international graduates were making journeys to the campus, resulting in additional undetermined greenhouse gas emissions for the occasion.

In his second annual oration to the University of Melbourne, Vice-Chancellor Duncan Maskell, who had previously had been a high-level administrator at the University of Cambridge, spoke to the University community vis-à-vis Zoom due to lockdown of the University campus since late March 2020. He referred to the impact of the loss of revenue to Australian higher education due to the loss of international students and noted: 'The current situation, if unchecked, would certainly be a threat to our existence' (Maskell, 2020, p. 2). He highlighted the continuing internationalisation of research at the University of Melbourne:

> We have had some very exciting announcements recently about partnerships between major international companies and the University, from such as Illumina, Telstra and CSL [Commonwealth Scientific Laboratories]. These will be crucial as this University helps to rebuild our economy in partnership with Government and industry over the next few years. (Maskell, 2020, p. 10)

While Maskell alluded to the important work being done on climate change and sustainability at the University of Melbourne, he did not comment on how environmentally sustainable the University would be in reverting back to its former reliance on air travel on the part of both academics and students in a post-COVID-19 world. He did admit:

> In conclusion, there are currently many tensions in the world. Many people in every sector of the economy have lost their jobs. There is fear abroad. This may contribute to worse things to come in international relations, and in other economic and social challenges down the track for Australians. (Maskell, 2020, p. 12)

Ironically, in its 2020 annual report, the University of Melbourne (2021, p. 91) due to the COVID-19 pandemic, its academic air travel 'banned for most of the year, air travel emissions were dramatically reduced.' Whereas in 2019, University academic travel came to 130 million kilometres and resulted in 27,000 tons of CO_2e emissions, in 2020 University academic air travel came to 19.9 million kilometres and resulted in 2464 tons of CO_2e emissions. Furthermore, due to

widespread bans on travel for overseas students who found themselves in their home countries before the travel restrictions took effect but opted to continue with their studies at the University of Melbourne, they had to pursue their studies online.

There is no doubt that the presence of international students on a campus can contribute to cosmopolitanism and cross-cultural vibrancy, something that I have discovered in my interactions with students at the University of Melbourne from countries such as Pakistan, Ecuador, and particularly Ghana, Kenya, and other African nations. However, when international students are treated as cash cows who earn degrees that may serve to provide them with credentials to make them more competitive in the global economy, there is something particularly problematic from both a social justice and environmental sustainability perspective.

Conclusion

As in many areas of a stratified world system, the affluent, particularly business people but also politicians and even well-placed academics and university students, as opposed to casual academics who constitute a component of the precariat, contribute much more overall to greenhouse emissions from flights than working-class people and particularly the poor around the world. Over the past several years, a campaign has emerged urging academics and their associates, as well as researchers, including climate scientists who frequently attend conferences, to reduce their flying through a number of strategies, including video conferencing and travelling to meetings and conferences by train or coach (Carter, 2014). Some academics may assert that refusing to get on a plane to deliver a presentation at a far-off conference or as a guest lecturer at a university will not make any difference in the larger scheme of things because the plane is scheduled to take off anyway. However, if a critical mass of academics and other travellers opted to fly less, or not at all, for conferencing, business, or pleasure, airlines would inevitably have to reduce the number of flights that they offer or even go out of business. In particular, as Parkinson (2009, p. 211) so aptly argues, particularly 'those

who are building careers and reputations on sounding the alarm about the dangers of greenhouse gas emissions should be a great deal more conscientious than many of them seem to be about how much flying they do.'

The struggle for sustainability within the bowels of the corporate university is a small but essential component of the much larger struggle for creating an alternative world system based upon social justice, public ownership, democratic processes, environmental sustainability, and a safe climate. Envisioning alternatives to aeromobility is an important component in the struggle to transcend capitalism which has entailed ecological crises of various sorts, including anthropogenic climate change and pandemics, such as the recent COVID-19, and replacing it with an eco-socialist world system, a topic which I have discussed in detail elsewhere (Baer, 2018).

Universities and other educational institutions are important loci for teaching and learning that play a crucial role in understanding and shaping society's physical, social, political, and economic practices, sometimes for the better and sometimes for the worse, particularly when they become complicit with the corporate agenda. Several Australian universities have formed partnerships with the mining and fossil fuels industries (Lyons & Richards, 2013). If somehow they can become more democratised, an issue that lies outside the domain of this chapter, they have the potential to contribute to the great socio-ecological turning that is now required to create a truly global society.

In his conception of a more socially just and environmentally sustainable world, Ted Trainer (2010), an Australian eco-anarchist and staunch advocate of a 'Simpler Way,' maintains:

> Very few ships, large trucks or aircraft would be produced because there would be little need for transport of goods or people over long distance. There would be little international travel, partly because the fuel for it would be extremely scarce, and secondly because there would be relatively need for it. We might ration international travel primarily for educational and cultural exchange purposes, so you might get one overseas trip in a lifetime. However, we could bring back wind ships, so you might study for your degree on a leisurely trip around the world. (Trainer, 2010, pp. 93–94)

Following from Trainer's observations, I envision two possible career trajectories for progressive academics and university students concerned

about the global climate crisis and its impact upon humanity, including the subjects of their research and the environments which they inhabit. One is to possibly conduct their initial research project, generally their PhD thesis work, in a faraway place, and remain there for an extended period of time, even over a year. However, future research projects should be conducted relatively close to their home. Conversely, a scholar whose initial research project occurred relatively close to home might opt, sometime later in his or her career, to conduct research in a faraway place for an extended period, perhaps as a once-in-a-lifetime experience.

The scurrying of a seemingly countless number of university administrators, academics, and students on airplane flights obviously results in a profound emissions impact on the global ecosystem, an issue that is seldom raised in international education circles as I have witnessed firsthand. As long as universities are situated within the larger framework of the capitalist world system, they will be tempted to market themselves in terms of both their teaching and their research, a scenario that encourages them to rely heavily upon aeromobility for both their staff and their students, particularly international students.

In such an eco-socialist world, the present system of university students studying abroad will have to be rethought. One approach would be a redistribution of educational resources so that university students could study at high-level tertiary institutions within their own countries, thus foregoing the perception that they need to study in developed societies in Europe, North America, and Australasia. In a democratic eco-socialist world system, the socioeconomic gaps between the developed and developing worlds will have been obliterated. Ironically, for the moment, the COVID-19 pandemic has greatly restricted air travel of both academics and students around the world.

Ultimately, creating a sustainable university is part and parcel of creating a sustainable society and sustainable world system. In a public meeting on December 11, 2015, in which the Sustainability Executive released its Sustainability Charter for the University of Melbourne, Arnaud Gallois, a colleague at the time in the Office of Environmental Programs, and I shared with those present and the wider University community an Alternative Sustainability Charter for the University of Melbourne based upon the following principles:

Foresight—working to long time frames, and considering the consequences of our actions for many future generations, so as to minimise any possible future harm;
Ecological solidarity—recognising our interconnectedness and interdependence with all living things, hence a moral responsibility to treat them with care and respect;
Peace—rejecting violence and the threat of violence as a means to resolve conflict between people; avoiding violence towards non-human beings, landscapes, sea-scapes, and the atmosphere;
Justice—for all to enjoy a relatively peaceful, secure, meaningful, and plentiful life: fair, egalitarian, utilitarian, distributive, and procedural;
Democracy—for all to participate equally in the decisions that affect them; an active and participatory process in all spheres of life; work, leisure, local communities, and broader society;
A steady state economy—one that permits economic growth for the most disadvantaged people but that requires economic de-growth for the affluent sectors of humanity; and
Simplicity—living simply so that others (human and non-human) may simply live; that is to meet our basic material needs, without excess, and hence with minimal negative disruption to the wider life-world.

Michael T. Osterholm and Mark Olshaker (2020) predict the possibility of a pandemic much worse than COVID-19, which they term 'The Big One'; although they admit that it is difficult to say when it might occur. For the moment, COVID-19 has deflected attention away from climate change given that it is a more immediate problem. Ironically, it has resulted in the reduction of greenhouse gas emissions from various sources, including production and consumption and air and motor vehicle travel. It has forced many people to adopt a somewhat 'Simpler Way,' although the powers-that-be around the world are doing their utmost to ramp up the capitalist treadmill of production and consumption. However, climate change looms in the background of COVID-19. Needless to say, the COVID-19 pandemic and anthropogenic climate change illustrate the need to ultimately transcend capitalist world system with an eco-socialist world system.

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6

Who Gets to Fly?

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The Challenge of the Century

We live in a world that has experienced unparalleled economic growth since the end of the Second World War. 'The great acceleration' has accelerated not just economic growth and consumption, but also environmental pollution, including CO_2 and other greenhouse gas emissions (McNeill & Engelke, 2016; Steffen et al., 2015a). The long-held belief that continued incremental economic growth can be a panacea to all societal ills has thus pushed up against a number of boundaries (Rockström et al., 2009; Steffen et al., 2015b), including climate change.

Researchers now stress that a rapid decrease of CO_2 emissions is needed to attain the 1.5 °C target of the Paris Agreement (2015) and to avoid the consequences of accelerated climate change. It is also becoming

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increasingly clear that the conception of climate change as an ominous threat that will affect us sometime *in the future* is a thing of the past, since human societies are pummelled on an annual basis by a toxic cocktail of increasingly severe heat waves, droughts, hurricanes, bushfires and other natural disasters. Earth is currently heading down a destructive path—a path that is hard or impossible to break away from if we do not change its trajectory soon (Steffen et al., 2018). Thus we urgently need to change course before tipping points and reinforcing feedback loops become a reality (Steffen et al., 2018).

In the Paris agreement, 189 signatories agreed on the end goal of keeping the average global temperature increase 'well below 2 °C' (e.g. aiming for an average 1.5 °C temperature increase above pre-industrial levels) (Paris Agreement, 2015). The Paris agreement does not, however, specify *how fast* CO_2 emissions need to be reduced if we are to attain that goal. Having a plan or a protocol for reducing CO_2 emissions is important since the cumulative effect of CO_2 in the atmosphere means that the longer we wait for reductions to be made, the faster the pace of reduction needs to be (Falk et al., 2018, 2019). Postponing emission reductions will thus make a hard challenge even harder, thereby decreasing the possibility of attaining the goal.

One way to concretise what needs to be done is to work with carbon budgets, that is, calculating how much space remains in the atmosphere for additional CO_2 emissions while still attaining the goals specified by the Paris agreement (Millar et al., 2017). Carbon budgets are helpful but again do not communicate the time scale and pace at which we need to act. One concrete plan for how to approach the transition is the idea of a 'Carbon Law' (Rockström et al., 2017; Falk et al., 2018, 2019) which states that we need to curb the increase of carbon emissions by 2020, and then reduce emissions by 50 per cent every decade between 2020 and 2050. The end goal is to reach (close to) zero emissions by 2050 on an aggregated global level (Rockström et al., 2017). The Exponential Roadmap report by the research organisation Future Earth (Falk et al., 2018, 2019) exemplifies in some detail how carbon emissions could be reduced by 50 per cent in every sector of society (e.g. transport, industry, buildings, etc.) between 2020 and 2030 (with food production being the only exception due to a growing global population).

Hence, while the Paris Agreement sets the goal, the Carbon Law specifies how we can achieve that goal. The reasoning behind the Carbon Law can be extended beyond specific industrial sectors and the general rule ought to be that emissions need to be reduced by 50 per cent every decade *in every country, in every city, in every industry, in every organisation, in every household and for every individual.*[1] By making the goals of the Paris agreement actionable, it becomes possible to develop a road map for any specific area (e.g. carbon emissions from flying) and at any level (e.g. in a specific organisation).

Reducing CO_2 Emissions in Academia

Research-intensive universities constitute a prime example of 'flight-intensive organisations' and flying is a major source of CO_2 emissions for universities in Sweden. Almost all Swedish universities are formally 'governmental agencies', and many of the top flyers (and top CO_2 emitters) among the 457 Swedish governmental agencies are in fact universities. At KTH Royal Institute of Technology (Stockholm, Sweden), flying constitutes 99 per cent of CO_2 emissions from business travel. To decrease CO_2 emissions from travel is thus equivalent to decreasing CO_2 emissions from flying. If we are to follow the Carbon Law, universities from now on need to decrease their CO_2 emissions from flying by 50 per cent every decade. Le Quéré et al. comment that if the goal is to limit global warming to 2 °C, there are no reasons 'to justify an exemption for the research community from the emission reduction targets applied elsewhere' (2015, n.p.).

There are, however, two reasons why it is possible to argue that universities' CO_2 emissions from flying should decrease by *more* than 50 per cent every decade. The first reason is that *flying* is a less essential need than *food* (emissions from agriculture), *warmth* (emissions from heating buildings) or *staying healthy* (emissions from the healthcare sector). While research and knowledge dissemination is important, other sectors in society arguably provide services that are even more important. Reducing emissions from flying at a faster pace than 50 per cent every decade would allow selected sectors in society to decrease emissions at a slower pace. The second reason is that it is easier as well as morally more acceptable

that those persons with the highest CO_2 emissions (e.g. the rich, who fly a lot) should reduce their CO_2 emissions at a faster pace than others (Chancel & Piketty, 2015; Gore, 2015, 2020).

While some researchers argue that carbon emissions from flying should be reduced within academia (Glover et al., 2017; Higham & Font, 2020; Hopkins et al., 2019) and that 'Academic air travel … is an unsustainable and unethical practice given its environmental impact' (Glover et al., 2018, p. 757), this is unfortunately not yet a prevalent notion. At our university, KTH Royal Institute of Technology, and in our school, the School of Electrical Engineering and Computer Science, a large group within the faculty knows that reducing emissions is necessary, but they have problems seeing how this could be achieved (Eriksson et al., 2020). Also, others report that many researchers perceive flying to be an inherent and important part of academic work (Higham et al., 2019; Hopkins et al., 2019), for example for disseminating research results or for career progression in terms of building up and maintaining international academic networks (Parker & Weik, 2014; Storme et al., 2017). Many researchers perceive that there is a conflict between different goals, but they do not know how to resolve this conflict on a personal level and tend to propose solutions that do not include behaviour change but instead point to the need to change academic *structures*. While there is a need for academic structures to change, it is also all too easy to point to the necessity of structural change as a reason for non-action when it comes to personal behaviours and personal responsibility.

Other colleagues of ours at KTH are more averse to the idea of decreasing flying (Eriksson et al., 2020). They do *not* experience a goal conflict ('flying is only 2 percent of global CO_2 emissions'), or they state that they *cannot* fly less, thereby implying that *someone else* (presumably outside of academia) should reduce their flying if reduction targets are to be met. While there are few climate change deniers at our school or the university at large, there is however a large group of researchers who are unaware of the magnitude of the necessary reductions. These researchers can propose solutions that are superficial (e.g. 'pack light') or insufficient. A proposed solution is insufficient if it does not support the goal, for example rapid and significant CO_2 emission reductions from flying, and examples of such proposals are more energy-efficient jet engines, more streamlined

airframes, 'green approaches' (Continuous Descent Approach, CDA, see Turner, 2007) and other 'techno-fixes' such as biofuels or possible future electric airplanes (Eriksson et al., 2020).

While it is possible to argue that it is important for researchers to continue to fly, or that a few per cent of global CO_2 emissions is not much, the crux of the matter is that if we are to attain CO_2 emission reductions of 50 per cent in 10 years, *each* profession (including researchers) and *each* practice (including flying) needs to aim for a 50 per cent reduction of emissions—unless some other profession or some other practice is to reduce emissions by more than 50 per cent. While there are many suggestions for how to decarbonise flying, average efficiency gains have been estimated to 1–2 per cent per year (Bows-Larkin, 2015; Gössling & Humpe, 2020; Kamb & Larsson, 2018) while the *volume* of flying has increased at a significantly higher pace.[2] Global CO_2 emissions from aviation could grow to 22 per cent of global carbon emissions by 2050 if efforts to combat climate change are further postponed within this sector (Cames et al., 2015). It is, in the end, impossible to get around the fact that if CO_2 emissions from flying are to be reduced by 50 per cent in 10 years, that goal will not be attainable unless we *significantly decrease the volume of flying*. While efficiency gains are important, there is no substitute for *flying less* both at universities and elsewhere.

Reducing Flying at KTH

We have thus far argued that emission reductions for academic flying should be no less (and possibly more) than 50 per cent between 2020 and 2030. Our university, KTH Royal Institute of Technology, is a research-intensive university that aims to be a leading technical university in the area of sustainable development (Pargman et al., 2020) and KTH is one of the 37 Swedish Higher Education Institutions that, as a signatory of The Climate Framework for Higher Education Institutions, has pledged that 'by 2030 … have implemented measures in order to be in line with the Paris Agreement's 1.5 °C target'.[3] KTH Royal Institute of Technology has also recently developed its own climate objectives and measures for the period 2020–2045 and these objectives state that KTH's climate

impact from business travel (i.e. carbon dioxide equivalents per full-time equivalent) should decrease by 60 per cent between 2015 and 2030.[4] Since there is uncertainty about the 2015 baseline data, we here conservatively assume that KTH's CO_2 emissions from air travel have neither increased nor decreased between 2015 and 2020.[5] To attain the goal and to reduce emissions at an even pace, KTH needs to reduce CO_2 emissions from flying by 9 per cent every year between 2020 and 2030 (per full-time equivalent).

As part of a research project, we have access to detailed information about all KTH employees' flights from 2017 and forward. This data set is probably comparable to the data sets that underlie previously published studies about carbon emissions from flying at a Norwegian research institute (Stohl, 2008), at a Swiss university (Ciers et al., 2019) and at a Canadian university (Wynes et al., 2019). In the research project, we work together with different departments at KTH to study departments' and individuals' business travel. The project aims to guide and support departments in creating change towards more sustainable travel behaviours and CO_2 emission reductions that are in line with KTH's goals and with the Paris Agreement.

To decrease CO_2 emissions from flying at the breakneck speed of 9 per cent per year, there is a need for high-quality data, for tools to make sense of this data and for a better understanding of travel- and meeting-related practices both at the departmental and at the individual level. It also makes sense to first go for the low-hanging fruit, for example to decrease 'unnecessary flying'. This is a good goal because everybody agrees that 'unnecessary' flying should be phased out. The hard part is agreeing on what flying is 'unnecessary', since this is a value judgement. Before we start a process of working through what flying practices are 'necessary' and 'unnecessary' (or rather *more* and *less* necessary), we first need to better understand the flying that goes on at KTH, for example *who flies when, where and why?* Concretely we need to understand how flying is distributed over various schools, departments and positions at KTH in order to be able to discern where CO_2 reductions are most attainable, for example to understand *why* we fly, *what* flying needs to decrease, *whose* flying needs to decrease and what obstacles there are to reducing academic flying.

In the context of this research project, we have, as mentioned, access to a wealth of data about flying at KTH. The challenge is to make sense of that data and to make it 'actionable' (possible to act upon). We have chosen to work together with departments at our university and have developed tools to help these departments understand their flying. These tools include visualisation tools (Pargman et al., 2020; Biørn-Hansen et al., 2021) as well as a *workshop format* for presenting data, for discussing flying patterns at a department and for discussing challenges associated with reduced flying. The purpose is to start up and facilitate discussions about how flight-related CO_2 emissions can be reduced at the specific departments we work together with and at a pace that fulfils KTH's goals. Besides data and tools, there is a need to help these departments increase their understanding of their flying and to help them find ways to decrease their CO_2 emissions. To facilitate such an understanding and *motivate* departments to accept the challenge of reducing emissions from flying, we have developed a method where we use poker chips to visualise flying.

Material Visualisations

For this text and based on 2019 data, we have chosen to visualise and analyse two departments at KTH Royal Institute of Technology: a 'low flyer' and a 'median flyer' department. These are not departments that we work within our research project, but rather departments that fit the profile of flying little or flying in line with the KTH average. We have chosen to keep things as simple as possible in the text and chose not to include a 'high flyer' department; the median flyer here represents an average department and the low flyer represents something that the average department might strive for.

To select two departments, we first restricted the selection process to departments with 25 employees or more (there are 51 such departments at KTH and an additional 175 departments with less than 25 employees). We then chose the department with the *lowest* number of travel bookings and the *median* department at each of KTH's five schools. After discarding outliers, we chose one 'low flyer' and one 'median flyer' department that had similar numbers of employees. An example of an outlier

that was discarded was a 'low flyer' department where the whole department had all but stopped flying altogether.

Department Median has 39 employees who in total booked 78 air trips in 2019 (for an average of 2 trips/person), and Department Low has 40 employees who in total booked 27 trips in 2019 (for an average of just below 0.7 trips/person). Some of these bookings were however one-way trips, some were round trips and some were complex (e.g. a month-long trip with several stops). We here assume that people conceptually think about their air travel in terms of *trips* with particular *destinations* rather than as combinations of more disjointed *bookings* or as the combination of several *legs* and *stopovers*.[6] When we scrutinised the *bookings*, we found that at Department Median the actual number of *trips* was considerably lower than the number of *bookings*, since two separate *bookings* for one-way *trips* often could be combined into a *round trip* and several *bookings* sometimes could be combined into a *complex trip*.[7] When we merged different *bookings* into more logical *trips*, Department Median went from 78 bookings to 62 trips (1.6 trips/employee). At Department Low, there was no discrepancy between the number of bookings and trips (since they never booked one-way trips or complex trips).

The flight patterns for Department Low and Department Median can be seen in Figs. 6.1 and 6.2. Each employee is represented by a post-it note, and each trip is represented by a poker chip. Green poker chips

Fig. 6.1 Each employee at Department Low is represented by a green post-it note. Only 12 out of 40 employees at Department Low made one or more trips by air in 2019

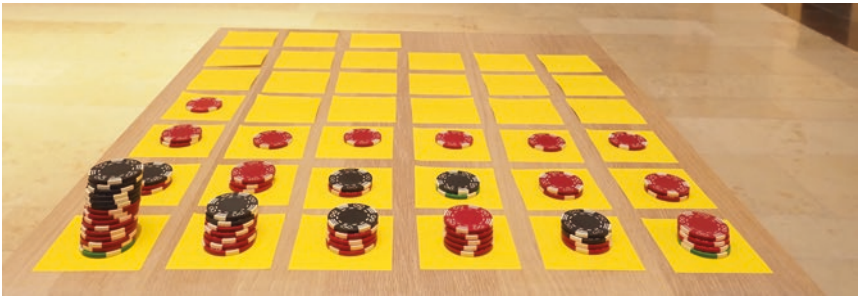

Fig. 6.2 Each employee at Department Median is represented by a yellow post-it note. Half of the employees at Department Median (19 out of 39) made one or more trips by air in 2019

represent *short-haul* trips (typically domestic trips or trips to a neighbouring Scandinavian country), red poker chips represent *medium-haul* trips (typically a trip from Sweden to a European country) and black poker chips represent *long-haul* (intercontinental) trips (typically a trip from Sweden to the United States). A trip between, say, Los Angeles and San Francisco has been coded as a short-haul trip since it has a similar carbon footprint as a trip from Stockholm to Copenhagen. In the following we analyse some of the flying patterns at these two departments. This analysis overlaps with the work we do in our research project before we visit a department to hold a workshop there.

What is immediately obvious from the images is that while the average for Department Low is 0.7 trips/employee and the average for Department Median is 1.6 trips/employee, these trips are very unevenly distributed *within* the departments. At Department Low, less than a third of the employees (e.g. 12 out of 40) made one or more trips by air during 2019, and just below half of the employees (e.g. 19 out of 39) made one or more trips by air at Department Median. The average number of air trips per *flyer* at Department Low was 2.2 trips, and the equivalent number at Department Median was 3.2 trips per flyer.

Besides the differences *between* these two departments and between *flyers* and *non-flyers* at the departments, there are also large differences *within* the group of flyers at both departments. Out of the 12 flyers at Department Low, a large majority (8 persons) had made only one or two

trips during 2019, while the top three flyers together had made almost half (48 per cent) of all trips at the department. At Department Median, a majority of the flyers (11 out of 19 persons) had made only one or two trips during 2019, while the top three flyers together had made 44 per cent of all trips at the department.

While each department will differ in terms of travel patterns, certain patterns do seem to recur in many departments, for example, many employees at a department do not fly at all during a particular year, and air trips are very unequally distributed among those who do fly. At one particular high-flying department (not discussed here), it turned out that a single individual was responsible for more than half of all trips at the department. On average, that person had flown more than once per week during the whole of 2019.

It should be mentioned that while it is intuitive and convenient to display and analyse the *number of trips* (see Figs. 6.1 and 6.2), KTH's goal is not primarily to decrease the number of trips but to decrease *CO_2 emissions* from air trips. This means that an analysis of a department's flying patterns has to discern between different kinds of trips (short-haul, medium-haul and long-haul) since they differ significantly in terms of their CO_2 footprint. Figure 6.3 complements Fig. 6.2 by showing the *CO_2 footprint* from flying at Department Median. To go from number of

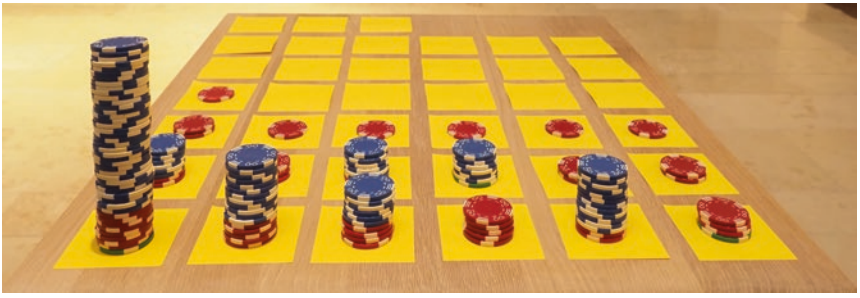

Fig. 6.3 Where each black chip in Fig. 6.2 represented one long-haul trip, each black chip has here been replaced by several blue chips. Each blue chip and each red chip represent the CO_2 footprint of a medium-haul trip (e.g. a trip from Sweden to the European continent). It is immediately clear that the major part of the emissions from flying at Department Median comes from the relatively limited number of long-haul (intercontinental) trips

trips (Fig. 6.2) to CO_2 emissions (Fig. 6.3), we added up all trips by air at the two departments and calculated the average CO_2 footprint for a short-haul trip, for a medium-haul trip and for a long-haul trip.[8] When we compared the CO_2 footprint for these three categories, we found that the CO_2 emissions of the average medium-haul trip (typically a trip from Stockholm to France, Switzerland or southern Germany and perhaps changing plane once, e.g. in Copenhagen) corresponded to 3.2 short-haul trips (typically a trip within Sweden or to a neighbouring Scandinavian country). The average long-haul trip (typically from Stockholm to the United States) instead had a CO_2 footprint that was equivalent to 5.9 medium-haul trips. Going from Fig. 6.2 to Fig. 6.3, we thus exchanged each black chip (representing one long-haul trip) for six blue chips (representing the CO_2 emissions of the average medium-haul trip).

At Department Median, 23 per cent of the total number of trips were long-haul trips, but these trips generated more than 64 per cent of the total CO_2 emissions (e.g. almost 2/3 of the chips in Fig. 6.3 are blue). It thus becomes clear that the easiest way to substantially reduce CO_2 emissions from flying is to reduce the number of long-haul trips, since a relatively small number of such trips generate most of the CO_2 emissions at this department. This is a pattern that is repeated also at many other departments. While the number of trips usually are very unequally distributed within departments (most employees fly little or not at all while some employees fly a lot), the CO_2 emissions are yet more unequally distributed. At Department Median, the top three flyers are responsible for 44 per cent of the trips and for 57 per cent of the total CO_2 emissions. A glance at Figs. 6.2 and 6.3 gives that almost every flyer who made a long-haul trip has a CO_2 footprint that towers over those who did not.

While we have here used poker chips to display the flying at two different departments, our research project is currently developing a prototype for a tool to visualise the same information on a computer screen. Such a tool will make it possible to quickly inspect data from any department as well as more easily facilitate online or face-to-face workshops.

Inequalities in Flight Distribution at KTH

Who flies at KTH? Having visualised differences (or 'inequalities') in trips and CO_2 emissions both between and within departments, we take a step back to discuss flying in general at KTH Royal Institute of Technology. In 2019 there were 4704 employees at KTH of which 41 per cent of the employees (1914 persons) made one or more trips by air. All employees together generated CO_2 emissions of more than 10,000 tons from flying. To better understand flying at KTH, we divided KTH employees into two categories; 'researchers' (or 'faculty', which includes PhD students, post-docs and all teaching positions) and 'administration' (all other positions). While 74 per cent of the KTH employees belong to the category 'researchers', this group is responsible for 89 per cent of all carbon emissions from KTH employees' flying (see Fig. 6.4). If KTH emissions from flying are to be significantly reduced, that work has to start with the researchers.

Another way to visualise the distribution of emissions from flying at KTH is to use a Lorenz curve (see Fig. 6.5). The Lorenz curve was

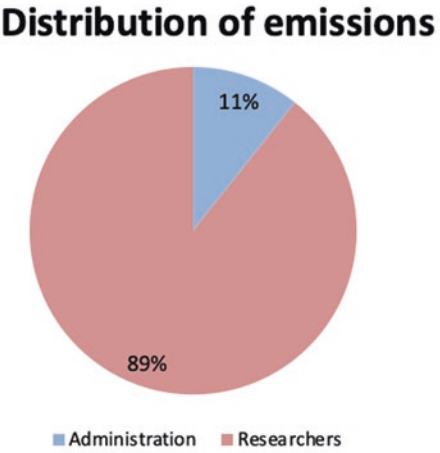

Fig. 6.4 The distribution of CO_2 emissions from flying at KTH broken down into two categories: 'administration' and 'researchers'. The former category comprises 26 per cent of all employees, but their CO_2 emissions from flying are only 11 per cent of total KTH emissions

originally developed to display the national income distribution over populations and income groups, but we use it here to display the distribution of CO_2 emissions over KTH employees.

As was mentioned earlier, 41 per cent of all KTH employees are *flyers* who made one or more trips by air in 2019, and the remaining 59 per cent of the employees are *non-flyers* who are represented by 'the long horizontal tail' of the curve in Fig. 6.5. The curve and the underlying data suggest that half of those who fly (e.g. 20 per cent of the employees at KTH) are responsible for 89 per cent of all emissions. Furthermore, it is possible to discern that 10 per cent of the employees are responsible for two-thirds (67 per cent) of the emissions and that the top 5 per cent are responsible for almost half (47 per cent) of all emissions from flying at KTH. The KTH numbers are reminiscent of data presented by Gössling and Humpe (2020, p. 7) that indicate that 53 per cent of all adult Americans did not fly in 2018 and that 12 per cent of all adults accounted for 68 per cent of all flights taken. An even more select group, the top 1 per cent of KTH employees (47 persons), are responsible for as much as 17 per cent of KTH's total emissions from flying. These persons will, for the most part, have higher-than-average salaries, and it is therefore

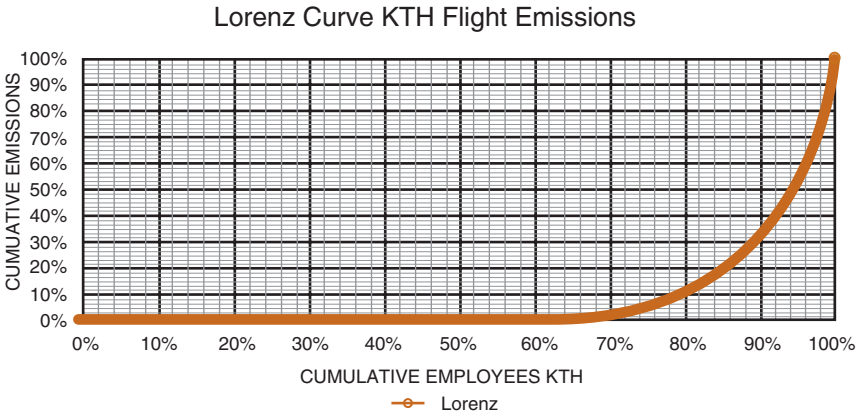

Fig. 6.5 This Lorenz curve displays total flight emissions as distributed over all employees at KTH. The X-axis represents the cumulative share of employees, and the Y-axis represents the cumulative emissions from flying

likely that they also outside of their official KTH business travel fly more and have higher CO_2 emissions than the average Swede.[9]

It is easy to ascertain that CO_2 emissions from flying are very unevenly distributed at KTH, but exactly how unevenly are the CO_2 emissions distributed? One way to calculate the 'level of unequalness' (e.g. inequality in the distribution of a resource) is to use the Gini coefficient (Gini, 1912). As with the Lorenz curve, the Gini coefficient is most often used to describe wealth or income disparities in a society, but we use it here to describe how unequal flying is at KTH. The unequally distributed 'resource' in question is, in this case, KTH's CO_2 emissions from flying (see Fig. 6.6). The Gini coefficient for KTH's flight emissions is calculated based on the relationship between two different areas in Fig. 6.6. The blue line represents a perfectly equal distribution of CO_2 emissions among KTH employees, and the red curve represents the real distribution of KTH's CO_2 emissions from flying. The Gini coefficient is the ratio between the area A and the area A+B, so the Gini coefficient for carbon emissions from flying at KTH is:

$$Gini\ coefficient = A \div (A + B)$$

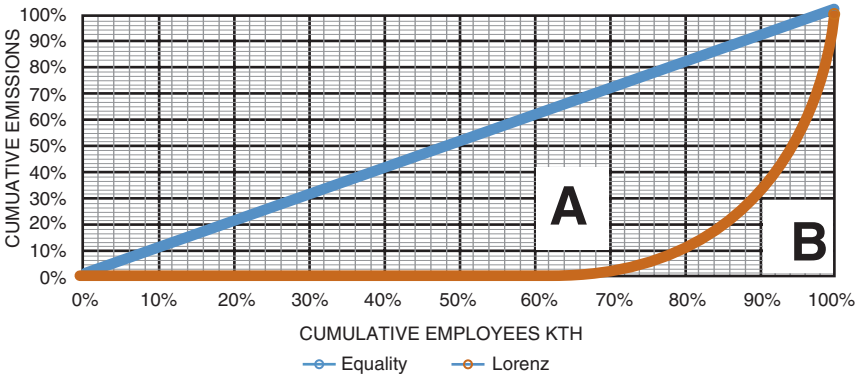

Fig. 6.6 The blue line represents a perfectly equal distribution of CO_2 emissions among KTH employees. The red line represents the real distribution at KTH. It is possible to calculate the level of unequalness, for example the Gini coefficient for CO_2 emissions from flying at KTH by calculating the ratio between area A and area A+B

The larger the area between the blue line (equal distribution) and the red Lorenz curve (real distribution), the greater the Gini coefficient. In a theoretical, maximally unequal scenario where a single person would be responsible for *all* emissions, the Gini coefficient would be 1. In a theoretical and perfectly equal scenario, the Gini coefficient would instead be 0. KTH flight emissions have a very high Gini coefficient of 0.83. This can be compared to the Gini coefficient for the world economy, which has been estimated to be in the range of 0.61–0.68 (depending on the source).

Discussion

The analysis presented here points out a future direction for CO_2 emission reductions in academia *and* functions as a backdrop to discussions with individual departments about their flying patterns and individual researchers' flying habits. The title of this chapter is, however, 'Who gets to fly?'. So who will get to fly if we are to reduce flying? This question can yield several pertinent questions such as 'Who should fly less?' and 'What types of flying should decrease?'. How should we reason about flying in terms of destinations, duration, academic position or reasons for flying?[10] In short, *What flying is 'unnecessary'?*

While we certainly have suggestions, it would be presumptuous to prescribe specific answers to that question without having a better understanding of the reasons for why people fly. No matter how good the purported reasons are, and no matter how necessary each trip is perceived to be, the facts remain: CO_2 emissions from flying need to be reduced by 9 per cent per year at KTH if we are to reach our emission reduction goals. This means that the bar for what qualifies as 'necessary' flying should be raised every single year.

While various forms of force (rules, regulations etc.) certainly can be an option in any organisation, such tools are not at the disposal of our research project, and, we believe in the power of initiating conversations that can lead to negotiations among those who need to reduce their flying, for example with the researchers themselves. While we have pilot tested the material visualisation described earlier (Figs. 6.1, 6.2 and 6.3),

planned visits to departments have had to be postponed due to the 2020 COVID-19 outbreak. We will visit different departments during 2021, and we are keen to learn how researchers understand and handle the challenges we have outlined in this text when the questions and the data get close up and personal. If we must decrease unnecessary flying, what flying do researchers themselves deem 'unnecessary' after deliberating and discussing this question with their colleagues and in relation to their own flying? We hope that our workshops will not only be eye-openers but also expect that they will lead to tough but necessary conversations about flying and about who gets to fly.

We have this far implicitly assumed that all departments should decrease their carbon emissions at the same pace (e.g. 9 per cent per year). It could be argued that it is reasonable or even 'fair' that all departments should reduce their flying by the same factor since the task of reducing CO_2 emissions by 60 per cent in 10 years is equally challenging for all departments no matter what their current volume of flying is. Reducing emissions from flying could be construed as a *harder* task at departments that fly a lot since flying could be an integrated part of the micro-culture at that department and since such a department would need to make larger cuts in terms of the absolute number of trips compared to a department that flies less. However, since Department Median has CO_2 emissions that are more than twice as large (per employee) as Department Low, it is also possible to argue that it is more 'fair' if emission reductions were modified based on current levels of flying; perhaps Department Median should reduce their emissions at a faster pace to create space that would allow the already low-flying Department Low to decrease their emissions at a slower pace?

These are two distinct points of view, and they represent different answers to the question 'who should fly less?'. One answer is thus that *everyone* should fly less, but another answer is that those departments (and those individuals) who fly the most today should decrease their emissions at a faster pace than others. An emphasis on current habits and patterns raises the issue of 'carbon inequality' (Chancel & Piketty, 2015; Ivanova & Wood, 2020) at the local KTH level. Instead of 'Sharing global CO_2 emission reductions among one billion high emitters' (Chakravarty et al.,

2009), perhaps the onus of reducing KTH's CO_2 emission should primarily be shared by the 100 highest emitters at KTH?

Flying at KTH is, as has been demonstrated, extremely unequally distributed between employees. This is all the more noteworthy since the distribution of *salaries* at KTH is remarkably equal compared to most other countries. The average full professor's salary at KTH (n = 240) is less than 150 per cent higher than the salary of the average PhD student (n = 998).[11] As was shown earlier, 'top flyers' at KTH rack up most of the emissions, and they are almost exclusively to be found in the category 'researchers'. Therefore, the relevant reference group for top flyers is *other researchers* at KTH rather than the average KTH *employee* (since 26 per cent of the KTH employees are *administrators* who as a group make few business trips). If the top flyers at KTH flew as much (or 'as little') as the *average researcher* at KTH, KTH's total CO_2 emissions from flying would decrease significantly. If the top 5 per cent of KTH employees flew in line with the average KTH researcher, KTH's total emissions from flying would decrease by 22 per cent, and if the top 10 per cent flew in line with the average KTH researcher, total emissions would decrease by 31 per cent. Such reductions would contribute tremendously to KTH reaching its emissions reduction targets in 2030, but they would still not be enough.

To further complicate matters, there is yet another category of air travel that we have not yet touched upon in this chapter, and this is air travel by people who are *not* employed by KTH, but where KTH pays for the trips. It might seem counterintuitive that KTH would pay for non-employees' travel, but a few examples will clarify when and why that is the case:

- KTH regularly pays for air trips so that international researchers can be part of the grading committee at PhD dissertations. KTH also pays for many other high-profile guests to visit KTH for various academic, educational and other official purposes.
- Some PhD students are not formally employed by KTH, but are rather supported by a scholarship or a stipend from their home country (for example China). Such PhD students will still work in research projects that will pay for air trips to present research papers that are written within these projects.

- Sometimes KTH pays for students' trips, for example, when students do Minor Field Studies (MFS). MFS is 'a travel grant that allows students to perform a field study for eight consecutive weeks in a developing country, resulting in a bachelor's or master thesis'.[12] The money originally comes from a governmental agency, 'The Swedish International Development Cooperation Agency' (SIDA), but is distributed to students through KTH (who then formally pays for the air trip).

While it is easy to identify all air trips that have been made by non-KTH employees, the current computer systems do not allow us to see who made the trip, why such a trip was made or indeed even where (at which specific department) such a trip originated. This information certainly does exist (or has existed) *somewhere*, but it is distributed and hard to get access to since no one has previously perceived a need or expressed an interest in collecting this data. This lack of data makes it hard to analyse these trips except at the most superficial level, and to a large extent, the trips are currently unaccounted for.

These trips would perhaps not be a big problem if it wasn't for the fact that a *significant proportion* of KTH's air travel is made by unknown and anonymous travellers rather than by identifiable KTH employees. Where Fig. 6.4 presented the breakdown of CO_2 emissions for KTH *employees*, Fig. 6.7 represents an updated version of that image which also includes the CO_2 emissions of all 'unknown' travellers.

The magnitude of this problem is hard to overestimate. If KTH's CO_2 emissions from air travel are to be reduced by 60 per cent in 10 years, the 2030 emissions will be equivalent to 40 per cent of KTH's current emissions. If KTH fails to reduce the CO_2 emissions from 'unknown' travellers, all CO_2 emission reductions would have to come exclusively from KTH employees, and their emissions would, in the span of 10 years, have to be reduced by almost 90 per cent compared to current emissions. This is not reasonable, but there is currently no easy way to understand who flies when, where and why when it comes to 'unknown' travellers.

Returning to the topic of 'who should fly less', we have proposed that there are two ways to think about this issue: either *everyone* should fly less, and everyone (each department) should decrease emissions at the

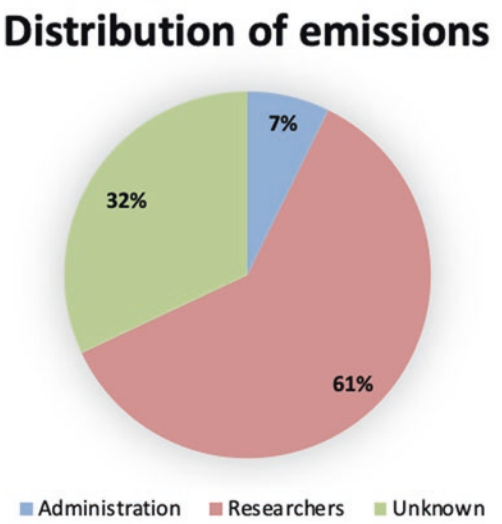

Fig. 6.7 The distribution of CO_2 emissions from flying at KTH broken down into three categories: 'administration', 'researchers' and 'unknown'. The latter category includes all air travel by persons who are not formally employed by KTH. Unknown travellers are responsible for a third of the total CO_2 emissions from flying at KTH

same pace (9 per cent per year), *or some* should reduce their emissions at a faster pace than others. In the latter case, we have suggested that top flyers (or 'heavy emitters' be they departments or individuals) should reduce their emissions at a faster pace. There are, however, other possibilities as to who should bear a larger burden for reducing CO_2 emissions from flying. One option could be that KTH non-employees ('unknown travellers' above) should decrease their emissions faster, thereby creating space for KTH employees to decrease their emissions at a slightly slower pace. Yet another option would be to tie emission reductions to some sort of measure of academic 'performance', 'output' or 'excellence'. Perhaps 'ordinary' departments should reduce their emissions at a faster pace, thereby creating space for departments that perform extraordinary research to reduce their emissions at a slower pace? Yet another possibility is to take seniority into account. Tenured (senior) researchers will presumably have established their research networks, while more junior

researchers have a greater need to travel and to make contacts and to establish networks (Le Quéré et al., 2015).

We believe that all of these suggestions have merit, but we also believe that the best suggestion is the one that has the potential to gain the largest possible support from faculty—and we do not yet know which suggestion that is. It is difficult, however, to sidestep the fact that top flyers have the largest emissions and thus also the largest potential to reduce their emissions in terms of absolute numbers. Gössling and Humpe suggest that 'the share of the world's population travelling by air in 2018 was 11%, with at most 4% taking international flights' (2020, p. 1). Taking frequency and type of ticket into account (business class, first class), they further estimate that 10 per cent of the travellers (e.g. 1 per cent of the world population) are responsible for 50 per cent of the emissions from commercial air travel. Any solution for reducing emissions from commercial air travel that does not take this select group into account will surely be destined for failure for two different reasons. The first reason is that emission reduction targets will be hard to reach unless this group of hypermobile travellers, who are responsible for a very large share of the total emissions, begin to fly less. The second reason is that a solution that did not restrain hypermobile travellers would not be seen as legitimate by the large majority of air travellers. Analogously we believe that any suggestion that does not take academic top flyers—be they departments or individuals—into account will be hard-pressed to gain the necessary support.

We end this chapter with a short note on language. In this chapter, we have used words like 'low', 'high' and 'top' descriptively to refer to a 'low-flying department', to a 'high-flying department' and to 'top flyers'. There is, however, something that chafes, since words like 'high' and 'top' have positive connotations that are easily connected to 'excellence' in a research context. Who does not want to work at a 'top department'—or be a 'top flyer'? Referring to someone who flies a dozen times per year or more as a 'top flier' is in this context a euphemism that hides the downside of excessive flying, for example the high CO_2 emissions that are associated with hypermobile lifestyles. Words like 'low' instead have negative connotations. 'Department Low' might bring to mind a *low-performing* department or a department that lacks energy or is depressive. Linguist George

Lakoff has written extensively about the connection between language and cognition and about framings and biases that are invoked when particular words are used (Lakoff & Johnson, 1980; Lakoff, 2014). Lakoff and Johnson (1980), for example, noted that our culture organises our values spatially so that 'up' (an upward orientation) is positive and good (e.g. 'rising to the top', 'being in top shape', 'having a high-level intellectual discussion', 'do high-quality work') while 'down' (a downward orientation) is negative and bad (e.g. 'feeling down', 'coming down with the flu', 'falling from power', 'being at the bottom'). There is thus a need for new terms that turns these connotations upside down when we speak about flying. Perhaps we should not refer to 'top flyers' but use the more neutral term 'frequent flyers'? Or perhaps it is high time to instead refer to such persons in terms of 'high emitters', 'top polluters', 'superspreaders' or simply as 'flight addicts' (Cohen et al., 2011)?

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Notes

1. If it turns out to be hard (or undesirable or 'unfair') to reduce emissions at that pace in one sector of society (for example food production) or in certain countries (for example poorer countries), other sectors and other countries will need to reduce their emissions at a faster pace.
2. These efficiency gains are primarily based on technical progress and increased capacity utilisation.
3. The Climate Framework for Higher Education Institutions is available at https://www.kth.se/en/om/miljo-hallbar-utveckling/klimatramverket-1.903489
4. KTH's Climate objectives and measures 2020–2045, available at: https://www.kth.se/en/om/miljo-hallbar-utveckling/klimatramverk/kth-s-klimatmal-1.926003

5. KTH's CO_2 emissions from flying increased by 28 per cent between 2016 and 2019, but an unknown part of the increase is due to increased compliance with rules that specify that all trips should be booked through KTH's official travel agency.
6. Our unit of analysis is thus a *trip* to a certain *destination* for some particular (but to us unknown) *purpose* at some particular *point in time*. Travelling from Stockholm to Los Angeles to attend a conference is thus one trip no matter if this trip corresponds to one booking of a direct round trip between Stockholm and Los Angeles, one booking with one or more stopovers in Europe or the US, or several bookings that (through careful detective work) can be combined into a trip between Stockholm and Los Angeles.
7. Data about 'bookings' came directly from the university's travel agency. We have naturally discarded cancellations and so on.
8. For this particular data set (e.g. combined data of 2019 flights at Department Low and Department Median), the distance of the average short-haul trip (11 trips in total) was 960 kilometres, the average medium-haul trip (58 trips in total) was 3060 kilometres and the average long-haul trip (20 trips in total) was 18030 kilometres.
9. The average (consumption-based) CO_2 emissions for a Swede are around 9 tons per person and year according to the Swedish Environmental Protection Agency. See further: https://www.naturvardsverket.se/Sa-mar-miljon/Statistik-A-O/Vaxthusgaser-konsumtionsbaserade-utslapp-per-person
10. It goes without saying that a trip from Stockholm to Los Angeles for a year-long sabbatical is more justified than a trip from Stockholm to Los Angeles to participate in a two-day workshop.
11. PhD students have high salaries in Sweden and the salaries are yet higher at a technical university such as KTH in order to compete with industry.
12. See further https://intra.kth.se/en/internationalisering/program/minor-field-studies-1.17564

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7

Exceptionalism and Evasion: How Scholars Reason About Air Travel

Elina Eriksson, Maria Wolrath Söderberg, and Nina Wormbs

To meet the 1.5 °C target of the 2015 Paris agreement, we need both structural and individual change. This entails cutting our carbon emissions by 50 per cent every decade, starting in 2020 (Rockström et al., 2017). Individuals are key to societal change. At least three-quarters of global emissions are linked to individual or household activities (Druckman & Jackson, 2016). This does not mean that change is easy; individual agency is, of course, limited by societal structures and culture. In addition, remaining emissions occur on system level, which means that individual steps will not suffice. At the same time, individuals are key to systemic and political change, by forming social movements and expressing their democratic rights (Burstein, 2003; Centola et al., 2018;

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Chenoweth & Stephan, 2011; Wolf & Moser, 2011). Moreover, individuals are not just citizens but also, for example, politicians, business leaders, entrepreneurs, influencers and academic scholars. In this chapter, we are interested in how academic scholars reason when it comes to their own footprints, particularly in relation to flying, and to understand what they perceive would enable change.

Many scholars cause high greenhouse gas emissions by flying (Arsenault et al., 2019; Spinellis & Louridas, 2013; Naturvårdsverket, 2019). As professionals and representatives of a particular group, they can be seen as having a specific responsibility regarding their own footprint from flying, since knowledge is their vocation (Spinellis & Louridas, 2013). We know that awareness of climate change alone is not enough to prompt behavioural change (Moser & Dilling, 2011; Norgaard, 2011). However, recent research has shown that knowledge is still important for change (Wolrath Söderberg & Wormbs, 2019; Wormbs & Wolrath Söderberg, 2021; Jacobson et al., 2020). The individual's ability to make an informed decision is often taken for granted in a liberal market economy dominating much of the Western world. We are interested in if and how that responsibility is framed and understood. We argue that to change organisations staffed to such a high degree by autonomous employees—true for most university and research organisations—it is imperative to understand the values and motives of these people.

This study is based on 556 free-text responses to one particular question in a survey about travelling habits at KTH Royal Institute of Technology in Stockholm. The question was 'A large part of the emissions at KTH come from air travel. What do you think should be done to reduce those emissions?.' We have used the rhetorical method of *topos* analysis to discern the lines of reasoning in the responses. By doing so we can capture values and motives, which can help us understand what kinds of discourse enable a transition to a sustainable society, and conversely, what kinds of discourses uphold inertia.

Background

Climate change is a super wicked problem laden with goal conflicts. Moreover, there is no central authority we can turn to for a solution, and those we do turn to for solutions are also part of the problem (Levin et al., 2012). Hence, the fact that society turns to academy for solutions to contemporary problems is one reason to look at academics and analyse their views and values as they apply to their own footprints. Furthermore, among academics, there are not just people with arguably a high level of general knowledge but also those who for example study climate change, analyse the international and national governance systems for climate change mitigation, calculate costs of mitigation and non-mitigation and specialise in finding new engineering solutions.

The travelling scientist embodies a moral dilemma: We know we should not fly, but academic structures around us increasingly promote mobility (Storme et al., 2017; Lassen, 2009; Hopkins et al., 2019; Leung, 2013; Nursey-Bray et al., 2019), just as in Western society as a whole. There is a paradigm of mobility in academia. However, contemporary knowledge production is a historically constructed system with several parts. One is the dominating idea of internationalisation which permeates contemporary scholarship and is taken as a quality parameter in itself.

There is reason to believe that internationalisation leads to higher quality (Sugimoto et al., 2017), and cross-national knowledge exchange is a practise that predates 'the Great Acceleration' (Steffen et al., 2015; Crawford et al., 1992). The problem with internationalisation in recent decades is its conflation with mobility (see Ackers, 2008; Hoffman, 2009)—a conflation made by Sugimoto et al. (2017), among others. On the one hand, it has been shown that there are no clear links between mobility and quality (Aksnes et al., 2013; Wynes et al., 2019). On the other hand, mobility does not necessarily result in internationalisation. Thus, mobility is neither a necessary nor a sufficient condition for internationalisation.

One reason for scholars to engage in climate-related behavioural change is that knowledge itself yields power and demands responsibility. This has been argued by Higham and Font (2020), specifically in regard

to flying and emission awareness. This position is ethical and pragmatic: If scholars act against their knowledge, they risk undermining their own message (Westlake, 2017; Oreskes, 2013; Attari et al., 2016). In fact, the effect of not practising what you preach has a considerable impact on the audience's inclination to support your policy, whereas a change in behaviour can mitigate this tendency (Attari et al., 2019). Furthermore, scholars and academics belong to a societal elite, with great resources and an enviable lifestyle, and their values and habits potentially influence others. All these perspectives also entail moral challenges.

We believe it is important to discern and analyse how scholars reason in this field of tension between knowledge and action, as it enables discussion and problematisation of assumptions, habits and norms.

Method and Context of Study

The so-called knowledge-action gap has been widely studied and analysed (Kollmuss & Agyeman, 2002; Moser & Dilling, 2007). The phenomenon has been noted in many different groups and contexts. Related to our study is a study by Lassen (2010), showing that knowledge workers, who consider themselves as environmentally aware, made no connection between their environmental attitude and their actual travel behaviour. It was possible for them to continue with high emissions despite deep knowledge and conviction of the climate crisis. Even more noteworthy is a study by Whitmarsh et al. (2020) showing similar results when it comes to climate scholars in regard to aviation. This study finds that the researchers with the most knowledge of climate change, namely professors with a focus on this specific issue, actually fly more than other researchers (Whitmarsh et al., 2020). Caset et al. (2018) calls this academic mobility a 'paradox', 'a blind spot' and an 'elephant in the room' needing to be addressed and calling for a shift in culture.

In the past decade, a series of models purporting to explain the knowledge-action gap have been put forward (Gifford, 2011; Stoknes, 2015; Kahan, 2014). Common for many of these is the critique of the information deficit model, the idea that knowledge leads to adequate action and that harmful climate behaviour, therefore, should be

countered with more information. The critique states that more knowledge *alone* does not help (Norgaard, 2011; Moser & Dilling, 2011).

In a study of Swedes that quit flying for climate reasons, we found, that contrary to existing theory, knowledge was actually mentioned by the respondents as an important factor in the behavioural change process (Wolrath Söderberg & Wormbs, 2019; Wormbs & Wolrath Söderberg, 2021). However, what the respondents described was specific forms of knowledge, such as the acuteness of the climate crisis, combined with insights about size and proportions of their own emissions, but also a wider concept of knowledge. They also described a climate experience, like drought or fire, or an existential one, like having a child. This seemed to transform the passive abstract knowledge into something concrete which allowed action (Wolrath Söderberg & Wormbs, 2019). In another study, on the other hand, we found that Swedes who were inclined to live climate-friendly still failed on numerous occasions, and often, their subsequent justifications were built on misconceptions and lack of correct information (Wolrath Söderberg & Wormbs, submitted). Hence, despite the above-discussed stance arguing that knowledge is not sufficient, we have found knowledge to be central. Thus, we wanted to investigate the reasoning of scholars, who arguably have knowledge as their vocation. Like in the two studies referred to here, our method has been *topos* analysis by which we can get hold of the thought structures of these scholars (Wolrath Söderberg & Wormbs, 2019; Wormbs & Wolrath Söderberg 2021; Wolrath Söderberg, 2017; Žagar, 2010; Rubinelli, 2009).

Our key question, then, is how scholars within academia reason around academic flying. To investigate this, we analysed a large sample of open-text answers in a travel survey (CERO travel survey) at KTH Royal Institute of Technology (KTH), distributed in the spring of 2019. KTH is a research-intensive technical university, which decided early on to become leading in sustainable development (KTHs Policy För Hållbar Utveckling, 2019). This programme spans education, research and collaboration with society, with the aim of mitigating climate change and working towards a sustainable society. The long-standing effort supports our hypotheses that scholars at KTH should possess knowledge on climate change and the means for a transition to a sustainable society. (The issue of academic flying was discussed at KTH already in 2014, in a series

of seminars led by Johan Gärdebo and funded by KTH's Sustainability Office. Those seminars resulted in a booklet, and there was also a corresponding blog (Gärdebo et al., 2017).) However, in 2018, KTH was in fourth place among the state-funded authorities that had the largest emissions caused by long-haul flights (Naturvårdsverket, 2019).

Recently KTH has set climate targets for 2020–2045 broadly in line with the carbon law (Rockström et al., 2017), stipulating halving the carbon emissions every decade. As part of this work, emissions from travel are monitored through the CERO process (Robèrt, 2009). CERO stands for Climate and Economic Research in Organizations and is a framework for organizations to reach climate targets related to travel. The process includes commuting and business travel, even though commuting contributes with only a small share of carbon emission at KTH (7 per cent reported in 2019). Furthermore, the largest culprit within business travel (boat, car, rail, air) is air travel, which stands for 99 per cent of the carbon emissions from business travel.

In 2019, a new question was added to the CERO travel survey, in order to monitor how the employees at KTH reasoned about this large source of emissions. The question was: 'A large part of the emissions at KTH come from air travel. What do you think should be done to reduce those emissions?.' It was posed on the first page of the five-page web survey. The entire survey received 1418 responses. We have analysed the 556 responses submitted to this question by faculty (teachers and researchers) and PhD students at the university. We excluded answers from technical and administrative staff since we are interested in how academics reason about their own flying, as they are responsible for the majority of the emissions from flying. These answers make up the empirical material for this chapter. Some results from the CERO survey have been published in Eriksson et al. (2020), but then only the answers from the school of Electrical Engineering and Computer Science (one of five schools at KTH), and looking at all free-text responses in the survey.

Generally, the coding was inductive and open. However, we also had certain hypotheses that we wanted to investigate. As indicated earlier, we expected the responses to take into account that academics are role models. We hypothesised that people in this sample have the knowledge required for making informed choices and that we would not find the

same kind of misunderstandings in this material as in a more general sample. We also expected an elaborate argument for evading responsibility in the cases when this was called for. This would be in line with earlier observations of the prevalent types of justifications for avoiding changing behaviour and overcoming cognitive dissonance (Festinger, 1957). Moreover, we expected some exceptionalist arguments, as we have found that in another study (Wolrath Söderberg & Wormbs, submitted). And finally, we believed that there was a social pressure of going to conferences—an expectation of travelling.

We use the terms *scholar* and *academic* in this chapter since the sample consists of PhD students, researchers and faculty at KTH Royal Institute of Technology as a whole. However, we do not know the precise discipline of the respondents, since KTH has a wide variety of research. The research and training span questions that engage deeply with sustainability and climate from the view of the humanities and social sciences to engineering and natural science, but in some cases have no connection to sustainability and climate issues whatsoever. It is impossible to draw a disciplinary line here as, say, civil engineering or computer science *can* include issues of sustainability but will not *necessarily* do so. We know with a high level of certainty that the sample contains a majority of responses from the engineering sciences and natural science since the humanities and social sciences are sparsely represented at KTH, but we cannot methodologically separate answers from different disciplines.

Findings: Specific Solutions and General Inertia

A first important finding is that also among scholars at Sweden's largest technical university, the question on what should be done to lower emissions—a politically decided aim—can be dismissed as unwarranted, and a few responses actually deny that climate change exists. There are also a few who might concede to climate change, but still deny. (While our data set is not statistically produced, we can see that the percentage of denialist answers are approximately the same as that of the population as a whole. More research is needed to say anything more general on denialism at KTH. The number of responses refusing action in an articulate way is

low but noteworthy). The majority of the responses *accept* the validity of the question posed, but relate very differently to it. As our analysis will show their ways of engaging with the issue fall into two categories: *suggestions to change* and *arguments of inertia*. This division is theoretically important as they turn out to be different rhetorically: in the first category we find concrete, situated proposals, and in the second we find timeless and common types of argument of the kind that already Aristotle highlighted as general *topoi*. Central to categories is the way in which *agency* is understood.

Suggestions to Change

There are nine discernible suggestions for action which are also often concrete and specific. They are, in order of frequency, with the most commonly inferred first: to change old or establish new *habits*; to *limit or enable*; to use or change *technology*; to *carbon offset*; to *change the system* or the structure; to *inform and visualise*; to use a *less harmful solution*; to pay attention to the *social dimensions*; and, finally, to move into a *transformative* mode.

The large majority of the responses deal with *habits*, *limiting or enabling* and *technology*. To change old or establish new *habits* often refers to the general need of flying less, travelling more by train and exchanging mobility with digital meetings. The answers often lack a clear agent (they are written in a passive voice without a subject) and mostly only one practice is mentioned per free-text answer. An example of a passive statement, but with several suggestions, is the following quote: 'Opt for train-based travel when possible, reduce the amount of contact meetings in general and perform more digital based meetings'. Likewise belonging to this type of suggestions are encouraging and discouraging efforts, also with an unclear agent and often to achieve marginal change. Some suggest that committee members for recruitment, promotion or PhD defences should not be flown to Sweden but allowed to participate at a distance.

When it comes to *limiting or enabling*, many responses argue that directives and policies should be put in place. These might have to be harsher, more specific and more detailed than today. Specific ideas

suggest the train as a first option, even if it is more expensive than flying, and that flying should not be possible for short distances. Flying should be motivated and approved by the Head of Department (approval is a practice already in place for all business travel but apparently without impact for reducing emissions from flying according to this respondent). Some suggest a ban on national or short-distance flying, or on 'unnecessary' flying, or that fewer trips should be allowed and that the distance should be reflected in the time spent on site. It is common to argue for limiting the number of trips. Ideas vary from limiting per-person trips, reducing the number of legs on a specific trip, to reducing the number of people travelling to the same conference. A carbon budget is frequently brought forward, resonating well with the public discourse. This budget can be personal or per department or another organisational unit. That external funding bodies should make demands in this vein is also suggested, contrary to the situation today where extensive travelling is often expected. A related suggestion based on an argument of direction is to start with limiting the greatest emitters, as in the following quote: 'Some people are in the US or in Asia once a month. Begin with those who give rise to the largest emissions.' To enable change by offering alternatives is a very common suggestion where agency is with the institution itself. On the one hand, digital meetings should be easy and of high quality and, on the other hand, booking train trips should be less cumbersome.

A large portion believes very strongly that specific or unspecific economic incentives of different kinds can limit or enable. Reward in some form is mentioned among the explicit suggestions, like more research time, higher salary, more vacation, first-class travel and meals. To exchange a trip for a digital meeting could also be rewarded. Very few suggest punishments for flying, but the mirror image to reward—internal 'taxation'—is common. This tax can be used by those who travel more sustainably; it can be progressive, that is if you travel a lot it becomes higher (this corresponds to an already existing internal taxation at KTH with limited impact, but it is hard to know if the respondents know about this system).

Another specific suggestion deals with *technology*. A few responses concern the need for development of the technologies for digital meetings. The major part, however, is about the technology of aviation. Here the

main argument is that KTH (or unspecified others) should develop sustainable airplanes or sustainable fuels. Within this category, some suggest that KTH should be an agent in this development, but some are vague regarding who or where this should be done. Some think far ahead: electric planes or 'small nuclear reactors that cannot meltdown and develop the thorium-mixed fuel which does not leave radioactive waste'.

In relation to changing technology, there is an idea in some responses that those who work towards new solutions might be offered the possibility to travel *more* for that particular reason; scientists have to fly, and for that reason airplanes need to become more sustainable. This can be regarded as an *exceptionalist* argument. Exceptionalist here means the idea that different rules should apply to scholars given their special function. In the material, there is also another argument connected to exceptionalism, namely the idea that scholars are more entitled to fly than for example administrative staff, since scholars teach or research—the main tasks at a university.

The responses demanding or suggesting better aviation technology have in common that they do not require refraining from flying. This also applies to suggestions about *carbon offsetting*. The suggestion is that KTH compensates for the employees' travel. This way of reasoning is akin to the already mentioned idea that KTH should introduce a local form of climate compensation where those who fly pay a fee that can then be used to finance more expensive rail journeys. This suggestion, however, entails that the 'taxation' of the price tag for flights and the lower price for railway journeys would lead to other choices. Carbon offsetting, on the other hand, can be interpreted as a way to buy oneself free. Some suggest that a fee for carbon offsetting should be included directly in the ticket price and some that KTH should compensate for the climate 'more than in full'. There are also other examples of compensatory ideas, such as planting trees or 'investing in research projects in sustainable energy' or burying biochar. Someone suggests compensating by 'buying/promoting goods and services from local businesses/manufacturers/growers with lower carbon footprint'. Other answers point to small changes away from flying; one suggests turning off computers at night. In many of these responses, questionable suppositions are made about how carbon offsetting works and about proportions of different climate-harming actions.

A related way of reasoning is to suggest a *less harmful* way to continue flying. Many highlight biofuels. Some suggest fewer stopovers, to choose more fuel-efficient flights or to fly during the day.

Suggestions *to change the system or the infrastructure* often include improvement of the railroad or air traffic, with an emphasis on the former. Faster trains, more connections, improved booking systems and generally better trains that can also house meeting rooms are among the ideas.

There are a few responses which point to a need for increased knowledge about the detrimental environmental and climate impact of flying. These suggestions focus on the need to *inform and visualise*. It should be easy to make informed decisions about which choices result in what emissions. Some also suggest that emissions rather than price should be the sorting function and that emissions should be visible on travel documents. To continuously monitor travelling would be yet another way to increase information and make employees aware of their own travel. This, in turn, makes travelling a matter of personal responsibility. There are also suggestions to make this visible on a higher institutional level and to make different units compete with each other.

Paying attention to the *social dimensions* is suggested in a few responses. They reveal existing norms and expectations about mobility. Some point to established practices of conference travel, some regard it a benefit or criticise habits of going to conferences for fun, but the possibility to act as a role model is also mentioned. This can be enacted not just by refraining from travel, but also by arranging web-based meetings. One respondent connects the periphery of Sweden with the possibility to alter the norm: 'To instead be a role model to the World on how to organise meetings would give us leverage by being more inclusive and allowing for people on parental leave or researchers with limited resources to participate'. When analysing the material, we found it striking that these social responses are so few and that the pressure or expectations mostly seems to be (perceived as) on a structural level rather than an explicit peer level. However, it can also be forcefully argued that travelling is such an intrinsic part of academic activity and thus deeply cultural and therefore no social pressure is needed. Regarding peer pressure, we see a couple of suggestions about public shaming, aimed at displaying the emissions of

individuals or groups, which would enable comparison within the organisation.

The last dimension deals with *transformation* and is also scarce. It includes ideas of system change on a more radical level, like zero growth or even de-growth, as the present market economy is viewed as the underlying problem.

Among these nine specific suggestions, we found that it is possible to discern a *spectrum* of measures, ranging from slow and non-invasive, to forceful and drastic. The least invasive is to develop new technology and, implicitly, carry on as before. Compensating for CO_2 emissions is very closely related and can be viewed as a kind of 'fix'. To work with changing the structure of the academic system is more forceful but removes responsibility from the individual and will take time. Using less harmful solutions is also non-invasive and demands little. To inform and visualise places all responsibility on the individual and is voluntary. Similar are efforts to try and establish new habits, which are voluntary. To enable, is an offer and thus not compulsory, but expected to foster behavioural change. Limiting, on the other hand, is drastic and forces change. At the far end of the spectrum, we can find ideas of a total transformation of the economic system. We find this as a slight paradox, since this suggestion of total transformation actually would relieve the individual from action and thus might be placed in the non-committal end of this spectrum.

Arguments of Inertia

Among the responses accepting the question and suggesting solutions, there are some very modest and somewhat passive proposals pointing to the responsibility of others. However, in the material, there are also many free-text answers that more actively motivate passivity in different ways. The common denominator in most of those answers is that they are grounded in timeless and general rhetorical *topoi*, already recorded by Aristotle (Aristotle, 1991; Wolrath Söderberg, 2017; Perelman & Olbrechts-Tyteca, 1969). These *topoi* are the possible, the necessary, the reality, the good cause and the special. At first, we were surprised to find this, but on second thought, it made perfect sense, and we should have

expected it. These *topoi* are indeed timeless, very common and already identified in Aristotle's *Rhetoric*, as we will discuss further.

The *possible* is invoked as an excuse for not lowering emission based on the idea that it should only be done 'when possible'. Akin to possible is—striving towards, trying, if reasonable, if there are good alternatives, if affordable and so on. All offer a way out of commitment and are in general evasive and non-precise, exemplified in the following quote: 'If possible, use alternative modes of travel, if it is practicably feasible. For example, train to Stockholm and Lund.'

The *necessary* is more explicit. Sometimes a definitive necessity to fly is claimed, but more often an implicit distinction is made between necessary and unnecessary travel, even though what is unnecessary seems very hard to define. One effort has to do with the primary tasks for the university, namely research and training. For research, flying is seen as necessary, but not for teaching, or even worse, administrative meetings. In this thought structure, the exceptionalism of scholarly activities is visible in wordings like 'research demands international meetings and networks'. It is presented as a fact. A related idea is travelling as a *reality*. In 'reality', scholarly life demands flying, and it is hopeless to negotiate with reality.

To argue that flying is for a *good cause* puts the emission in relation to an expected achievement. Depending on the reason for undertaking the trip, it can be justified, and in particular, if the trip is useful, an example of time-well-spent. To solve environmental problems holds a special position in this regard, as in the following quote: 'Prioritize what is most important. Some should travel more if it concerns establishing research cooperation, for example with European partners, if the research aims at improving environmental issues.' The mirror image of the good travel is the unnecessary travel, which is stated to be going on in other parts of the university.

As mentioned earlier, an exceptionalist *topos* is visible in the material. Either academia or science is *special* and therefore entitled to fly. Scientists need to network and cooperate, and this might even contribute to solving the problem. There are also special considerations to be made of another kind: KTH has special conditions since Stockholm is at the margin of Europe and therefore far away. One related example is the argument that

Sweden has a lot of forests which function as coal sinks, which is assumed to justify that we should have a special right to fly.

These *topoi* are based on very general, self-evident ideas about values—the possible is to prioritise before the impossible, the necessary before the unnecessary, that with a good cause before that with no or a bad cause, and the special which motivates certain benefits or exceptions. This way of reasoning is also an example of a *topos* itself, namely *dissociation*, where opposition is created through division.

There are also general *topoi* of another kind, but rather based on common thinking operations. The most prevalent is pointing at *goal conflicts*. Values such as the personal meeting, collaboration, efficiency, merit and impact are raised as arguments for proceeding with current flying habits. These responses point out that increased participation in EU projects, expectations of visibility at conferences and exchanges of people with other universities in Sweden and abroad are in direct opposition to decreasing travelling. Management must be clearer about which goals to prioritise.

We found it interesting that all these *topoi* are used in an evasive way, legitimising non-action and inertia. It could have been possible to infer the necessary, for example, in relation to the necessity to change habits and stop emitting. It could have been argued that lowering emissions is indeed a good cause, or that climate change is a reality that you cannot argue with. And finally, to underscore that change is possible might have been a response in the face of the very high emission numbers of the university. Instead of allowing for change, *possible* turned out to be an argument that is a hindrance to change. This points to the central question of ownership of action, namely agency.

Agency

A central dimension in the empirical material has to do with *agency* in regard to the suggested measures, and where it is placed. The most common place to put agency is on the institutional level, the university as such. Often the agent is not pinpointed but invoked rather than explicitly articulated. There are exceptions to this, like when the argument has

to do with digital solutions where the IT department can be called upon or travel bookings, where the travel agency can be held responsible. In general, however, also when very concrete ideas that have to do with regulating, stimulating, redistributing, budget and so on are suggested, the agency lies with the university as an institution, without pinpointing which part of the organisation that should take action. The academic system or culture as such also has agency in relation to emissions, but is seldom articulated as such. Here too, agency is implicit.

There are instances of agency placed on oneself or a collective, but very few responses use the first person—I. Only a few use themselves as an example: 'I have reduced my travel significantly, and only go to a few high-priority conferences'. In fact, there is overall a surprising lack of concreteness in regard to agency. To some extent, this is expected since the initial question was general and passive and there was no specific question of where agency should be placed. Still, it could have been possible to respond with a higher level of specificity than many of the answers display. It should be noted that there can be a systematic bias here in that natural scientists and engineers (the majority of the respondents) are trained in expressing themselves passively and not use the first person, neither in singular nor in plural.

Finally, a number of responses refer to a named or unnamed 'someone else'. In a few instances, it is hard to discern if the reference to the institution is also a someone else, or if the respondent includes him or herself into that category. This can, at times, be conflated with the abovementioned implicit I/we/KTH. Some responses point to the responsibility of the president who should be a role model, administrative staff who should fly less or someone outside of KTH (the political system or the culture in society) who should fix technology or infrastructure.

Agency, in our interpretation here, is seldom specified and mostly lies with someone else. This can be explained by the nature of the initial question but is still noteworthy.

Discussion

On an overarching level, the answers fall into two groups: one rejecting and one accepting the proposal to lower emissions. In the first group, there are those denying climate change altogether, containing a handful of answers and a few that might accept climate change but reject the proposal that KTH should lower emissions. In the other group, comprising the vast majority, there are those who take issue with the proposal in an elaborate way and those who give suggestions to solve the issue. The overlap between these two large groups is not great, although there is a small overlap. Hence, the tension between these seemingly contradictory arguments is thus not within individuals, but between groups.

One of the reasons to look at this sample of academics was our interest in how knowledge functioned in arguments around lowering emissions. Our hypothesis was that we would not find the same kind of misunderstandings in this material as we have in previous research. We did find some responses that show misconceptions about sizes or proportions of emissions. For example, the poor understanding of how carbon offsetting works among those who have suggested that a particular solution in this survey is noteworthy. Likewise, knowledge on possible technological solutions to fossil-driven airplanes also seems low among those few that invoke technical change. However, we can conclude that, in general, knowledge was higher in this sample than in previous research.

Interestingly enough, despite what can be interpreted as a high level of knowledge, this does not seem to enable action. As hypothesised, we found arguments for evading responsibility. However, they were not elaborate or specific as we hypothesised but rather clean and classic, referring to *topoi* identified already by Aristotle. This is an intriguing and interesting find, and meets with our hypothesis about exceptionalism. These arguments are relatively non-specific and general and call upon values and understandings of academics among the expected receiver of the survey. We are expected to be able to relate to the 'realities' of academic work that put demands on flying, that 'necessary' flying should be allowed and that it is indeed for a 'good cause' that scholars are so mobile.

It is worth considering that the same *topoi* could have been used to argue for reducing flying: The *necessary* could have been necessary in relation to climate change; the *real* could have been invoked in relation to the reality of climate change; the g*ood cause* could have been the survival of species or the planet; the *special* could instead have been an argument for scientists as role models limiting impacts from emissions rather than claiming an exceptionalist role for scientists. Only the classical *topoi* of the *possible* is a structure that is not solely used to legitimise inertia in this material, even though it is mostly invoked in ways that allow for evasion.

We found the sheer volume of responses that placed the responsibility elsewhere striking. At the same time, this is a deeply human strategy for dealing with dissonances between preaching and practice and for refuting charges against one's own morality. The strategy of displacing responsibility was observed and conceptualised already in the rhetorical teaching of *stasis* developed by Hermagoras, Hermogenes, Cicero and others (Nadeau, 1959).

If we consider the rhetorical situation of the respondents, using stock arguments as a way of resisting, is rational and expected. The survey question was 'A large part of the emissions at KTH come from air travel. What do you think should be done to reduce those emissions?.' The question left no easy room for a negative answer, nor for a distinct counter position. Moreover, to protest was most likely perceived as socially unacceptable (although a few did). Furthermore, we can assume that the vast majority of respondents are well aware of the seriousness of the climate crisis and do not deny it. However, faced with a situation where habits and values are questioned, and behavioural change are unwelcome or difficult, referring to eternal and general arguments is rational. To be valid, these arguments must be recognised in the existing context of peers, as the necessity of mobility for research quality or the exceptionality of scholarly work. Since it was not possible to state that flying should continue, arguments instead had to be vague and general. In Aristotle's view, specific arguments are more persuasive, but if we lack access to specific arguments, we can have good use of general ones (Aristotle, 1991).

The large number of concrete suggestions and the seemingly strong support for interventions, regulations and incentive structures to lower emissions from flying are encouraging for someone who needs to find

ways of lowering emissions at KTH. The suggestions about more forceful systemic solutions might have to do with a disbelief in individual agency. This might, in turn, be an ontological standpoint, but it can also have a practical and economic explanation. A lion part of research at KTH is externally funded by research agencies and foundations which grant money to individual scholars, who then dispose of travel money as part of the grant. Funding for mobility is thus not primarily allocated by the university, but made possible by external actors. Thus, a general decision to limit flying might be a forceful way in a context where individual autonomy and funding has been the rule.

We might have expected more answers that dealt with individual responsibility, but in light of the funding structure, the call for system change and general regulation can also be regarded as rational. This is another way of looking at agency. Placing of responsibility elsewhere can thus be interpreted as an evasive strategy, avoiding behavioural change, but it can, on the other hand, be rational given the existing funding context. Furthermore, it can be a starting point of dialogue for change. When stuck between cultural values, individual responsibility and organisational change, the responses can be interpreted as 'bids' in an emerging process of transformative change.

To suggest general solutions can also be a surprising find if we regard mobility as an academic right. However, the academic freedom argument does not appear anywhere in the responses. It might be explained by the fact that most believe that they will still be able to move around, although under different circumstances. On the other hand, if the management at KTH had decided to implement more regulations, internal taxations and so on, the reaction might have been different. Then we might have seen responses based on the idea of academic freedom.

One noteworthy find is the apparent lack of social pressure to fly, or not to fly in the responses. It can be argued that the question did not invite that kind of reflection and further research is important, particularly given the above-mentioned academic culture of mobility, which arguably means that you do not have to justify a trip. The external expectations that our respondents do refer to are not framed as social, but as systemic, constituting knowledge production. This is both important and interesting. If the expectations are perceived as inherent in the system or

the role of the scholar, they are more likely to be seen as necessary and harder to work against. Without any discussion or social pressure to change this system, the individual is left alone. A possible interpretation is that understanding the pressure as systemic becomes an argument for the status quo. At the same time as there are few examples of more explicit remarks on social dimensions, a common identity is assumed in the exceptionalist perspective and in the *topos* of the necessary. In this empirical material, we only see few traces of collegial conversations about the problem of flying, which is explicitly expressed as a culture of silence in Eriksson et al. (2020) and could be perceived as a social construction of denial (Norgaard, 2011). There is reason to believe that initiatives that break the silence can be a fruitful way forward (Randall, 2009).

There are a few expected arguments which were more or less absent. For example, an interesting find is that the terms *quality* and *internationalisation* in relation to travel are lacking. The word quality shows up, but only on a few occasions and then in relation to either digital tools for distance meetings or the class of train travel and booking. The idea of a connection between quality and travel can nevertheless be perceived as implied in several of the free-text answers that emphasise the necessity of travel or the researcher or research as special. Again, the idea that this is part of a general understanding and does not need articulation must be considered. *Internationalisation* is also absent as an argument against reducing emissions, although it too might be understood as assumed in the reasoning about the necessity of flying. However, we need further research to be able to say more about how these expected core values interplay with reduced mobility.

Conclusion

This chapter has presented results from a qualitative analysis of free-text answers from a travel survey at KTH Royal Institute of Technology. The aim of the study was to understand how scholars within academia reason around flying, and about the need to lower emissions from flying. A key insight of this study is that there is substantial support for interventions in order to lower emissions from flying. The respondents also show

ingenuity when suggesting different enabling strategies. University leadership should be able to take advantage of this, both when finding forms of implementation approved by employees and as a basis for justifying regulations, restrictions, internal tax and incentive structures.

Another major insight from the study concerns arguments of inertia, important to understand if you want to achieve transformation. This study shows that general *topoi* are used as a way to evade responsibility. These general *topoi* call on implicit assumptions about the scholar's role and identity and assumptions about the academic system. This might stem from a genuine wish to evade the needed reductions in travel, or from a perceived lack of agency within the system. Either way, distinguishing these *topoi* opens up for designing dialogues with the potential for self-reflection.

The large number of vague answers, without clear agency, and the lack of social pressure in the free-text answers point to a silence around the issue of academic flying and its harmful carbon emissions. This could be interpreted as a social construction of denial. One way to break this barrier to action is to spur collegial conversations around the issue. To cite Donella Meadows, to change a paradigm, '[y]ou keep pointing at the anomalies and failures in the old paradigm. You keep speaking and acting, loudly and with assurance, from the new one' (Meadows, 2008, p. 164). This, however, needs to be done in an empathetic way, since it is often painful to reconsider what one takes for granted or have become attached to. If we do not interpret the arguments of inertia used by our respondents in this study as a lack of knowledge, nor a lack of interest, but rather a struggle within a system that is not yet supporting a shift to low carbon knowledge production, *to talk about it* is the most important thing we can do. To discern, articulate and display our underlying reasoning is a first step.

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8

Academic Aeromobility in the Global Periphery

James Higham, Debbie Hopkins, and Caroline Orchiston

Introduction

Aeromobility—the 'dominance of flying as the normal international mode of travelling' (Adey et al., 2007: 774)—is an important cause of global social and environmental injustice (Anderson & Bows, 2008; Urry, 2010). This has become even more apparent in light of research suggesting that just 1 per cent of the world's population emits 50 per cent of CO_2 from commercial aviation (Gössling & Humpe, 2020). It has long been established that academics fall into this tiny minority of very high emitters (Høyer & Næss, 2001). Moreover, as a rule, systems of academia have been slow to respond, despite the fact that academic air travel-related emissions have become increasingly difficult to ignore

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(Lassen et al., 2009; Caset et al., 2018). Ironically, climate scientists have been shown to fly for work *more* than other researchers, even when flying for fieldwork is accounted for (Whitmarsh et al., 2020). It is widely recognised and accepted that the complexities of academic air travel practices must be situated within the social and material basis of work travel, in specific geographical and institutional contexts (Lassen et al., 2009; Storme et al., 2017). Within this context, our aim in this chapter focus falls upon academic aeromobility in the global periphery.

Our research programme has addressed the work-sociology of academic aeromobility at the University of Otago (Aotearoa/New Zealand) in order to achieve insights into the air travel practices of academics working in a geographically distant institutional setting. In this chapter, we present the findings of a programme of interviews conducted with academics working in a range of disciplines at the University of Otago. Our interviews investigated climate change concerns and air travel practices as shaped and influenced by employer expectations, institutional policies, disciplinary standards and norms as well as personal and professional circumstances. Our investigation of contextually subjective views on academic aeromobility practices extended to consideration of individual and institutional climate accountability and the potential for virtual mobility substitution to reduce the need for recurrent academic air travel. The research that we report upon in this chapter was conducted prior to the COVID-19 pandemic, which has imposed extraordinary constraints on academic air travel and offered insights into the potential for new academic practices to emerge. In the latter part of this chapter, we pay particular attention to the 2020 COVID-19 disruption and the implications of the pandemic for a fundamental shift in the long-standing aeromobility practices of the global academic community.

Aeromobility in the Global Academic Periphery

Responding to aviation's high emissions requires urgent action specifically addressing the most frequent of fliers (Schiller & Revilla Diez, 2012; Gössling & Humpe, 2020), a category referred to as the 'high emitters' (Anderson & Bows, 2008). This category includes academics—and

particularly those who are employed at geographically distant academic institutions. Few academic institutions in the global periphery are more geographically distant than the University of Otago, the main campus of which is located in the city of Ōtepoti (Dunedin) in the deep south of Aotearoa (New Zealand). The University of Otago has made anecdotal claim to being the most geographically isolated internationally ranked university in the world. Prior to the COVID-19 global pandemic, University of Otago academic staff were highly dependent on recurrent long-haul air travel (Hopkins et al., 2016). This has come to be seen as inconsistent with the university's Sustainability Charter, its role as the 'critic and conscience of society' (New Zealand Education Act 1989; see also Stohl, 2008) and its commitment to global citizenship (Hopkins et al., 2016).

Like many other leading tertiary institutions around the world, the University of Otago has embarked on an internationalisation pathway (Storme et al., 2017) which can be seen as a key driver of increasingly entrenched academic aeromobility. At the University of Otago, internationalisation is built through the recruitment of international academic staff and graduate students, publication in international journals, high visibility at international conferences and meetings, international collaborations and invitations to deliver presentations to international audiences (University of Otago, 2013). Tenure (confirmation), performance review, promotion and research assessments[1] are significantly influenced by these aspects of an academic's career. Internationalisation may also be pursued through the recruitment of international undergraduate students, curriculum development and student exchange programmes (University of Otago, 2013).

For geographically distanced institutions, support for the development and maintenance of international collaborations is even more important for the recruitment and retention of academic staff. Given the high proportion of international staff at the University of Otago—with family, friends and colleagues in far-flung parts of the world—frequent travel is important for both personal and professional reasons. Internationalisation, therefore, comes with associated academic mobility practices that are closely tied to both personal and professional interests (Hoffman, 2009; Cohen et al., 2015). Academic aeromobility practices are at least in part driven by the need to remain connected to distant family, as well as

retaining networks developed through (multiple) postdoctoral positions around the world (Hopkins et al., 2019).

Storme et al. note 'empirical studies that explore what compels and motivates academics to travel are very rare, especially in terms of analysis of the complex interplay between corporeal (physical) and virtual mobility' (Storme et al., 2017: 406). While there is a burgeoning body of scholarship, most studies to date have tended to address academic mobility practices in the Global North, with a particular bias towards Euro-American institutions (Ackers, 2008; Lassen, 2006; Leung, 2013; Storme et al., 2013; Storme et al., 2017). Situated in the context of a globally distant institution, our research has explored the drivers of academic aeromobility in the global periphery (Higham et al., 2019). This focus offers unique insights into the institutional policies and academic mobilities of globally distant institutions as they seek to replicate the mobility practices of academics based in 'academic centres' of Europe and North America (Hopkins et al., 2019) and relate to sustainability objectives (Hopkins et al., 2016; University of Otago Sustainability Framework 2017–2021, 2017).

Empirical Materials

Our research investigated the aeromobility practices of academic staff at the University of Otago (Higham et al., 2019). We designed and implemented a programme of interviews with academic staff employed in a range of disciplinary fields to investigate contextually subjective views on climate change and academic aeromobility. We designed an interview schedule to explore aeromobility practices in relation to institutional expectations, disciplinary standards and norms as well as personal and professional circumstances. Questions of climate accountability and virtual mobility substitution were relevant to all of our interviews. Our interviews were semi-structured, allowing interview participants to explore avenues of conversation that were not driven by the interview schedule (Jennings, 2001; Fontana & Frey, 2005). It is important to note that the data collection phase predated the COVID-19 pandemic.

Interview participants were recruited from randomly sampled departments in all four of the university's academic divisions (Commerce, Health Sciences, Humanities and Sciences) (see Table 8.1). Academic staff from the sampled department were then recruited using a random number function. Our sample of participants was stratified to ensure representation on the basis of gender and levels of the academic scale. Thus, the interviewees who participated in our study were representative of gender, age and junior/senior academic staff status.

A total of 31 interviews were conducted with academic staff in three Commerce departments (Economics, Accountancy and Finance and Marketing), three Humanities departments (Music, Classics and Philosophy), five Sciences departments (Chemistry, Physics, Surveying, Zoology and Physical Education, Sport and Exercise Sciences) and three Health Science departments (Microbiology, Obstetrics & Gynaecology and Anatomy). Interview participants included 21 male and 10 female staff and a balance of academic positions (8 Professors; 8 Associate Professors; 7 Senior Lecturers; 5 Lecturers; 2 Senior Research Fellows; 1 Postdoctoral Fellow). Interviews were fully transcribed and then subject to a blind process of analysis by members of the research team before individual interpretations were drawn together and subjected to a manual thematic analysis that was conducted interactively (Patton, 2002). In this collaborative phase, the empirical material was reduced into broad categories, and emergent themes were identified (Miles & Huberman, 1994; O'Reilly, 2005). Contrasting interpretations were discussed collectively to allow us to arrive at congruent interpretations of the empirical material (Patton, 2002). Four themes emerged from our analysis. Verbatim interview quotes were referenced by codes that explain the interview number (#), academic division (Com/HS/Hum/Sci), gender (M/F) and level of appointment (junior/senior) of the interview participant (see Table 8.1).

Table 8.1 Summary of interview participants. (Source: Higham et al., 2019)

Interview code*	Division	Gender	Academic position	Interview length (minutes)
#1/Com/M/S	Commerce	Male	Associate Professor	34
#2/Com/F/J	Commerce	Female	Lecturer	32
#3/Com/M/J	Commerce	Male	Senior Lecturer	34
#4/Com/F/J	Commerce	Female	Senior Lecturer	39
#5/Com/M/S	Commerce	Male	Associate Professor	47
#6/Com/M/S	Commerce	Male	Associate Professor	49
#7/Com/M/S	Commerce	Male	Professor	59
#8/Hum/M/S	Humanities	Male	Professor	54
#9/Hum/F/S	Humanities	Female	Associate Professor	43
#10/Hum/M/J	Humanities	Male	Senior Lecturer	52
#11/Hum/M/J	Humanities	Male	Lecturer	44
#12/Hum/M/S	Humanities	Male	Professor	59
#13/Hum/F/S	Humanities	Female	Associate Professor	47
#14/Hum/M/S	Humanities	Male	Professor	41
#15/Hum/M/S	Humanities	Male	Associate Professor	36
#16/Sci/M/J	Sciences	Male	Lecturer	22
#17/Sci/M/J	Sciences	Male	Postdoctoral Fellow	50
#18/Sci/M/S	Sciences	Male	Professor	54
#19/Sci/M/J	Sciences	Male	Lecturer	45
#20/Sci/F/S	Sciences	Female	Associate Professor	36
#21/Sci/F/J	Sciences	Female	Senior Lecturer	42
#22/Sci/M/J	Sciences	Male	Lecturer	36
#23/Sci/F/S	Sciences	Female	Professor	47
#24/HS/M/S	Health Sciences	Male	Professor	42
#25/HS/M/S	Health Sciences	Male	Associate Professor	29
#26/HS/F/J	Health Sciences	Female	Senior Lecturer	44
#27/HS/F/J	Health Sciences	Female	Senior Lecturer	48
#28/HS/M/S	Health Sciences	Male	Professor	42
#29/HS/F/J	Health Sciences	Female	Senior Research Fellow	33
#30/HS/M/J	Health Sciences	Male	Senior Research Fellow	35
#31/HS/M/J	Health Sciences	Male	Lecturer	42

(*continued*)

Table 8.1 (continued)

Notes: *The University of Otago departments are organised into four divisions. Com = Commerce, Hum = Humanities, Sci = Sciences, HS = Health Sciences; S denotes senior academic positions: Professor (*n* = 8) and Associate Professor (*n* = 8); J denotes junior academic positions: Senior Lecturer (*n* = 7), Lecturer (*n* = 5), Senior Research Fellow (*n* = 2), Postdoctoral Fellow (*n* = 1).

Results

Complex Drivers

Our programme of interviews revealed complex drivers of academic travel practices, which were influenced by combinations of professional (institutional, disciplinary, academic associations), social and personal factors. Academic mobility practices are subject to a range of informal and tacit work practices that have traditionally required corporeal proximity (Storme et al., 2013). The drivers of corporeal mobility vary between disciplines and between individuals who articulated a wide range of personal drivers. Some disciplines require travel due to the demands of field or laboratory-based research (see Heffernan & Jons, 2013). Some researchers in the science disciplines considered themselves to be locked into 'super mobile' professions (Lassen, 2006). By contrast, other disciplines have experienced a revolution of archival digitisation. While the need to travel to visit archives was still considered necessary by some, others felt quite able to use digital archives for their research. '30 years ago you would have had to travel outside of New Zealand. … The French National Library have a lot of 17th century texts in PDF format. Not only can you view them, you can download them' (#15/Hum/M/S). Similar views were evident among researchers in the Commerce disciplines of Economics; Accountancy and Finance. 'I can access databases … from my office so I don't need direct contact with people other than co-authors' (#2/Com/F/J).

Among the complex drivers of academic aeromobility at the University of Otago, it was clear that a heavy 'mobility burden' (Urry, 2003) is an inescapable reality of being located at a remote institution. This burden

arises from the need to build or maintain network capital (Storme et al., 2013). Networks are generally considered to be fundamental to a successful academic career. 'It [travel] is really, really important because you need to have a profile. Without a profile you're not going to get grants. You're not going to keep up with the current state of play' (#16/Sci/M/J). The importance of academic network capital was widely expressed amongst our sample. Furthermore, researchers in the humanities—which are likely to be replicated across multiple disciplines—expressed a blurring of academic and social networks (Urry, 2003), in relation to 'living' their research: 'I've got to travel to … speak to culture bearers, cultural informants, collaborators, insiders … you need to be there and observe and participate' (#8/Hum/M/S). Thus for particular types of research 'being there' has the necessity for corporeal mobility.

The high 'mobility burden' associated with working at a remote institution was associated with a risk of academics becoming 'off-balance' in their aeromobilities. This is a term used by Storme et al. (2013) to describe academics who travel beyond reasonable limits. Remaining connected with distant family was a social driver of academic travel (see also Hopkins et al., 2019). Choice of conference was often influenced by personal drivers, such as visiting distant family members. Equally, domestic commitments emerged as a barrier to travel. 'When I went to the UK it was … hard [for my wife] because we're relatively new to New Zealand; we don't have a family support network' (#3/Com/M/J). The challenges that academics at remote institutions experience in both managing the 'mobility burden' that they face and maintaining 'balance' in their professional and personal lives were clearly expressed in this theme.

Selective Substitution

Our interview programme was intended to achieve insights into the much talked about but largely unfulfilled scope for virtual mobility substitution (Hopkins et al., 2016; Storme et al., 2017). The interviews revealed that virtual substitution was seen to be a reasonable alternative to physical travel in many instances, but was highly selective in practice. Decisions on substituting air travel for virtual attendance were informed

by personal assessments of importance, efficiency and effectiveness. It clearly emerged that virtual mobility substitution is seen to be inferior to physical attendance, and therefore predominantly a substitute for non-participation. Virtual participation was considered to be less effective than physical participation (Urry, 2003), but growing in potential and worthy of active encouragement. 'Skype is a bit like watching a YouTube recording of something, it's never quite the same … but if the alternative is non-participation then I think it's worth looking at, definitely' (#11/Hum/M/J).

Colleagues generally agreed that virtual meetings were effective in instances such as convening a PhD viva and in building upon existing networks and collaborations. However, virtual substitution was generally viewed as inadequate in facilitating participation in building networks. Face-to-face interaction and engagement within professional and social networks were considered irreplaceable (Urry, 2003): 'Meeting face to face and socialising; there is no substitute for that. …There are some of those people that I have met at crucial times who for one reason or another you've struck a rapport with and they've been instrumental in getting my career going' (#12/Hum/M/S). Physical co-presence was viewed to be beyond substitution in terms of networks and relationships, with virtual meetings being ineffective in reproducing the all-important human dimensions of personal interaction: 'I have been to a couple of meetings where they've video linked in somebody who couldn't be in town; and there's always the feeling that that person is kind of separate from the group—it's just never quite as inclusive' (#4/Com/F/J). The physical aspects of being co-present are considered fundamental to building trust (Urry, 2003), yet at a geographically remote institution this then depends on (extreme) long-haul travel, often for short durations (see, e.g., Hopkins et al., 2019).

'Don't weaken me!'

The third theme that emerged from our analysis was bluntly expressed by one of the interview participants (#13/Hum/F/S). She explained that excluding oneself from the very system that underpins our

institutions—in this case, the carbon-dependent aviation socio-technical regime—will only result in professional disempowerment.

> I don't limit my travel because I have a strong belief that the individualisation of risk is a strategy that disempowers people who would otherwise be powerful and affect change. I think if individuals view it as an individual decision … they're making a serious mistake and they're participating in a hegemonic viewpoint that nobody intends. They undermine their own agency by participating in that viewpoint. … I certainly should try harder to live ecologically. I make some choices that are good and many that are less good but I don't think my first step should be to make myself weaker. (#13/Hum/F/S)

The position articulated here is an important one; what role does the individual play in the structural issue of carbon dependency? The role of academic institutions as the 'critic and conscience of society' (New Zealand Education Act 1989) was considered particularly important in times of urgent transition (Young et al., 2015). Within this context, some felt that academics need to be at the forefront of solving difficult problems facing society. This means continuing to fly for academic purposes, rather than reducing an individual academic's own agency in order to achieve an insignificant reduction in carbon emissions. This participant reflects on the individual damage that would be done by restricting their mobilities, which helps to reinforce the embeddedness of mobility to academic practice. This lock-in to high-carbon behaviour has been well documented with relation to automobility, and this is pointing to its important role here too. This may suggest that other actors—academic institutions, networks of institutions, disciplinary bodies and so on—must take leadership roles to dismantle the structures of carbon dependency.

Aeromobility practices were also linked to career security and trajectories. Our interview programme gave voice to the view that reducing or limiting air travel is unacceptable in terms of compromising academic careers. 'If you said, "Okay I'm not going to fly anywhere" I would have stayed as a senior lecturer for the rest of my life—waiting to be performance managed out of the university for failing to do my job as they see

it' (#6/Com/M/S). The importance of academic network sociality (Urry, 2003) again emerged, highlighting the importance of strong academic networks as 'absolutely instrumental' and 'without substitute' (#12/Hum/M/S). 'If you want to publish in the top journals, you need to be at these top conferences networking. If the editors have met you, you know it just makes a difference' (#3/Com/M/J). While the relationship between mobility and career progression has been explored in the published literature (Storme et al., 2017), it is interesting to note that a recent study of academic air travel among scholars at the University of British Columbia found that aeromobility has a very limited impact on professional success (Wynes et al., 2019). That said, networking was considered critical to academics working at a remote institution, casting doubt upon the potential for virtual substitution.

Assorted Scalar Accountabilities

The final theme to emerge from our analysis builds upon the individualised impacts of not flying, or 'flyingless' articulated in the previous theme and relates to the need for accountability and action across a range of scales. At the scale of the individual (academic), some argued that 'There is very little that I can do about that given that we are a very long way away from the rest of the world. I don't think there are any alternatives; we have got to use air travel' (#19/Sci/M/J). Others recognised much scope for individuals to significantly reduce their personal aeromobilities. However, climate concern was very rarely a driver of individual air travel decisions, for example, one participant noted how 'It would be really nice to think about decisions as being environmentally sustainable but it wouldn't be true to say that's what's driving my decision-making' (#13/Hum/F/S). The benefits of having strong personal and professional global academic networks run counter to the need to reduce air travel. This extensive quote was typical of a widespread view:

> Carbon costs are imposed by deciding to live in New Zealand and pursue an academic career. … We are quite conscious consumers in other parts of our lives … but there is no way around travelling. It's necessary if you want

> to become a professor [and] it's necessary if you want to maintain your relationship with your partner, your relatives and your friends. Necessary is a word that can hide all manner of sins. One could argue that none of those things are necessary but if you accept that those things are important then they are necessary. (#6/Com/M/S)

Beyond the individual, some argued that the University of Otago should extend its current local emissions mitigation efforts to include air travel. Offsetting and fossil fuel divestment were considered necessary actions. So, too, was an institutional response to encourage and empower individual academics to consider environmental concerns in travel decisions, and to ensure that changes in academic travel practices can occur without personal or professional disadvantage, for instance, 'If you had a programme that rewarded people who are able to make reductions in anticipated non-zero emissions; that could be pretty neat' (#13/Hum/F/S). Many participants expressed the strong view that changes in air travel decision-making should be autonomous rather than imposed (Tindall Travel Strategy 2015) and that institutional change must ensure that virtual mobility substitution is encouraged without individual disadvantage (Hopkins et al., 2016). Addressing the structural and institutional constraints that underpin academic mobility practices (Parker & Weik, 2014) should include a commitment to invest in the technologies that will continue to redefine the possibilities for virtual mobility substitution.

Finally, within this theme, at the global scale of collective action, it was considered most necessary that scientific communities, and academic associations (and their conference programmes), reaching across universities, also play a critical part. Specifically, 'in a collective society if we agreed, okay well let's not hold this conference, let's all meet online … and improve our connectivity … that would be a good way to go' (#28/HS/M/S). The need to move from a focus on individual decision-making to collective action as expressed through institutional policy settings, and coordinated regional/global efforts to reduce academic aeromobilities, was an important point that emerged in our analysis.

The COVID-19 Acceleration

Of course, these findings predate the COVID-19 global pandemic. The pandemic forced an immediate response from conference committees; some were immediately cancelled, others were postponed, some were moved fully or partially online. In doing so, the pandemic opened a window of opportunity to reflect upon the long unquestioned necessity of academic conference travel. Interestingly, when the European Geosciences Union (EGU) meeting in May 2020 moved online, the number of delegates increased from 16,000 to 22,000, with new attendees from 28 previously unrepresented countries. This has drawn attention to the long-standing inequities and privileges of academic conferences, and the barriers to participation that had been ignored prior to the pandemic.

Insights into pre-and post-COVID conference regimes have been explored in a research collaboration at the University of Oxford led by Milan Klöwer (Klöwer et al., 2020). The research analysed the transport-related emissions of conference delegates of the Fall 2019 Meeting of the American Geophysical Union (AGU), the world's largest annual geosciences conference. The 2019 AGU was hosted in San Francisco, with 24,008 presenters and 28,000 attendees. The analysis conducted by Klöwer et al. (2020) highlighted the air travel dependence of the pre-COVID- global academic conference regime. One-third of the delegates (approximately 10,000 participants) were found to be accountable for three-quarters of total AGU 2019 transport emissions. These delegates required intercontinental flights of greater than 8000 km, with the highest-emitting delegates travelling from India, Australia, New Zealand, China and Taiwan (Klöwer et al., 2020). The research continued by considering the emissions associated with alternative host venues in North America and found that an optimum location—Chicago—could reduce AGU transport emissions by 12.3 per cent, yet Hawaii, for instance, could have increased emissions by 42 per cent (Klöwer et al., 2020). These findings are important insomuch as they show the role that selecting cities for conferences has in effecting the conference's emissions: thus, conference organisers and disciplinary organisations need to be cognisant

of such decisions, as the AGU is not alone, and many large national disciplinary conferences move city year to year.

From their analysis, Klöwer et al. (2020) highlight three important measures required to meaningfully address the carbon footprint of major international conferences:

1. choosing accessible venues;
2. increasing virtual attendance and
3. switching to biennial conferences

The analysis found that, in combination, these three measures could reduce travel-related carbon emissions of the AGU by 91 per cent. However, such decisions cannot be taken lightly; there is a politics to these decisions, as requiring those who would otherwise travel furthest to attend virtually risks the in-person exclusion of researchers located in the most geographically distant institutions—including the University of Otago.

This highlights the need for a low-carbon, post-COVID conference convention that offers rich new opportunities for the integration of virtual and in-person conference experiences. This could build upon the skills, know-how and technological developments which have occurred rapidly during 2020, as well as introducing what Klöwer et al. (2020) refer to as a 'three hub' conference model. The notion of conferences being hosted in three or more virtually connected conference hubs allows delegates to travel to their nearest hub rather than to a single global conference host city—thus the distance travelled is minimised, while still allowing for co-presence. Conferences would take place simultaneously in multiple hubs locations, with planning required to accommodate global time zones to maximise comfort and minimise inconvenience. Occasional sessions at inconvenient hours in some time zones can be overcome by recording sessions, but otherwise offer less physiological stress than multiple long-haul flights (Cohen & Gössling, 2015), particularly in light of the bodily effects of long-haul academic travel highlighted by Hopkins et al. (2019), which include jet lag, bodily aches and pains, as well as challenges to mental health and wellbeing.

Conferences Reimagined: Entrenching a Post-COVID New Normal

COVID-19 is a global crisis that has drawn existing systems into deep question. Now important questions arise as to what will happen when post-COVID normality is restored. The rapid move to online conferences in response to COVID-19 will not become the new conference convention by default. It is abundantly clear that climate change knowledge on its own will not significantly alter established practices of academic flying. Rather knowledge is a first step towards the structural change required to radically alter flying practices (Whitmarsh et al., 2020). The concerted and coordinated actions of a number of key actors will be required to design and embed a radical new conference convention in pursuit of a low-carbon future (Klöwer et al., 2020).

First and foremost, disciplinary associations and academic bodies must actively advance a new conference convention to reduce the carbon footprint of academic practices, while building virtual networks and inclusivity. The move to biennial conferences with fully virtual meetings in alternate years should be an immediate action. A number of disciplinary associations are now advancing this agenda. A group of Australian environmental historians have recently had a working paper on sustainable disciplinary practices endorsed by the Australian Historical Association,[2] the Western Political Science Association now has a virtual communities initiative[3] and a petition was recently circulated among sociologists wanting to address the decarbonisation of the American Sociological Association.[4] These initiatives are timely, as they challenge us to rethink how scholarly disciplines function.

Decisive institutional action is also required (Whitmarsh et al., 2020). Annual staff conference budgets should be diverted where appropriate to support other low-carbon research activities. Instead of funding conference travel and accommodation by default, the costs of virtual conference attendance should be prioritised given that fully virtual conferences produce approximately 0.01 per cent of the emissions of full attendance conferences (Klöwer et al., 2020). Conference funding policies should be extended or transitioned to include expenses for virtual attendance, and

there should be mechanisms for requesting conference leave to allow full virtual participation. This might include conference leave approval and 'local' accommodation costs to allow full engagement in virtual conferences. In the case of globally distant institutions, this may require academics to attend sessions at unconventional hours of the day or night. Travel carbon budgets might be implemented on a differential basis based on career stage and other criteria (Cobb et al., 2018).

The material cultures of institutional conference activities should transition through investment in virtual technologies, technical support and conference social media engagement. COVID-19 has shown that such actions can happen with remarkable speed when required, and this knowledge, know-how and capacity could be harnessed to drive forward a radical new conference convention. The move to increasing virtual conference opportunities is critical if globally distant institutions, and individuals working at those institutions, are to reduce their air travel emissions. There is, of course, potential for backlash after a year of online teaching and researching. Furthermore, our research indicates that there will be resistance from those who are wedded to their pre-COVID air travel practices. Resistance may also come from scholars who are not sufficiently comfortable with new technologies, and those who are accustomed to building and maintaining academic networks through regular physical co-presence (Higham et al., 2019). Institutional promotion, confirmation and research assessment policies (among others) will need to be reviewed and revised to reflect the new model. Coordination across institutions would serve to accelerate and cement the new convention.

Beyond academic associations and institutions, there are important roles of other key actors. Research funding bodies should require comprehensive carbon budgets to be included in grant applications, in order to foster reduced research (and researcher) carbon impacts and low-carbon avenues of (preferably open-access) research dissemination. Conference organisers should model delegate travel emission profiles when selecting host cities while creating and connecting conference hubs to overcome the need for long-haul flights. Conference programmes should be developed not only to cater for 'in person' conference participants but also with careful consideration given to accommodating virtual delegates. Furthermore, conference organisers need to fully resource IT support of

virtual conference participation and innovate with social media platforms to accelerate improved delivery of virtual conference experiences. Perhaps most importantly, a new conference convention must be built upon the commitment of researchers themselves. It is researchers themselves who must support virtual conferences, accept invitations to present papers virtually and role model equitable approaches to the dissemination of knowledge (Ford et al., 2019).

Conclusion

Air travel is central to the core business of research and teaching institutions, particularly those that face the unique circumstances associated with being globally distant, such as the University of Otago. Academic institutions are 'network driven workplaces' (Wittel, 2001). Being able to engage internationally is important not only to career success but also to the international standing and reputation of institutions. Prior to COVID-19, the air travel practices of academics made a disproportionate contribution to high-growth aviation emissions (Creutzig et al., 2016). The challenges involved in resolving academic air travel emissions are both particularly acute and particularly important in the case of remote institutions. Our research has contributed to the work-sociology of aeromobility, as it relates to the 'exceptional case' (Faulconbridge and Hui 2016) of academic air travel practices in the global periphery (Caset et al., 2018).

It has been noted that the University of Otago, while committed to sustainable practices and global citizenship (University of Otago, 2017), faces an extraordinarily challenging conundrum in seeking to reduce its dependence on regular, high-carbon long-haul air travel (Hopkins et al., 2016) while seeking to advance its standing in the global academic community. Being international at such a geographical distance has created institutional dependencies that are difficult to divert. Ironically, despite the enormous social and economic upheavals and uncertainties of the COVID-19 global pandemic, it is the disruption caused by COVID-19 and the need to build a new normal, globally and regionally, that has opened a pathway forward for academic institutions. Our research has

paid close attention to the emerging new normal (Klöwer et al., 2020) and the need to develop innovative solutions to avoid returning to a pre-COVID status quo. This will require the dedicated and focussed efforts of various actors, including disciplinary associations, institutions, conference associations and their organising committees, research funding bodies and, importantly, the academic community.

Importantly, it will also need to be a systematic and carefully coordinated effort. Only then will the transition towards new academic regimes arise. Our chapter highlights the coordinated, multi-level response that is required to harness the opportunities and benefit from the experiences gained from COVID-19 moment in time, to build a new normal and resists a return to the pre-COVID high-carbon status quo. Collective action will be required to take advantage of the momentum. Individual academics must commit to building new practices of academic knowledge transfer, networking and collaboration within their departments and schools. Disciplinary associations and conference organisers must show leadership in envisioning better ways to meet, share, network and socialise virtually. Institutions must review and revise policies that drive academic air travel practices and commit to ambitious transport emissions mitigation goals. Collective action should extend to institutions working collaboratively rather than competitively. As an example, an international coalition of leading climate research universities recently announced the International Universities Climate Alliance,[5] issuing the challenge to universities to drive climate solutions and to implement measures to counteract climate change. Such a network of institutions working collaboratively to address the aeromobility practices of academics is required in Australia and New Zealand, given the unique circumstances associated with being globally distant.

The time for radical change is upon us: 'as Covid-19 has taught us, changes to deeply embedded and seemingly intractable practices can happen with remarkable speed' (Klöwer et al., 2020: 359). Prior to COVID-19 academic travel, practices were deeply embedded and resistant to change (Whitmarsh et al., 2020). The timelines of the opportunity that now arises is perhaps best summed up in a tweet that was posted following the publication of Klöwer et al.'s (2020) analysis of ways to decarbonise conference travel after COVID-19:

Pre-corona—'Virtual does not really work'

During corona—'Wow it brings so many benefits, and yes it works actually, ops!'

Post-corona—'HOW DARE WE to have exchanged in such an unsustainable and non-inclusive way'

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Notes

1. All New Zealand tertiary institutions are subject to the Performance-based Research Fund (PBRF) research assessment exercise, which is modelled upon the UK's Research Excellence Framework.
2. https://sustainablehistorywp.wordpress.com/
3. http://www.wpsanet.org/meeting/climate.php
4. https://www.change.org/p/american-sociological-association-council-decarbonize-asa-meetings
5. https://www.universitiesforclimate.org

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9

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

Lisa Jacobson

> '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' (Nursey-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).

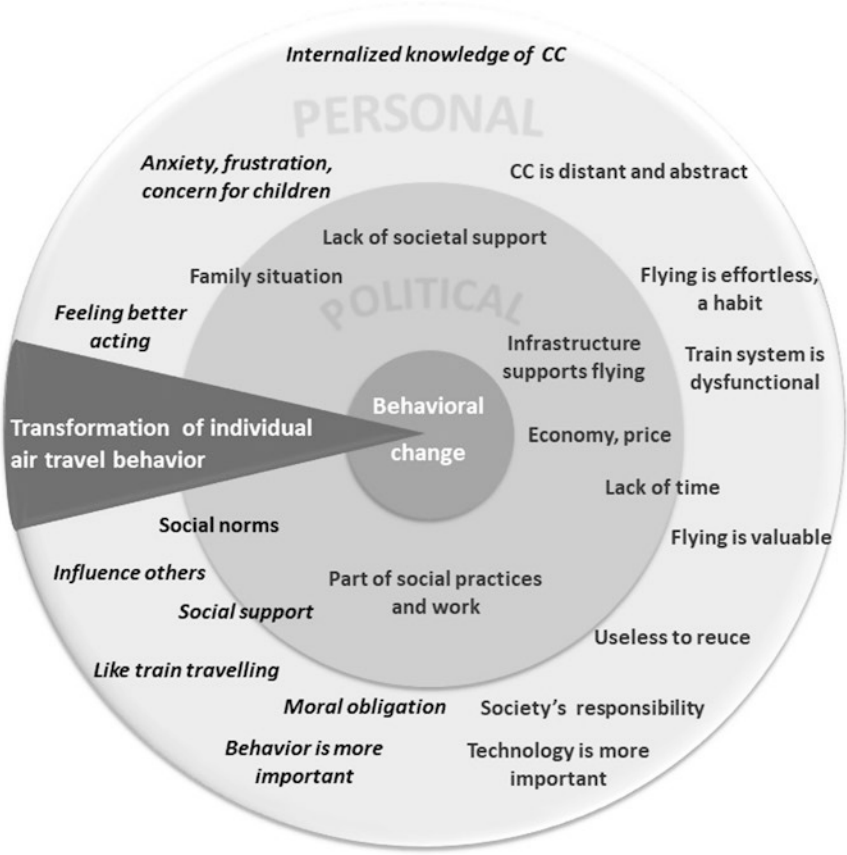

Fig. 9.1 'Three spheres of transformation', adopted from O'Brien and Sygna (2013). Incentives (italics, bold) to reduce flying were identified mainly in the personal sphere, while barriers (bold) were found both in the personal and in the political spheres. Some variables cross the spheres, for instance, '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; Liljestrand, 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—sparking 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.

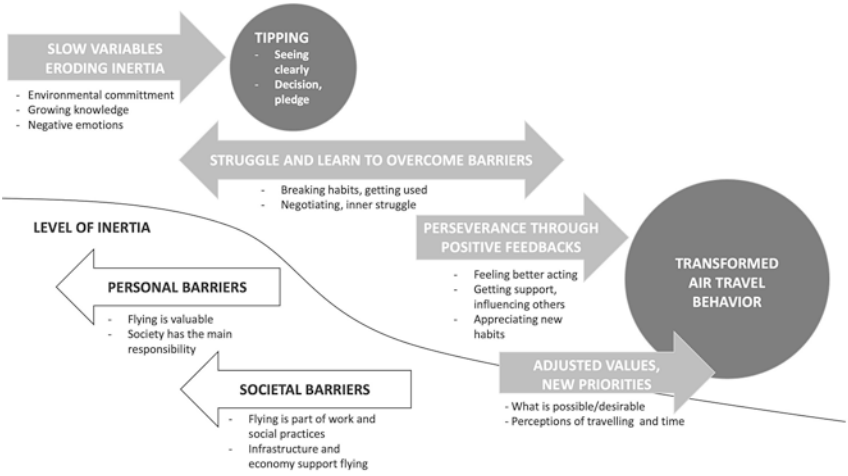

Fig. 9.2 The figure shows the process of reducing flying over time. Filled arrows and balls represent the phases and components of the process of behavioural change; white arrows show how it is counteracted by various barriers. (The figure has previously been published in Jacobson et al., 2020.)

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 fundaments 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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10

Decarbonising Academia's Flyout Culture

Nicholas A. Poggioli and Andrew J. Hoffman

Introduction

Air travel and aeromobility are technologically and culturally central to academic life (Lassen, 2006; Urry, 2002). Academics fly to collect data, speak at conferences, present research seminars, interview for jobs, consult with companies, give government testimony and teach classes (Arsenault et al., 2019). Flying is so prevalent that the academic community revolves around what we call 'flyout culture'. Where culture is 'a pattern of shared basic assumptions' that are 'taught to new members as the correct way to perceive, think, and feel' about being a community member (Schein, 2010, p. 18), flyout culture is a pattern of assumptions that academics share about the role, symbolism and importance of flight to what it means to be a member of the academic community. Academics maintain and reproduce flyout culture by teaching aspiring academics about its centrality and importance as they join the community.

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Flyout culture is so strong that academics report a 'fear of not flying', rooted in the belief that academic success requires flight (Nursey-Bray et al., 2019).

However, flyout culture is facing challenges on multiple fronts. Some now question whether flight is desirable, given growing concerns about carbon emissions and climate change. Pressure from outside academia comes from flight shaming campaigns by groups like Stay Grounded and Count Us In (Count Us In, 2020; Stay Grounded, 2020). Internal pressure comes from academics, especially those working on climate change, who are moving to reduce their quantity of flying and compel others to do the same. These academics are in part motivated by a fear of being accused of 'climate hypocrisy' for expressing concern about carbon emissions but continuing to fly (Dolsak & Prakash, 2018; Higham & Font, 2020). In October 2015, 56 scholars from more than 12 countries petitioned institutions and academics to reduce flying-related emissions (Academic Flying, 2015). Since then, increasing numbers of academics are voluntarily avoiding flights (Delmestri, 2019; Nursey-Bray et al., 2019), and at least 73 academic institutions have adopted decarbonisation policies that include reductions in flight travel (ETH Zurich, 2020).

In this chapter, we explore how academia's flyout culture might change as external and internal decarbonisation pressures intensify. While much prior attention to academia's decarbonisation challenge focuses on its technological aspects, our focus in this chapter is on academic culture, the system of beliefs, assumptions and values that guide academics' behaviour (Bazerman & Hoffman, 2000). Flight is more than a technological means of moving bodies or objects. It is also a cultural artefact, a 'palpable but hard to decipher' object (Schein, 1990, p. 111) representing shared values and assumptions about its role in the occupational community of academics. As such, we examine the values underlying flyout culture, how they might or might not change and what new values might arise in a decarbonised academy.

We develop our argument in four parts: We first discuss the empirical context of academic aeromobility. Next, we examine flight as a cultural artefact and consider six cultural values attached to it: ideas, efficiency, quality, evaluation, recreation and status. We then outline mechanisms by which flyout culture might change, offering an assessment of possible

outcomes and adaptations to meet carbon reduction goals. We consider what new values might arise if academia shifts away from aeromobility, and we describe sources of resistance that might maintain flyout culture in its present form. Finally, we conclude by considering how academia might successfully decarbonise and move away from flyout culture.

Academic Flight

Academics are a professional community with regular access to flight, especially international flight. Only 2–4 per cent of the global population flew internationally in 2018, and 1 per cent of the population produced 50 per cent of carbon emissions from flight (Gössling & Humpe, 2020). Academics from North America (Arsenault et al., 2019; Klöwer et al., 2020; Wynes et al., 2019), Europe (Achten et al., 2013; Lassen, 2009) and Australia (Nursey-Bray et al., 2019) fly more than academics from other regions, and academics as a profession fly more than most other professions. Academics are likely responsible for a disproportionately large share of society's flight emissions.

The Extent and Impact of Academic Flying

Academics fly to conduct research, teach, give presentations, perform service activities and network at conferences, seminars and workshops. Arsenault et al. (2019) found that international travel accounted for 83 per cent of professors' annual travel distance, averaging 33,080 kilometres on 7.1 trips per year (3.5 international and likely by plane). Postdoctoral students averaged 4.6 trips per year (1.5 international) and 13,590 kilometres travelled. Graduate students, staff and undergraduates travelled less frequently and fewer kilometres, with fewer international trips. At the University of Adelaide, 85 per cent of faculty flew at least once in the previous year, and 22 per cent flew more than five times (Nursey-Bray et al., 2019). Wynes et al. (2019) found that 60 per cent of flights in a sample of University of British Columbia faculty were for

conferences, 16 per cent fieldwork, 6 per cent university business, 5 per cent lectures and 13 per cent other purposes.

Academic flying emits greenhouse gases that contribute to climate change. Flying and the associated carbon emissions are endemic to the academic enterprise. Both flight frequency and carbon emissions increase with years in academia, salary and position rank. Full professors emit 7.52 tonnes of carbon dioxide equivalents per year, associate professors 5.40 tonnes, assistant professors 2.49, postdocs 2.49 and graduate students 2.44 (Wynes et al., 2019). Producing a four-year PhD thesis generates 21.5 tonnes, with travel contributing about 75 per cent of the emissions (Achten et al., 2013). Producing an undergraduate degree generates fewer carbon emissions because undergraduate students fly less (Parsons, 2009). Flights per year increase with an academic's age, peaking in the 41–50-year-old bracket (Lassen, 2009).

Despite these trends and a fear of not flying, Wynes et al. (2019) found no association between flying and metrics of academic performance like citation counts or H-index. Cultural values and beliefs more than empirical evidence perpetuate flying within academia. Flyout culture is becoming a focus of increasing interest as universities face mounting pressure to meet climate change mitigation targets by decarbonising their operations (ETH Zurich, 2020).

Pressures to Decarbonise and the Role of Flying in Those Efforts

Academic institutions are under growing pressure to decarbonise by achieving carbon neutrality, divesting fossil fuel-related institutional investments and increasing energy efficiency. Climate hypocrisy charges have been levelled across the spectrum, against both individuals and organisations and against those both inside and outside academia; anyone who speaks out on climate change is vulnerable. In 2007, the Tennessee Centre for Policy Research charged that environmental activist Al Gore's 20-room home and pool house used more than 20 times the national average kilowatt-hours of energy (Tapper, 2007). In 2017, the National Centre for Public Policy Research timed similar criticism to the

release of Gore's *An Inconvenient Sequel* movie about climate change (Bond, 2017). Critics targeted Google in 2019 for hosting a climate change summit whose scientists, celebrities and leaders arrived in 114 private jets (Haas, 2019). Even the 2015 Paris Climate Talks were criticised for creating 300,000 tonnes of travel-related carbon emissions (Stockton, 2015), including accusations that attendees were 'hypocrites in the air' (Anderson, 2014). Critics claimed 'any climate "activist" who isn't absolutely at home on Webex and GoToMeeting is a complete phony', and that 'they should be living entirely "off the grid" if they truly walked the talk' (Worrall, 2015).

Pressure for change is also emerging inside academia. Climate scientists report feeling dissonance about working at institutions that lack carbon reduction goals (Higham & Font, 2020) and worry about losing their credibility if they fly (Sparkman & Attari, 2020). Some academics encourage colleagues to travel by train or bicycle (Delmestri, 2019), and journal editors call on peers to fly less (Nature Nanotechnology, 2019). These efforts include calls for 'slow conferencing' and 'slow science' (Berkowitz & Delacour, 2020; Ruddick, 2019). Professor Laurie Zoloth, director of Northwestern University's Centre for Bioethics, Science and Society, recommends scholars skip conferences every seven years (Oppenheimer, 2014). Activist Greta Thunberg captured the reputational need to give up flying: 'It would be much more useful for me to fly around the world advocating for climate action. But it's all about sending a signal that we are in a crisis and that in a crisis you change behaviour' (Marchese, 2020).

In summary, internal pressures, climate change goals, the desire to maintain legitimacy with external communities and growing comfort with virtualised communication suggest that academia is in a state of change and that an opportunity to reduce academic flight is at hand. But such a shift will create tensions within academic culture by challenging explicit values and implicit assumptions of status, career advancement and community identity. Some will resist change while others will embrace it, triggering a contested debate over the role of flight in academia, the values it represents and the emergence of new values to replace them. To understand where such changes might lead academia, we present six values that underlie academia's current flyout culture.

Six Values of Flyout Culture

Flyout culture refers to values, beliefs and assumptions about flight shared by members of the academic occupational community (Hoffman, 2001). In that community, flight is a cultural artefact to which members attach deeper values, similar to how professionals attach values of globalisation to the suitcase artefact (Durante, 2016). Such values are both *espoused*, explicit statements of behaviour norms, and *tacit,* implicit underlying assumptions about behaviour norms (Schein, 2010).

We identify six values academics attach to flight: ideas, efficiency, quality, evaluation, recreation and status. We recognise this as an incomplete list of values. Our objective is to examine the most prominent and salient values of flight, not exhaustively identify all values. We also recognise there is some blurring between the act of flying and the set of activities enabled by flight, like presenting a research seminar. Flight enables these activities, which are part of the 'flyout', so we include them in our analysis.

Value of Ideas

The value of ideas captures beliefs and assumptions about how knowledge is created and shared in academic work. It holds that idea generation through in-person communication differs from distanced channels like mail, email, telephone and video conference. Academics generally view flight as advantageous, perhaps even necessary, for generating new ideas. Surveys show that the most common purpose that academics assign to flight is idea generation, especially attending conferences or meetings to present or conduct research (Arsenault et al., 2019; Lassen, 2009; Nursey-Bray et al., 2019). Studies suggest the strength of this belief by asserting that 'the flow of knowledge is closely linked to proximity' and that 'going to a conference alters the creation of collaborations' (Chai & Freeman, 2019, p. 2138).

The value of ideas involves a belief that in-person exchanges transmit more than data and knowledge by allowing relationship formation and renewal. Relationships are formed through prolonged and associated engagements outside the formal seminar presentation, and renewal and

maintenance of those relationships occur at in-person conferences, meetings and classrooms as academics and students present new ideas, evaluate the ideas of others and defend their ideas against evaluation. These continued interactions form the basis for ongoing idea generation that often takes place in informal settings like dinners, coffee, walks or drinks.

Value of Efficiency

Closely related to the value of ideas is the value of efficiency. Travel allows scholars to develop networks through which they can access information, transmit their knowledge and increase their status position within certain scholarly networks. Such networking activities, in fact, are intimately linked with air travel (Lassen, 2009). In such activities, smaller group discussions or one-on-one meetings allow the exchange of exclusive knowledge about important career choices such as the latest research and research questions, the future trajectories of publication interests or the awareness of research communities and their relative status. Flyouts can be highly efficient for attaining this information. For trips beyond a certain distance, no transportation mode compares to the rapidity of flight to enable face-to-face interaction. The comfort and setup of flight also allow academics to work while travelling by writing or reading on the plane. On this dimension, flight shares a characteristic with train travel and, to a lesser extent, bus and car travel as a passenger.

Value of Quality

Through such exchanges as described earlier, academics often use flights as a signal of the quality of colleagues and their work. (The next section on the value of evaluation deals with the role of flight in evaluation processes.) Signalling theory suggests that when quality is difficult to observe, evaluators substitute more easily observed characteristics they believe positively correlate with quality (Connelly et al., 2011). Flyout culture holds the belief that the number of flyouts a person takes and the destinations of those flyouts positively correlate with quality. This assignment of

quality begins with doctoral students as they enter the job market; signals of their desirability can be measured by the number of 'flyouts' that they are invited to accept for interviews. Most schools know what other schools have extended a flyout offer to a candidate, and perceived candidate quality goes up with the number and status of the schools.

Quality signals continue as academics advance in their careers. Flyout culture treats destination prestige and colleague quality as interrelated and believes the quality of a scholar's work is positively correlated with the status of schools they visit. Relatedly, the status of scholars who accept flyout invitations signals the quality of a school or professional group. A colleague can have his/her reputation enhanced by being invited to speak and becoming a singular centre of attention through repeated meetings and engagement. People will make assessments about someone's reputation, not only by their work but by measures of who else deems their work to have high quality.

Value of Evaluation

The value of flyouts can be codified in evaluative metrics of the academy. Annual reviews ask scholars to report the number and status of speaking invitations (whether by the organisation extending the invitation or the form of the engagement—a keynote address or invited talk is 'worth more' than accepted papers at a conference, and those are worth more than talks at practitioner conferences). Many scholars list speaking destinations on their résumés. Schools then use such information to measure the status of the scholar for hiring, pay raises, promotion and tenure.

Evaluation can also take the form of other metrics of rewards, such as speaking fees, invitations to teach in executive education or admission to exclusive events with high-status invitees in private meetings. Doctoral students can also find themselves evaluated by flyouts as the availability of funding to attend select meetings and gatherings can be granted as a reward for excellent research or other signals of merit. Conversely, the opportunity to conduct research fieldwork, attend conferences and meetings and present research in select formats will be used to evaluate the

strength of the graduate as well as the programmes in which they are trained. Then, once on the job market, this evaluation process continues with the criteria of merit being the number and quality of flyouts for having made the shortlist of candidates to visit the hiring institution on a flyout. Academics believe flyouts and the in-person interactions they enable provide the hiring institution qualitatively different, and better, evaluations of candidates than virtualised visits would provide.

Value of Recreation

Not only are flights a valuable functional aspect of academic life, they also serve a recreational aspect as well, providing both professional and leisure benefits and opportunities to travel to desirable global cultural, political and tourism centres and often without paying the full cost of travel, called 'conference tourism' (Høyer, 2009; Høyer & Naess, 2001). Work and travel decisions are highly individualised with such associated benefits weighing heavily in decisions on whether to travel or not (Lassen, 2009). Academics often extend professional trips by several days or weeks to combine professional travel with tourism, sometimes bringing family members. Conferences and meetings held in tourism centres are more attractive to attend than events in places less desirable as tourism donations. Many conferences draw significant attendance and establish higher status by being held in desirable locations: a meeting in Paris, Tokyo, Beijing, London, Asilomar (on the Pacific Coast) or the Greek Islands, for example, might draw more interest and therefore more prestige than a conference in a small town far from an airport or in a colder climate. Flyouts can even create and reinforce the status of an academic institution by assessing the quality of the nearest airport and combining that assessment with a travel budget that allows greater ease to travel. Our own institution, the University of Michigan, prides itself on the extensive reach of Detroit Metro airport and its direct connections to global destinations like London, Rome, Tokyo and Beijing. Colleagues at other institutions near Chicago's O'Hare airport, London's Heathrow airport and Tokyo's Narita airport report similar esteem for their convenience.

Value of Status

Global travel is part of the global elite cosmopolitan academic identity with nearly unlimited mobility privileges, combining flyouts with numerous values that personify status. The institutional trappings are significant. Junior flyouts take the form of conference presentations, job market talks or invited seminar presentations, which indicate career progress, career potential and labour market attractiveness, contributing to how a junior academic's status, prestige and market desirability are constructed. Senior flyouts include speaking 'gigs' in the form of talks, seminars and other events like serving as a keynote speaker, sitting on a panel discussion and delivering a commencement address. Academics interpret the number of senior flyouts as related to leadership and influence in the field. A certain aura can develop around a professor who is in 'high demand' for their research presentations and their presence.

The external trappings of travel signal status are no less significant, such as airline frequent flyer programmes (i.e. 'achieving status'), elite membership in car rental services and hotel rewards programmes, all of which shorten check-in times, extend special benefits and can be visibly broadcast to others (i.e. first-class flight upgrades). All of these trappings communicate stature to peers as a means of ordering themselves against one another in the status hierarchy as it presently exists and tends to reproduce and reinforce that hierarchy (Espeland & Sauder, 2007). Overall, travel signals the independence and freedom of the community of academic scholars both on its own and in relation to other professions.

How Flyout Culture Might Change

As decarbonisation efforts lead to a decline in academic flying, a transformation in flyout culture will have both technical and cultural elements. Indeed, one might argue that academia is in the midst of a punctuated shift in cultural equilibrium (Gersick, 1994; Kuhn, 1962; Romanelli & Tushman, 1994). New travel modes are being considered as replacements

for air travel. Combined with efforts to virtualise more elements of education and research delivery, the importance of flight confronts a challenging emergent reality in which many of the activities thought only possible through flight become possible by other means or are simply viewed as less desirable. This decline in desirability will be reflected in the obsolescence of some flyout culture values, beliefs and assumptions and the emergence of new cultural arrangements that will reform the foundations of academic life.

In this section, we consider four changes associated with reducing academic flight. Though not mutually exclusive, we present them in order of least to most culturally disruptive—buying carbon offsets; shifting travel modes; centralised, infrequent or slow conferencing; and virtual communication—and examine how each change reinforces or undermines the existing values of flyout culture.

Buying Carbon Offsets

The least disruptive change to flyout culture might come from carbon offsets that provide a technological and economic means of decarbonising the effects of flight. A carbon offset matches a flight's carbon emissions to an equal or greater amount of carbon absorption, resulting in the combined flight and offset contributing zero or negative emissions to the atmosphere. Some universities allow scholars to purchase offsets through internal carbon reduction exchanges or on open exchanges connecting emitters to absorbers (Janisch & Hilty, 2017).

Carbon offsets offer the promise of solving flyout culture's emissions problem without requiring any change to flying behaviour. For those able to offset their emissions, the values of ideas, quality, recreation, evaluation, recreation and status remain unchanged as flights continue unchanged. As a result, offsets might favour more affluent academics and institutions who can continue carbon-intensive flight activities while claiming to purchase away their impacts.

However, even if the purchase of offsets become an effective means of decarbonising academic flight, the change could challenge some dimensions of flyout culture values by increasing the information available to

evaluate flight consumption. Notably, offsetting requires an accounting system linking emission to absorption. Such data could create new flight consumption measures that become integrated into academia's values of quality and status. The amount of offset emissions could become a new status symbol used in institutional rankings. Institutions might publish emissions data like some publish salaries, publications or service to the community, leading to social comparisons between academics and institutions. Academics who fly but do not provide evidence of offsetting might be seen as lower-quality scholars. While this might first affect climate change researchers seeking to avoid charges of climate hypocrisy, pressure on institutions to disclose emissions could require all academics to disclose emissions. Tonnes of offset emissions might be added to other debated quality metrics like citations, travel status on airlines and access to other perks associated with high consumption of global air travel. Similarly, individual academics may be less inclined to broadcast airline flight status as such 'status' may be viewed in a more negative light.

Shifting Travel Modes

A second response to decarbonisation pressure is substituting flight with less polluting travel modes. Professor Kevin Anderson at the University of Manchester took a train to a conference in China, convinced this added to the legitimacy of his science (Hoffman, 2016). Professor Giuseppe Delmestri from the Vienna University of Economics and Business demonstrated a commitment to bicycle by riding 830 kilometres from Vienna to attend a conference in Milan (Delmestri, 2018) and helped organise a conference by train initiative in 2019 (Delmestri, 2019). Social media campaigns like #NoFly2020 urge academics to eliminate their use of airplanes for all of 2020. However, substitution is not always an emissions solution. Long-distance train travel in Canada emits more carbon per passenger than flying because trains have low passenger capacity and declining ridership, travel significantly longer distance on fixed track compared to direct-route flights and have outdated diesel engine technology, all fixable problems (Katz-Rosene, 2020).

Changing travel mode could alter the flyout culture value of efficiency as some begin to see travel by train as more efficient than flight. Trains provide a more comfortable environment than planes for work or leisure while travelling. If slower forms of travel become more common, academics may seek out trains for certain length trips for the comfort and opportunity to be more productive or more relaxed with the travel time.

Shifting travel modes might also change the value of recreation. Travelling to a city centre, boarding a train and emerging in another city centre could become more attractive than travelling to an airport, boarding an airplane and emerging at another airport. What academics view as valuable recreational opportunities enabled by the profession could shift away from global flight-based tourism to local tourism prioritising regional identity and experience diversity. Travel could become a recreation rather than a means of arriving at recreation.

Finally, the value of status might change to ascribe higher status to academics who use slower travel modes. The current value of status views academics who constantly travel as being of higher status than those who do not, implying flyout culture assigns lower status to alternative uses of time like family, community participation, rest and leisure. As non-flight travel modes become positive and desirable, the value of status could begin to see plane travel as primarily consumed by early career, low-status researchers who must fly to network. The current empirical pattern of flight emissions increasing with academic rank could reverse, with higher academic rank becoming associated with more leisurely non-flight travel (Arsenault et al., 2019). These changes could affect institutional status by ascribing higher status to places with robust inter-modal transport options and tighter density with other academic centres.

Centralised, Infrequent or Slow Conferencing

Conferences are a major source of academic flight emissions. The entire carbon footprint of the 2020 online meeting of the European Astronomical Society was 3000 times smaller than just the travel-related footprint of the 2019 in-person meeting (Burtscher et al., 2020). The 28,000 attendees of a fall 2019 conference emitted 3 tonnes of emissions per person

(Klöwer et al., 2020), more than the yearly per capita emissions in all but 18 countries (Union of Concerned Scientists, 2020). Conference attendance accounted for about a quarter of the emissions used to produce a four-year PhD graduate (Achten et al., 2013). All of these conference-related emissions could be reduced by up to 90 per cent by centralisation, decreased frequency and increased virtual attendance options (Burtscher et al., 2020; Janisch & Hilty, 2017; Klöwer et al., 2020).

Changing conferences would change flyout culture values. The value of efficiency could change as one can attend far more sessions, present more talks and hear more presentations if there is no travel time to attend the conference and no travel time to move from one session to the other. Further, online conferences allow people to attend from great distances without the time and cost of flying, thereby increasing the diversity of ideas that are shared and attendees that share them. The value of recreation could also shift as academics begin to disentangle work and recreation and seek tourism as a specific activity that can be increased if less time is devoted to working travel. The value of region-based activities might increase as that of global activities decline.

Virtual Communication

The last change to flyout culture comes from virtual communication technologies that decrease temporal and geographic distance. The emergence of massively open online courses (Whitaker et al., 2016) and sudden virtualisation of curricula in response to the COVID-19 pandemic show the potential for virtual communications to replace in-person activities that currently require flight, such as conferences, invited lectures and guest speaking opportunities.

Virtual communication could reshape the values of ideas, efficiency, evaluation and status. Academics are finding they can attend virtual conferences and form and renew relationships as they did in-person, albeit in different ways. Virtualised coffee chats, panel discussions and informal gatherings offer new forms of relationship maintenance and idea generation, eroding assumptions that in-person interactions offer the only option for high-value engagement. In-person interactions might be seen

as more limiting because they require more time and offer fewer connection opportunities than virtual engagements.

Virtual communication could also alter the value of efficiency by reconfiguring expectations about resource use. Virtually presenting conference papers might lead academics to reconsider whether it is efficient to use multiple days and thousands of dollars to give a 20-minute conference presentation. In-person presentations could be seen as profligate resource use.

The value of evaluation might change to accept and even prioritise virtual over in-person processes. Rather than have faculty attend an in-person presentation by a job candidate, the candidate might be asked to submit a pre-recorded video that faculty watch asynchronously. The ability of academics to teach through virtual platforms might increase and even overtake in-person skills. These shifts in the value of evaluation could alter the selection environment for candidates and, over time, change the profession's demographic and skills composition away from in-person charisma and towards online skills.

The value of status could change to place more emphasis on the number of virtual speaking engagements and the number of attendees. A physical room is limited by the number of seats, fire codes and accessibility. Virtual rooms have fewer capacity constraints. The metric of status could yield a step-change in audience size for virtual events as opposed to in-person events. Further, 'global' presentations could become more available to a broader set of scholars as virtual communications decrease or even eliminate the constraints of geographic distance. A virtual presentation to scholars in Mumbai would be just as easy as a virtual presentation to scholars in New York, no matter where the presenter resides. The value of status might also begin to reflect consistency in actions with respect to climate change. Scholars who are excessive flyers might be viewed as climate hypocrites and suffer status discounts, while those who take strong stances on climate change and display a commitment against emissions-heavy flying could be ascribed higher status (Sparkman & Attari, 2020). However, it should be remembered that virtual communication is not carbon-free. An online search using the Google engine releases 1–10 grammes of CO_2 (Quito, 2018). Virtual communications

yield a variable amount of emissions depending on parameters like bandwidth, video or audio use and screen type: a high-definition video call emits 14 times more carbon than a telephone call (McGovern, 2020).

What New Values Might Arise?

Now that we have addressed how existing flyout culture values might change with decreasing flight, we turn to four new values that might arise with a shift away from aeromobility: localism, climate concern, emissions transparency and verification. The emergence of these values has the potential to accelerate the shift within academia away from flyout culture and towards a new constellation of values, beliefs and assumptions that are appropriate for and compatible with planetary decarbonisation.

Value of Localism

A value of localism could emerge with a shift away from flight to distant locations and cultures. Localism would instead appreciate and elevate nearby or regional characteristics. While some academics report that access to an international airport makes a town or city a more desirable place to live, beliefs and assumptions about quality, recreation and efficiency may begin to favour slowness over rapidity and localism over globalism. Rather than an airport making a town attractive, perhaps its surrounding communities will become more important. Flyout culture assumes that flight offers an escape from places viewed as less desirable to live and recreate. More places might become seen as high-quality places you do not have to leave for recreation.

The rise of a value of localism could lead to growth or rejuvenation for regions demoted by flyout culture's focus on global tourism centres. A value of localism might allow academics to choose where to live based less on proximity to work and more on characteristics like recreation opportunities, infrastructure, health and other currently discounted characteristics. These changes could see the rise of a value of localism that looks quite different from flyout culture's present focus on global academic

nomadism, both in terms of the expectation that academics move anywhere they can secure employment and that they extensively travel to academic events throughout the year.

Value of Climate Concern

Decarbonisation pressure arises from organised concern about the ongoing and potentially devastating impacts of anthropocentric climate change. This organised concern could manifest as a value of climate concern within academic culture. Some academics are already trying to build such a value by advocating increased use of alternative transportation modes (Delmestri, 2019). *Nature Astronomy* published a special issue on astronomy's contributions to climate change (Nature Astronomy, 2020) calling on astronomers to address their contributions to climate change (Stevens et al., 2020). A value of climate concern could transform how academics think about the linkages between the nature of academic work and the impact of that work on the global climate. This could elevate attention to academic impacts on the climate—and the climate's impact on academia (Clery, 2020)—to a higher level of priority within the community.

Value of Emissions Transparency

As decarbonisation leads to more ways of collecting and monitoring carbon emissions data linked to academic work, academics and academic stakeholders may build reporting mechanisms to publicise emissions information. A value of reporting might emerge that elevates the importance of emissions transparency as a necessary step towards decarbonisation. In much the same way that the US Environmental Protection Agency's Toxic Release Inventory compels companies to reduce pollution by mandating that they disclose emissions to land, water and the air, demand for public displays of flight consumption and carbon emissions could inspire institutions to disclose those emissions and increase efforts to reduce them. The emergence of a value for emissions transparency

would mirror growing attention to the need for environmental, social and governance reporting standards within the corporate sector (Cort & Esty, 2020). Transparency advocates believe reporting leads to practice improvement, though some claim that the novelty and complexity of climate change mean transparency will not provide markets all the information they need to reallocate resources away from carbon-intensive activities like flight (Kedward et al., 2020). However, whether transparency would solve the problem does not necessarily matter to whether a belief in transparency and reporting could emerge with decarbonisation efforts, especially if carbon offsets and other information-based mechanisms become widespread.

Value of Verification

The emergence of a value for emissions transparency might correspond with and inspire the rise of a value of verification that would assess the accuracy of what institutions and academics report about emissions. Third-party auditors verify corporate financial statements and, increasingly, environmental, social and governance (ESG) reports. Universities could find that they must verify their emissions reductions to remain legitimate and competitive with peers. Where firms sometimes greenwash their activities by making deceptive or misleading claims about performance (Delmas & Burbano, 2011; Munshi & Kurian, 2005), universities may face similar suspicion about their efforts to address climate change, which could spur a value of verification based on the belief that decarbonisation claims require independent validation. The field of accounting, which studies the complex global system of verification for business financial reporting, is beginning to grapple with how to construct a system to verify corporate sustainability claims (IFRS Foundation, 2020). A similar system could emerge with a value of verification and academic decarbonisation.

What Might Be Gained and What Might Be Lost

Given the centrality of flight and aeromobility to current academic practice, any change in flying behaviour would meaningfully change academic culture. To explore why, we consider one solution to academic carbon emissions that is becoming increasingly popular and likely: carbon offsets. Many hope offset programmes will allow flyout culture to persist unchanged, potentially moving academia off carbon emissions without significant cultural change. Yet organisations already face criticism of 'offsetting green guilt' by focusing on offsets to achieve carbon reduction or neutrality targets (Kotchen, 2009). As a result, even with offsets we would expect some degree of change in flying to occur and wish to consider what might be gained and what might be lost for the academic identity and culture. We consider the implications in two scenarios—if academics fly more and if academics fly less.

What if academics fly more? If carbon offsets decouple flight from carbon emissions, academics might fly more but emit less carbon. Institutions and academics might gain new programmes funded through offset revenue. Duke University channels offset revenue into tree planting, benefitting residents of the University's home town (Duke University Office of Sustainability, 2020). However, the opposite might occur if offsets pump emissions underground rather than store carbon in plants. Airport and other infrastructure expansion projects could continue destroying habitat, eliminating social benefits of natural spaces. If offsets become expensive, increased academic flight could intensify existing inequities between academics with resources and those without. Less-resourced institutions and academics might face slower career progression and lower survival rates in the profession.

If academics fly less, the primary gain would be reduced or eliminated carbon emissions from academia, helping prevent additional negative climate change impacts, protecting institutions from negative reputation effects from being targeted by decarbonisation advocates and protecting academics from charges of climate hypocrisy (Dolsak & Prakash, 2018; Higham & Font, 2020). Shifting away from flyout culture would also enable academics to align their personal carbon values and commitments

with those of their profession, perhaps increasing work satisfaction and productivity.

A second gain of decreased flight could be increased health benefits for communities impacted by emissions and flyers themselves. The environmental justice movement in the United States highlights how high-polluting infrastructure like airports and oil refineries that produce jet fuel tend to be located in lower-income communities (Fleischmann & Franklin, 2017; Katz, 2012). These facilities increase asthma and other air-quality-related diseases in nearby communities and affect psychological well-being through noise and light pollution (Cohen & Kantenbacher, 2020). Research on the health benefits of reduced flying for fliers is less developed and considers possible negative health impacts of increased radiation exposure from flying high in the planet's atmosphere (Barish & Dilchert, 2010).

Finally, reduced academic flight could lead to greater access to and inclusiveness within academic careers. A focus on aeromobility and multi-day air travel create a selection environment favouring those who can physically travel through flight infrastructure and have social and economic means to be away from home for extended periods. Reducing the need to travel by air could help diversify academia by becoming more welcoming and supportive of people who cannot travel, dislike flight and time away from home, do not have the means to be away from home, cannot afford flying or choose to live a lifestyle emitting fewer emissions than possible with flying.

But reduced flight and flyout culture could mean academia also loses some characteristics. One loss could be the global cosmopolitan identity, replaced by a rise to prominence of regional identity (Beck, 2002). The global cosmopolitan identity links academics into a community that transcends some place-based restrictions, contributing to academic freedom. The decline of flight could undermine academic freedom by relinking research and teaching to idiosyncratic location pressures. As institutions and academics become more grounded in regional political, social and economic contexts, policymakers, businesspeople and other stakeholders might assert more influence on academic work.

How Flyout Culture Might Resist Change

Cultures maintain stability and resist change, especially rapid change. Basic assumptions can benefit organisations and individuals by allowing rapid reaction to familiar environmental changes, but they can limit action in response to novel changes like decarbonisation pressures. Given the success of the climate denial movement in preventing policy change to reduce carbon emissions (Oreskes & Conway, 2011), we should be cautious about whether flyout culture will change to reduce flying. Basic assumptions about organisational procedures, 'how things are done here', and the realities of the external environment can become rigidly emplaced and difficult to alter. Change involves unlearning past accepted ideas and invites resistance from institutions and individuals with vested interests in the status quo. Academia presently lacks powerful cultural processes and routines to respond to decarbonisation, potentially inviting resistance to change rather than creative solutions. This section considers six factors that might inspire resistance: habitual routine, resource limitations, communication breakdowns, fear of the unknown, threats to established power bases (Hoffman, 2000) and an over-reliance on technology.

Stability in patterns of thought and action can be perpetuated by habitual routine. Often the perpetuation of habit stems from an individual's realisation that changing what has become established will involve some form of short-term costs. While inefficient or inconsistent with long-term objectives, these established routines can become familiar, comfortable and reliably predictable. For example, many academics have a highly routinised habit of flying to attend holidays with family.

Resource limitations can restrict the ability of an organisation to overcome sunk costs in equipment, processes and personnel. They can become psychological roadblocks which bias people away from certain actions or responses to demands for change. Successful academics could resist technological change they see as unnecessary (such as new platforms like Zoom, Slack, WebEx and the vastly increasing array of online options), slowing adoption by others. Short-term demands may deny the individual academic any opportunity to consider long-term gains, which

although they may be encouraging, are only potential. Short-term costs predominate, thus biasing academics and administrators to over-discount the future.

Interdepartmental communication breakdowns can perpetuate environmentally inefficient routines. In the face of possible cost benefits, established reward and incentives systems within organisations often mask the opportunities available through change. For example, reductions in flight may create costs for an individual scholar's normalised work routines while the benefits of such activities in the aggregate may accrue to central administration in its efforts to publicise reduced carbon emissions. However, while central administration may seek to induce such behaviours, their scope of control is quite limited.

Fear of the unknown can drive organisational inertia and the continued reliance on basic underlying assumptions. Both external and internal change can be upsetting for organisational constituents, particularly when the outcome or consequences of change cannot be predicted. Outcomes or consequences can never be predicted. At present, many academics report a fear of not flying based on the belief that professional success requires flight-enabled activities, primarily conferences (Nursey-Bray et al., 2019); an overriding belief that 'technology cannot fully replace the power of direct interaction' that enables trust- and commitment-building among colleagues and more efficient, potentially less contentious group decision-making processes (Janisch & Hilty, 2017); and a pervasive fear of missing out on professional opportunities if they give up flight and professional rivals do not.

Finally, threats to established power bases can cause resistance to organisational changes. Culture establishes a structure of power which will bias the perspectives of those who benefit from the existing system benefits. Alterations in the structure and roles of the individual actors may be competence enhancing for some and competence destroying for others. As flight increases with academic seniority and years in academia (Lassen, 2009; Wynes et al., 2019) a lack of leadership and modelling by post-tenure scholars holding powerful institutional positions may undermine efforts at flight reduction and could maintain flyout culture. Because voluntary flight reduction is not guaranteed, decarbonising academia likely requires institutional and political reforms, such as policies against

reimbursed flight and new reward systems that promote flight avoidance. Further, pre-tenure academics who voluntarily reduce flight in the absence of policies could be dismissed as 'activist' (Stenhouse & Heinrich, 2019).

Rather than reduce flying, many within flyout culture might seek a technological solution that decouples flight from carbon impacts. Such a belief in techno-salvation is one of the psychological barriers to individuals changing their behaviour to address their carbon emissions (Gifford, 2011). Academics might believe that carbon-free aviation fuel will eliminate flyout carbon emissions, or carbon capture and sequestration technology will solve climate change without people needing to change their behaviour. These solutions are theoretically attractive but currently impractical. Carbon-free aviation fuel is unlikely to be available in needed quantities for decades, and capture and sequestration technology remains unprofitable and too small in scale to meaningfully affect climate change. Finally, advocating for these solutions raises the problem of moral hazard where academics continue flying or fly more, believing technological solutions will make up for their carbon emissions at some unspecified future time.

Conclusion

While inertia and resistance to change are commonly studied aspects of organisational and institutional life, we prefer to end this chapter on a positive note by considering how academia might successfully reduce or eliminate carbon emissions from flight. We frame this discussion around changes brought on by the outbreak of COVID-19 in 2020. COVID-19 presents us with a cultural discontinuity and what Kuhn (1962) refers to as 'revolutionary science', a period where it is possible to explore alternatives to long-held, taken-for-granted assumptions about how to produce knowledge. In this period of discontinuity, social change agents become engaged in a battle over a new set of assumptions that will replace the old. New assumptions about academic work were already being developed prior to COVID-19 in response to climate change. While the problem of COVID-19 could disappear with a vaccine or other effective

countermeasure, the problem of climate change will not disappear with a single solution. And any vaccine or countermeasure will arise from coordinated activity. The same must happen for a solution to climate change.

Pandemic responses have shown how quickly some organisational communities, including academia, can eliminate flight and continue working. At the time of this writing (November 2020), the COVID-19 pandemic has sharply reduced flight and aeromobility and hastened the adoption of online and digital communication. By April 2020, daily global emissions were 17 per cent below the 2019 average, and peak average country-level emissions were 26 per cent lower than 2019 (Le Quéré et al., 2020). Most academic travel ended in early 2020. Universities and colleges rapidly switched curricula to online delivery. Faculty, instructors and staff began interacting virtually, including attending conferences, presenting seminars and conducting research. It is unclear whether emissions reduction will be maintained. Some academics could press to return to past flying practices once the pandemic ends, or even before. However, others in the community might advocate for the maintenance of travel reductions and for new behaviours like slow conferencing and virtual communication to become the new academic culture. The COVID-19 pandemic presents a challenge and an opportunity to adapt to a 'new normal' involving less flight.

And, as the adaptations to COVID-19 continue, the new behaviours that have been adopted will become more strongly implanted within academic culture, creating its own form of inertia should COVID-19 restrictions eventually be lifted. Many academics will have become adapted to a lifestyle where presentations can be conducted without multi-day trips and are instead conducted from their home office or living room. Others have become habituated to a lifestyle that increasingly values home life and local engagement over the pressures of flying. In short, the longer the COVID-19 pandemic persists, the more likely that the adjustments of the 'new normal' take hold.

And with those adjustments, a corresponding set of new values will diffuse and gain acceptance. In the end, decarbonisation is not just a technological challenge; it is a cultural challenge that reconstructs our notions of what constitutes normal, expected travel and communications behaviour. Will we return to relatively inexpensive, widespread flight

where 1 per cent of the world's population emits half of the flight-related emissions (Gössling & Humpe, 2020)? Or will equity and fairness considerations lead to a reassessment of such disparities?

In the end, flight travel post-COVID-19 will be seen in a new light. The combination of decarbonisation pressure and pandemic shifts in work habits provides an opportunity to redefine academia away from flyout culture and towards a renewed culture free from carbon pollution and compatible with a stable, liveable climate.

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11

Aeromobilities and Academic Work

Claus Lassen

Introduction

Recent decades have seen an increase in academic air travel as part of a larger transformation and globalisation of modern work life away from industrial and hierarchical work towards much more flexible, networked and mobile work, of which air travel often is a critical component (Castells, 2001; Sennett, 1998; Vesala & Tuomivaara, 2020). This is reflected in growing aeromobilities, with more than 4.5 billion scheduled flight passengers globally in 2019 (Statista, 2020). Many academics today live a mobile life on the move (Elliott & Urry, 2010) as members of the smooth 'airworld' (Kirn, 2001: 8–9), and the new airborne elite of cosmopolitan tourists (Bauman, 1998). In a world where only 11 per cent of the population took a flight in 2018, and only 4 per cent flew abroad, academics are part of the frequent flying 'super emitters' (Gössling &

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Humpe, 2020). This group, representing just 1 per cent of the world's population, has caused half of aviation's carbon emissions (ibid.). Such intensive airborne academic work practices seem particularly problematic due to the significant larger climate impacts and higher energy consumption related to flying over a long distance in the stratosphere compared to movement at ground level (Høyer & Næss, 2001; Lassen, 2005).

Despite the above-listed implications of air travel, there exist a number of drivers for academics' increased travel activity. Academics travel globally to exchange knowledge, to do research, to teach and present research, also creating and maintaining networks that are important career strategies for many academics (Lassen, 2009b). Much of such academic work seems to accommodate a need for face-to-face interaction, co-presence and proximity (Urry, 2002, 2003, 2007). Lately, COVID-19 has temporarily put aviation on standby and increased attention towards the idea that more meetings may be held on the screen. The current standby of aviation has generally created an opportunity for reflection on the existing work practices and a change to explore the opportunities to work and travel differently in the future. The aim of this chapter is to contribute to these reflections by raising a number of questions in relation to this: Why do academics travel and meet face-to-face? Why has academic air travel increased during the last decades? What are the main drivers behind such development? Is it possible to imagine a future for academics with less face-to-face meetings? How can this potential be achieved?

In the following section, based on the new mobilities turn (Urry, 2007; Jensen, 2013; Adey, 2010; Kaufmann, 2002) including aeromobilities studies (Cwerner et al., 2009; Lassen, 2006, 2009a), this chapter first examines the transformation of work and the importance of aeromobilities for late modern work, which sets the context for contemporary academic work practices. Next, this chapter examines academic work in particular and shows that physical meetings and face-to-face interactions play a central role in academic work and aeromobilities. The chapter argues that, for aeromobilised academic work practices to be carried out in the future with a lower climate footprint, a stronger differentiation between the forms of meetings and co-presence obligations is necessary. Finally, the chapter presents a tool that provides a more detailed understanding of which types of meetings that in particular require co-presence

and face-to-face communication, and which types of meetings that could just as well—or perhaps even better and more efficiently—be carried out as virtual meetings. However, as stressed at the end of the chapter, such an approach seems to require a much greater focus on, and understanding of, the aeromobility management at academic institutions in the future.

Global Work and Aeromobilities

In this first section, I will argue that it is difficult to understand and explore academic work and travel independently of the wider transformation of work, and in relation to this, the (aero)mobilisation of work. The rise of a more global networked and knowledge-based economy has fundamentally changed the context of academic work in recent decades by creating a framework for a new labour market based on globalisation, knowledge, mobilities, flexibility, individualisation and networking. A transformation which fundamentally also have influenced and changed the role of academic work at a societal level. Therefore, in order to understand why academics travel in relation to their work, a first important step is to explore the general changes and shifts of the new labour market, with a particular focus on the role of aeromobilities. In the following sections, I will therefore begin this chapter by exploring more generally five interdependent components of such work transformation where especially aeromobilities both make such new labour market possible and are drivers for its development and logic.

First, work-related aeromobilities are closely related to a move away from Fordism—an economic system based on mass production, standardised work routines, mass labour, centralised, industrialised and wage-based societies. The new post-Fordist network-based economy is one built on innovation, globalisation and decentralisation of work, workers and companies and is based on flexibility and adaptability (Castells, 1996). Such an economy is characterised by the individualisation of work organisation, the diverse localisation of activities and the ability to network these around the individual worker. This creates a new urban space for endless mobility built on information and communication flows

(Castells, 2001: 234). Although, according to Castells, the majority of the workforce still has a workplace that they regularly frequent, a growing proportion of employees also work from home, the car, the train, the plane, the port or the hotel and on holiday or at night. Work has also become increasingly mobile, particularly in knowledge-intensive types of work (Vesala & Tuomivaara, 2020: 223). Nowadays, highly educated employees take more and more time in the field with clients and partners. They travel around the world across metropolitan areas and countries all while communicating with their workplace via the Internet, smartphones and social media (ibid.).

As a result of these changes, companies are increasingly reducing office space for employees, such that they only have the space they use when they actually use it (ibid.). According to Vesala and Tuomivaara, 'mobile work' must therefore not only be understood as involving the physical movement of workers between various work locations but as a mental state that results from a situation in which the spatial arrangement of work has become fluid, contingent and open to change (Vesala & Tuomivaara, 2020: 225). In that respect, mobile work is not only associated with information communications technology but also with various processes related to the changing organisation of work (ibid.). Jones, therefore, calls for a reconceptualisation of work through the notion of 'global work'. Rather than understanding work as a practice undertaken by social actors located in discrete material spaces and framed in a linear chronology, Jones argues for global work 'as a complex set of spatialized practices involving humans and non-humans … and which is constituted in relational space with a disjunctive, non-linear chronology' (Jones, 2008: 15). Jones stresses that there is no local 'opposite' of such global work because all forms of contemporary work are potentially constituted through relations that exist globally (ibid.).

Second, in the global-, flexible- and knowledge-driven economy, networks and networking have become a fundamental component of work. According to Wittel (2001), the term 'network sociality' should be understood as opposed to the community because, for network sociality, social relations are not narrative but informative. These relations are not based on mutual experience or common history, but primarily on the exchange of data and on constantly 'catching up'. Wittel argues that a shift from an

experiential sociality to an informative sociality is especially generated by mobility and speed (ibid.: 68). Thus, in network sociality, the social kit consists not of bureaucracy, but of information created based on a project-to-project foundation. This foundation is established through the movements of ideas, the establishment of modern standards and protocols, the emergence of protected information and on the basis of communication and transport systems (ibid.):

> Network sociality is a technological sociality insofar as it is deeply embedded in communication technology, transport technology and technologies to manage relationships. It is a sociality that is based on the use of cars, trains, buses and the underground, of aeroplanes, taxis and hotels, and it is based on phones, faxes, answering machines, voicemail, videoconferencing, mobiles, email, chat rooms, discussion forums, mailing lists and web sites. Transportation and communication technologies provide the infrastructure for people and societies on the move. (Wittel, 2001: 69–70)

Third, global work takes place materially in what I previously termed 'corridors' (Lassen, 2006) stretched by airplanes, airports, air spaces, motorways, trains and metros, hotels, offices, meetings rooms and conference and convention centres. Global work evolves in high-speed spaces, in which highly mobile global workers move on the way to the next meeting, next hotel, next bar and next country (see Lassen, 2005, 2009a). The airplane is a fundamental component of such corridor systems (Urry, 2007). For many global workers, flying is not a novelty but simply a means of transportation to go to the requested destination. It is a 'global bus', lacking the attraction and mystery that air travel abroad historically held for people and societies (Lassen & Jensen, 2004). The time of the corridors is 'clock time' (Lassen, 2005: 162), which means that travellers aim to move as efficiently and quickly as possible between planes, taxis, hotels and workplaces. Such high-speed movement by air leaves little room for experiencing and sensing the places and cultures through which travellers move on the way to their destination. Employees travelling in these corridors materially contribute to their construction through spatial practice. Their cognitive experience and logic are also framed by the corridors. This represents a spatial form of organisation,

where the corridors function as a mechanism of selection, that picks and chooses such that the travellers are distributed in accordance with the logic of the space of flows (Castells, 1996). In this way corridors materialise the paradox of high-speed travel identified by Elliott and Urry (2010), between individual creation and system dependency; the social structure of human agency and individual life is substantially and increasingly constituted through mobility systems (Elliott & Urry, 2010: 13; see also Urry, 2007). This means that although the novel textures of individual life and travel attract significant research interest, such practices are also highly predictable, routinised and uniformed (Fig. 11.1).

Fourth, in the network-driven workplace, the boundaries between work and private, work and play, colleagues and friends, workplaces and places of experience seem to increasingly blur. Wittel describes how the times of play and the time of work are less tightly drawn, as going to

Fig. 11.1 The corridor experiences. Singapore Changi Airport. Picture: Claus Lassen

parties and other networking activities are transformed to become part of work (Wittel, 2001: 68–9). Here there are overlaps between work and friendships. This overlap can also be seen where 'the project' and the work team are key organising features of work and leisure networks (Urry, 2007: 222). As Vesala and Tuomivaara stress in relation to telework, work carried on outside the main workplace potentially includes a wide range of work practices, many of which challenge the boundary between work and leisure. This overlap typically involves new leisure-like and aestheticised organisational spaces that invite workers mentally to travel away from toil and routine (ibid.: 225–226). Workplaces 'are increasingly designed to look like play places and leisure places, through a kind of designed "Starbuckization"' (Urry, 2007: 221). Similarly, in relation to aeromobility, the boundaries between business and tourism are slowly becoming less important. In his work on business travel and leisure tourism, Kellerman points out:

> Clear-cut differentiations between business and leisure tourism have blurred for all the three major dimensions of tourism: people, places and activities. For people, business meetings by business people may yield leisure visits by these business persons and *vice versa*, leisure visits may bring about business ideas and opportunities yielding future business visits by vacationers. As for places and activities, leisure tourism and business visitors may share the same transportation, lodging and entertainment facilities. (Kellerman, 2010: 173)

Earlier, I illustrated how this tendency for boundaries to blur is particularly visible in academic international air travel. My examination of academic international air travel at Aalborg University showed that one in four trips made to a conference inside Europe (excluding Scandinavia) was to the Mediterranean coast and not only to large cities but also to smaller towns that are rather popular tourist destinations (Lassen, 2006; see also Høyer & Næss, 2001 on conference tourism).

Fifth, as Elliott and Urry stress, the exploration of fast mobilities is fundamentally significant to the transformation of personal identity and life strategies (Elliott & Urry, 2010: 3). As Beck (2002) points out, a new cosmopolitanism seems to stem from the transformation processes that

diminish the importance of the national border, support time-space compression and increase the international network relations between national communities. This is especially exemplified through economic globalisation. However, there are also other elements that contribute to this, namely that people increasingly act internationally, work internationally, love internationally, marry internationally, research internationally, grow up and are educated internationally and finally live and think internationally (Beck, 2002: 80). Work-related aeromobility thus delivers important material and symbolic support to new cosmopolitan identities of global workers (Lassen, 2005). It is characteristic of such identities that they need to be enacted, performed and represented to others (Elliott & Urry, 2010: 79*).* According to Elliott and Urry, the globalisation of mobility extends into the core of the self:

> Mobility—especially the demands that issues of movement place upon people—has become a feature of most societies. One can note pre-industrial mobility systems as horse riding, coach travel, shipping and especially walking. In conditions of advanced globalization, by contrast, soft-driven, digitized systems of mobility—from air traffic control systems to mobile telephony—exert new demands upon the self and its capacities for psychic reorganization. (Elliott & Urry, 2010: 3)

Such demands or burdens, as well as the new possibilities related to mobile life, and globalisation of mobility mean that workers in the new economy constantly need to build and draw on different coping strategies (Lassen & Jensen, 2004). Humans need to juggle their work, mobility demands, leisure, family and various forms of 'identity accessories' such as places and intensive movement between these places. This means that for some mobile workers, the contribution to the global work identity is an important driver for being on the move. But global mobilities are not a homogeneous phenomenon (Bauman, 1993: 240). Those with fewer choices and lower self-determination rather experience their mobile life as a burden and may face ambivalence and stress in their attempt to get all the different elements of everyday life to come together in a way that makes sense to them (see Lassen, 2009a for a further elaboration of the social consequences of work-related aeromobility).

The Change in Academic Work

Next, I examine academic work, where physical meetings and face-to-face interactions play a central role in academic work and aeromobilities. I begin by briefly looking at academic work and its changing nature. The traditional understanding of academia focuses on the activities and work done at universities and colleges with a strong element of academic autonomy, that is, 'the right of staff in higher education to determine the nature of their work' (Henkel, 2005: 170). Moreover, it is important not to forget that academic work not only covers scientific work but also involves a great deal of teaching and administrative work (Lassen, 2005: 120). However, the movement described earlier towards a more networked, flexible and globalised knowledge-based economy has had a significant impact on all areas of academic work during the past decades. Storme et al. identify a number of trends on various scales that have reshaped the nature of academia:

- transnational collaboration and competition are increasingly valued and strengthened by the neoliberal 'internationalisation-cum-benchmarking' discourse in higher education;
- universities are centre stage in globalised, knowledge-intensive service economies and are increasingly seen as potential engines of regional economic growth because of their capacity to generate both highly skilled people and innovative research;
- adoption of behaviour understood as entrepreneurial, strategic and market-led on the part of institutions, departments and individual academics as universities take on the logic of private companies, providing resources in return for production and performance objectives;
- changing labour conditions mean it is more and more common to employ early career researchers on a fixed-term project basis with reduced job security. Moreover, there is a move towards boundary-less careers with little or no organisational or institutional loyalty; and
- an increasing abundance of codified knowledge on the Internet. This comprises not only knowledge in the form of peer-reviewed publications in indexed electronic journals, but increasingly, more unfinished,

> often overlapping and sometimes contradictory or outright unreliable material. This abundance of information creates challenges for academics, not least in terms of sense-making and keeping abreast of knowledge within a particular subfield. (Storme et al., 2017: 409–410)

Henkel argues that higher education and science increasingly have become important instruments of national economic policy and concludes that: 'higher education institutions and their members were subject to unprecedented government steerage and scrutiny but also had to locate themselves and compete in various forms of markets' (Henkel, 2005: 160). Therefore, as Henkel also emphasises, the interaction between disciplines, institutions and individuals is now much more complex; academics are expected to engage across the boundaries of the institution as much as within them (ibid.: 164). As Fumasoli et al. show in a study on European academics, this movement towards increased competition and external work is closely connected with international mobility:

> This competition between institutions values international mobility as a signal of excellence … international mobility is not being generalised as a necessary step of academic careers but is becoming a distinctive feature that facilitates early careers and recruitment. International mobility is perceived by the interviewees as an opportunity to network and accumulate social capital as well as to increase independence and self-assertion. (Fumasoli et al., 2017: 206)

The described changes in academic work mean that it is not only participation in international conferences, congresses, seminars and workshops that are key components of a successful academic career. Other such components include joint international publications, research visits and stays; joint-research projects across professions, institutions and countries; guest lectures and courses; guest stays in laboratories for learning new techniques and methods; student exchanges; and relationships with external companies and foundations nationally as well as internationally.

Why Do Academics Travel?

To cope with the above-described external demands for mobility, as well as the individual academic workers' motility (Kaufmann & Audikana, 2020), networks and networking are important elements for both research and teaching. At universities, knowledge is exchanged, and knowledge production takes place, via networks. As a female professor explains: 'I'm dependent on the fact that I have some networks, my career and my job and my success depend on the fact that I have the networks, because otherwise I would not be able to participate in events, projects, etc. So, I have to have them professionally to be able to do my job, you could say' (Lassen, 2005: 117). Networks can have many different functions, so the motivation to create a relationship may be a need for specialised knowledge that can only be found in a few places around the globe or could be a desire to enter into an academic-knowledge exchange with other researchers. For example, it can be important, if a researcher works alone, to make contacts with other researchers who also work alone or perhaps are members of a larger research community at an institution to which doors can be opened via a connection. The invitation to take part in a formalised network means that the researcher has the opportunity to publish with other researchers. A female professor gives an example of this:

> It is at least important for researchers to know about the situation is in your field and such and it can be difficult to find out if you are not part of some network. Furthermore, I would say that a lot of the money for research nowadays also comes from projects, and projects are always based on network knowledge. When you establish a project, you do it based on who you know from your network, because then you can quickly get the project described, so being part of a network, it is both in terms of knowledge and resources. (Lassen, 2005: 136–137)

When it comes to everyday work problems, networks open doors and strengthen an individual's career. The ability of academics to make acquaintances relevant to their work is a critical component in networking. Knowing others or being known by others are important

instruments for being successful in the workplace and advancing career opportunities. However, it is not just about building relationships but also about what positions are held by the people with whom you create relationships and, most importantly, what relationships they have with other significant people (Wellman & Haythornthwaite, 2002; Urry, 2007). For example, a researcher may be dependent on being known among others and being part of the right circles to strengthen their opportunities to publish and participate in different projects. In this regard, a female associate professor compares network-based academic working life to the working conditions for an actor:

> It depends, of course, on whether there are influential people in these networks or not, but I certainly think that it is important for one's career if one should need it, to be able to refer to well-known academics in one's professional field. It's like being an actor, there are some who are more famous than others, some who are more important than others and that's just the way it is. (Lassen, 2005: 140)

In some cases, acquaintances lead to friendships over time (Feld & Charter, 1998: 140). When a relationship extends beyond the work sphere, it takes on the character of a personal friendship, where the individuals are trying to help each other with problems, not only related to work but also in other areas of everyday life. Such work-related networks of acquaintance and friendship are, among other things, maintained by various forms of virtual communication, which make it possible to work, socialise and stay connected at a distance, even when on the move (Urry, 2007: 174).

The Need for Co-presence and Face-to-Face Talks

As Urry notes, however, 'central to networks then are very "costly" meetings, communication and travel' (Urry, 2007: 231). Boden and Molotch (1994) argue that modern systems and relationships not only are produced through virtual communication but just as much through what

they call 'co-presence'. Co-presence remains the fundamental way of human interaction and socialisation—the 'primordial site for sociality' (Boden & Molotch, 1994: 258). When people are unable to achieve the needed co-presence, they usually try to compensate in the best way they can. For example, a Skype or Microsoft Teams meeting will be better than a phone call and an e-mail better than a letter. Boden and Molotch argue that humans prefer co-presence to other forms of communication, and this form of interaction changes in abundance during late modernity (Boden & Molotch, 1994: 277). Co-presence interactions dominate other forms of communication because they are 'thick' with information (ibid.: 259). By this, the authors mean that under any media condition, words derive their meanings mainly from contexts, and here co-presence delivers far more context than any other form of human exchange. Context includes other words, facial gestures, body language and voice intonation (ibid.: 259). Often the most important communication between different actors is carried out via co-presence, which Boden and Molotch predict also will be the case in the future. Even though this may change over time, the basic need for co-presence therefore sets limits on the degree and nature of the organisational, temporal and spatial transformation that new technologies can introduce (ibid.).

Urry (2002) stands on the shoulders of Boden and Molotch's analysis and argues that periodic co-presence is a fundamental ingredient in social relationships. Urry further opens the concept in relation to physical travel and movement by identifying three modes of co-presence in which physical proximity is obligatory, appropriate or desirable: face-to-face, face-the-place and face-the-moment (Urry, 2002: 262; Urry, 2003: 163). Face-to-face co-presence offers the opportunity for participants to build trust through, among other things, eye contact and body language, and to be able to read the other person's response to what is said and done. Such information is important in dealing with network relationships, projects and work assignments across national borders. Face-to-face interaction also provides an opportunity to talk more deeply and communicate more intensely. Face-to-face communication makes it possible to communicate in a more in-depth way on complex topics similar to other forms of communication. In face-to-face conversations 'topics can come and go, misunderstandings can be quickly corrected, commitment

and sincerity can be directly assessed' (Urry, 2007: 236). Various forms of expression and communication techniques can come into play: indexical expressions, facial gestures, body language, status, voice intonation, pregnant silence, past histories, anticipated conservation and actions and turn-taking practices (ibid.). Boden and Molotch describe how work-related meetings often begin,

> with 'small talk' which contains and projects important substantive matters. Participants update one another on both work and leisure, taking each other's measure in a way that will inform the meetings of later utterances. Premeeting talk typically weaves talk-a-work (personal) with talk-as-work (organizational) in ways that provide formative updates on colleagues' activities and moods, and the phases of talk are skillfully managed as practical matters. … Such preliminary talk can for example, indicate where the actors have been (e.g. just had a nice slow six-mile run), what they have just done ('closed a deal'), or where they are about to go (I'm leaving for London in an hour). (Boden & Molotch, 1994: 269–270)

Such face-to-face talk and small talk are important in many academic-network activities in order to be able to read and interpret the social context, as described earlier. Thus, according to Urry, people not only feel that they know another human being by having met them personally 'face-to-face' but also that they know a place or a locality by experiencing it themselves, which Urry terms 'face-the-place' (Urry, 2002: 261–262). For academics, this could be the need to visit a field-leading laboratory abroad to work on shared experiments with other researchers and to train and see new methods or techniques which take place there. Another dimension of co-presence is what Urry names 'face-the-moment' which relates to the need to be present at a given live event programmed to run at a specific time (ibid.). From an academic perspective, this dimension particularly relates to seminars, conferences and congresses, which require presence.

Facing the Conference

One of the most significant places for academic networking, co-presence and face-to-face interaction, and one which typically generates air travel, is the conference. My previous analysis of work-related travel at Aalborg University shows how more than half of all work-related air travel by the academic staff within a year had conference attendance as its main purpose (Lassen, 2006). A conference is a place to which academics travel to present a paper, publish in conference proceedings, explore what is new in their discipline and keep themselves updated (see e.g. Global Academic Institute, 2020). But a conference is also an arena for a number of other social and less formal activities:

> A conference is an arena where international professional contacts may be established, e.g. student exchange cooperation agreements and networks for preparation of joint research projects. … In those instances where geographic dispersal separates people who need to be in touch, actors turn to conferences. Such meetings serve several purposes: making decisions, seeing how one is heard, executing standard procedures and duties, distributing rewards, status and blame, reinforcing friendship as well as distance, judging commitment, having an enjoyable time and so on. (Høyer & Næss, 2001: 463)

A conference offers a place for networking for future collaborations and offers the possibility of socialising with colleagues. A conference is about being seen and seeing other people again and about catching up (Wittel, 2001: 67). In this way, a conference is a place of 'organized fortuitousness' (Lassen, 2005: 138). If you attend a seminar, a conference or a congress relevant to your research, you have the opportunity coincidentally to bump into new people, see old acquaintances and friends or get a face for a name you have met only virtually. Such socialising involves a great deal of what Goffman (1967) terms facework. At universities, where employees often know others by name through publications, but not by face or in person, the conference offers an important arena for putting faces to names and making new contacts. If you travel to a network activity to meet new people, then a number of situations will arise to meet by

chance, for example at a dinner after a conference or for a coffee in the corridor. Attendees may suddenly discover common interests with the person seated next to them, and this may be the start of further cooperation. Academics may not know in advance the relationships they might potentially create by attending, for example, a conference, but they know that the specific event will be a good platform for creating new relationships and maintaining old ones. As a female researcher explains:

> It means a lot to me, but it is rarely not like I can say to myself: 'Now I travel to form networks with person a, b and c'. Of course, it sometimes happens that you travel to meet with some very specific people with whom you want to establish some kind of collaboration. However, it is just as much the contacts that arise through such a journey. It is often I come across persons which I later can draw on in different contexts, formally or informally. In the same way, there are sometimes people who turn to me because I have talked to them somewhere. (Lassen, 2005: 141)

In this way, work-related aeromobilities become important instruments for going to such places of organised fortuitousness. Together with various virtual technologies, aeromobility works as a critical element to enable the formation and maintenance of work-related networks and relationships at a distance. In the following section, I will therefore take a closer look at what characterises academics' aeromobility in relation to their work.

Aeromobility: Freedom to Travel?

I have explored a number of external and internal demands for being mobile that socially and materially are attached to academics' aeromobility, which generally relates to a transformed labour market and specifically relates to the changes that academic work has undergone. However, there is an additional element that is also relevant to highlight, namely the significantly high level of self-determination associated with the aeromobility of academics. This can be seen by comparing a number of the surveys I have conducted over the years of air travellers, primarily at

global companies and organisations (Lassen, 2005, 2006, 2020). Figure 11.2 shows an average self-determination score calculated on the basis of the question: To what extent do you determine the frequency of your work-related travel? This question has been used in a number of studies of employees in various types of companies. In total, the figure covers responses from 2,818 employees at global companies located in Denmark and Sweden. The surveys cover organisations with significant international air travel within the university sphere, the retail sector, various hardware manufacturers as well as small and medium-sized global

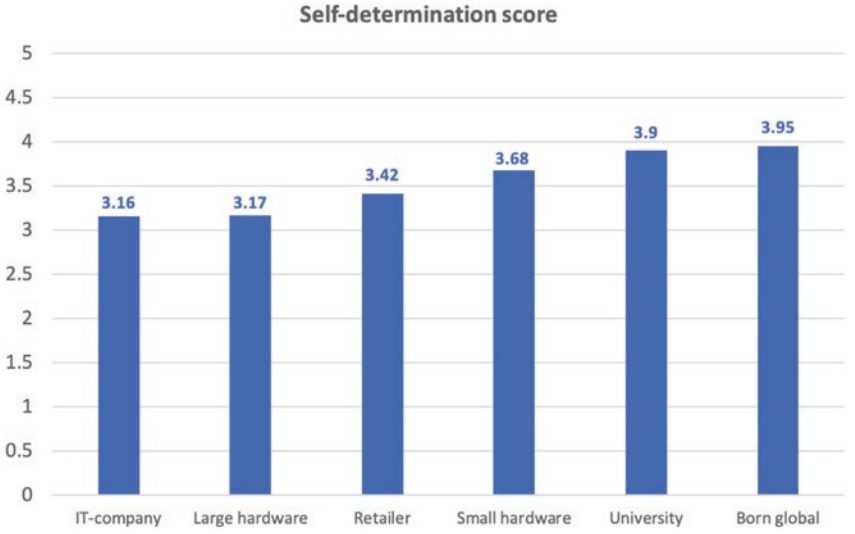

Fig. 11.2 This diagram shows a calculated average self-determination score for each organisation. Total self-determination is allocated 5 points, no self-determination 1 point and 4, 3 and 2 points are distributed in a similar fashion. These are allocated for responses to the question: 'To what extent do you determine the frequency of your work-related travel?' (on a fluid scale from 1 to 5). The figure is based on two different data sets, collected in 2003 (IT-company N = 144, University N = 379) and 2020 (Large hardware N = 1565; Retailer N = 233; Small hardware N = 437; Born global N = 60), respectively, at a number of Danish and Swedish global companies (see Lassen, 2005, 2006, 2020 for more details). The category 'born global' covers surveyed employees at a number of small and medium-sized companies in Denmark. All of the names of the companies are anonymised in the figure because some of the companies have requested anonymity

companies. Figure 11.2 draws on different sets of data collected at different times and in different contexts (with all the associated reservations to which this gives rise).

However, it shows that the university as a workplace has the second-highest degree of self-determination, surpassed only by small and medium-sized global companies. These typically have fewer than 20 employees and are often managed by the owner with a significantly high degree of self-determination in relation to travel and where the owner typically carries out a significant part of the total yearly air travel. The figure illustrates how the self-management and self-determination elements of academic work also clearly stand out in relation to aeromobility. University employees have a considerably stronger influence on their aeromobility praxis than the other forms of companies included. The fact that decision-making in relation to aeromobility is, to a large extent, in the hands of the individual academic, other components and rationalities than work influence how the individual academic interprets such obligations. These other factors are related not only to work but to the very different spheres of everyday life, family, consumption, tourism, leisure and play. Put differently, the level of aeromobility is not something given or fixed, as it is constructed differently by each employee taking account of structural demands and more individual wishes, needs and dreams (Lassen, 2010: 190).

Do Meetings Have a Future?

As mentioned earlier, virtual mobility plays an important role in network-based academic work. Virtual mobilities include emails, phone calls, voice messages, video conferencing, virtual meetings, webinars and social media. Such virtual communication technologies are used to be in contact with the workplace, networks, friends and family, and in this way, it acts as a substitute for that you cannot be physically present and manage your obligations (see Lassen, 2005: 165). In this way, virtual communication provides an important tool for maintaining work-on-the-move by both travelling and simultaneously being present online. Virtual communication thus sets the frame for a strange combination of proximity

and distance, near and far, and for what is and is not virtual (Urry, 2002: 269). The relationship between physical travel and virtual communication has been eagerly discussed among researchers in recent decades. Denstadli and Gripsrud highlight how at least four possible impacts of virtual communication on travel can be identified across various studies: (1) substitution (telecommunications eliminate trips that would have been taken if the technology did not exist); (2) complementarity (telecommunications have a generating effect on travel); (3) modification (telecommunications may change time, mode and destination of a trip) and (4) neutrality (telecommunications and travel operate as independent systems) (Denstadli & Gripsrud, 2010: 225).

In relation to travel by academics, Storme et al. (2017) show how virtual mobility does not provide a substitute for physical movement. So far, it has not been the solution to the demand for academic mobility. Instead, they argue that 'virtual mobility allows "the best of both worlds" through a rational combination of corporeal and virtual mobility when conflicts arise, and obligations of presence at multiple locations exist' (Storme et al., 2017: 420). This means, as the authors conclude, that virtual mobility mostly works as a means of sustaining networks over time, given the processual nature of 'meetingness' rather than reducing the level of physical mobility carried out by academics. As Urry also points out, virtual mobilities (and communication technologies) cannot in a simple way be assumed to substitute the need for co-presence (Urry, 2002, 2003). Furthermore, Urry argues that we must both understand how new forms of transport and communication are converging and that these over time, transform the needs and characteristics of co-presence (Urry, 2002: 269). It is thus a mix of different virtual and physical mobilities that create the framework for physical human proximity and co-presence (Ibid.: 268). However, Urry points out that it is still the case that periodic co-presence remains a critical component within the framework of the various virtual mobilities and networks (Ibid.: 269).

The question that arises, however, is how COVID-19 crises potentially will influence the way academics in the future assess the need to be physically present face-to-face, and to use air travel. By the assessment of some organisers of various events, meetings and conferences organisers assessment, COVID-19 has changed live events, not only as a response to the

present pandemic but also more importantly for the longer term (Intouch Solutions, 2020). Others talk about a future with blended online and face-to-face meetings:

> Online meetings have long been seen as a poor substitute for face-to-face ones. With the COVID-19 pandemic and the responses from governments around the world, this view has changed. Online meetings are now a necessity for many organisations. The question is no longer 'should we use online meetings despite their drawbacks?' but rather 'how can we use online meetings effectively?' and 'how do we blend online with face-to-face meetings?' (DiploFoundation, 2020)

In line with this, other organisers stress that post-COVID-19, business travel and meetings will look very different and we will see hybrid events—a live event plus the option to participate virtually (Convene, 2020). In relation to this, I would argue that the COVID-19 pandemic has increased the awareness of the fact that the need to meet face-to-face is not always the same in all work situations (see above). In the sections that follow, I will therefore present a reflexive tool that provides a more detailed understanding of the types of meetings that in some situations particularly require co-presence and face-to-face communication, and those that can just as well—or perhaps even better and more efficiently –be carried out as virtual meetings. Based on my previous work (Lassen, 2005, 2006), I will show how different meeting needs and formats can be identified in relation to the need for co-presence. I illustrate this through four typical situations (see Fig. 11.3), which attempt to summarise a number of examples in which academic workers are more likely to choose one particular form of communication (virtual or face-to-face) versus more 'open' situations. In two of the four situations, a particular form of communication is most

Relation to participants/ The nature of the meeting	**High acquaintance**	**Low acquaintance**
Formal	Situation 1: Virtual meeting	Situation 3: Virtual meeting (or face-to-face meeting)
Informal	Situation 2: Face-to-face (or virtual meeting)	Situation 4: Face-to-face meeting

Fig. 11.3 Different meeting needs and formats. Based on Lassen (2005: 234)

often preferred (Situations 1 and 4), while in the remaining two (Situations 2 and 3) it is more open and contextual (see Fig. 11.3).

The first situation is where the employees *know* each other and where the purpose of the meeting is *formal* (Situation 1). For example, an international research project often holds routine meetings with a formal agenda around project management issues. The second situation is where employees have an *informal* agenda and *know* each other in advance (Situation 2). Here the result can be both a physical journey and a virtual meeting. Some situations, for example having to agree on new collaborations or joint publications, require face-to-face socialisation at a conference or seminar. In other situations it will be possible to meet virtually, for example, researchers who know each other well and who meet through a virtual meeting on the screen to work on a new paper may also use the opportunity to socialise, to update and to catch up, and perhaps enter into new agreements. The third situation is where employees do not *know* each other in advance and have a *formal agenda* (Situation 3). For example, in a newly started transnational research group that has only existed for a short period and where the participants have little knowledge of each other. Here, the group will probably need to meet physically face-to-face to get to know each other better, but in other situations where there may only be a short-term collaboration, this may not be necessary to do the job. The fourth situation is where the form of social interaction is *informal,* and the participants do not *know* each other in advance (Situation 4). This would include, for example, a situation where an academic needs to attend a conference to create new network relations. The employee does not know anyone in advance, and the agenda is informal, as it is a matter of socialising with potential network connections. Here, employees will potentially choose to travel to be physically co-present and be able to meet others face-to-face. It is important to stress that there are, of course, many other examples than those mentioned. The examples serve primarily to illustrate how the need for physical co-presence will vary greatly depending on the nature and content of the meeting (Lassen, 2005: 233–234).

Aeromobility Management: A Way to Work with Air Travel and Meeting Demands at Universities

However, if greater awareness of a more reflective approach towards the use of physical meetings should be achieved more permanently in academic work, a number of conditions must be in place for this to be implemented. A number of conditions have changed since I originally developed the above model. In 2005, there was a much lower recognition of the climate issue in relation to aviation at both the societal and the individual level (see also Lassen 2009 on the gap between environmental consciousness and air travel praxis). Therefore, at that time, it was very much a matter of first creating an understanding of the problem before the tool itself could come to work. Today, the situation is different as there is much greater recognition of the problem at the societal, individual and company levels than before. My hypothesis (which needs to be investigated further in future studies) is, however, that although many universities and other forms of knowledge institutions carry out research on climate change, environment, transport, travel, communication technologies, organisational theory and so on, they are often behind private companies and other areas of the public sector when it comes to actively work with travel management within their own organisation. Traditional travel management can be defined as a discipline that focuses on corporate travel in relation to providing a strategy for the organisation to be able to tackle and optimise the travel needs of the employees. The argument is here that the above-presented meeting tool needs to be part of a larger focus on aeromobility management (Lassen, 2005) at universities if the tool is to make a difference. Compared to a more conventional regulatory approach, such a concept aims at the genesis of air travel in terms of understanding how the need for a journey is created at an early stage in the decision-making process and seeks change through such an understanding. In that respect, the concept also theoretically draws on the general ideas from the field of mobility management.

The aeromobility management concept is thus about working at an organisational level to create a stronger reflective link between individual

consciousness and their praxis. This seems particularly relevant in a workplace such as a university where, as shown earlier, there is a high degree of self-determination in relation to work travel. Specifically, the aeromobility management concept consists of five phases (ibid.: 358–360). *In the first phase*, a division and key persons are identified who are appointed by management as responsible for further aeromobility management in the organisation. This can typically be HR or finance. *In the second phase*, a mobility analysis of the organisation, which involves both qualitative and quantitative methods, is carried out with the aim of exploring and mapping out the air travel patterns in relation to the different work areas, tasks and needs. *In the third phase*, with a point of departure in the mobility analysis, a dialogue is created with the employees on future goals of international work-related travel in the organisation and the specific content of a mobility plan for the organisation. *In the fourth phase*, a concrete mobility strategy and a mobility plan are formed on the basis of the output of the first three phases. Such a mobility plan includes air travel policy and guidelines, a meeting management strategy, virtual technological needs, allocation of necessary resources, establishment of management systems that support the plan, a strategy for internal and external communication of the plan and so on. *In the fifth phase*, this mobility plan is finally implemented in the organisation and put in motion (see Lassen, 2005 and Lassen, 2009b for further detail on this concept). The presented meeting tool in Fig. 11.3 is especially relevant in phases 3 and 5. The point of initiating the strategical work on aeromobility management at the university is that it will raise awareness of the individual travel needs and support that the academic employees and the organisation continuously consider their air travel and meeting practices.

Conclusion and Perspectives

This chapter has focused on how increasing academic air travel in recent decades is part of the larger transformation and globalisation of modern work life. This has seen a shift from industrial and hierarchical work towards much more flexible, networked and mobile work where air travel is often a critical component. However, the climate crisis has put such

work practices under pressure. I examined the importance of aeromobilities for late modern work, which establishes the context for contemporary academic work practices and, in particular, for transformed academic work. Moreover, the chapter shows how physical meetings and face-to-face interaction play an important role in academic work and aeromobilities. Physical co-presence creates relationships, acquaintances and friendships. New and existing network relations are important for career opportunities because they provide access to knowledge, partners, projects and resources. This chapter has shown that, on the one hand, a globalised academic labour market creates a high expectation for individual academics to be aeromobile on a global scale. On the other hand, there exists a significant individual decision-making power in relation to air travel, which for academics is also higher than for air travellers from other global sectors and industries. I have argued that if an aeromobilised academic work practice in the future should be carried out with a lower climate footprint, a stronger differentiation between the forms of meetings and co-presence obligations is necessary. Academics and academic institutions generally need to provide a more detailed understanding of which types of meetings particularly require co-presence and face-to-face communication, and which types of meetings could just as well—or perhaps even better and more efficiently—be carried out as virtual meetings.

In order to instil such a new practice, a tool is presented to assess the need to be physically co-present in different work and meeting situations. I therefore end this chapter by arguing that a movement towards a more differentiated meeting approach among academic and academic institutions seems to require a much greater focus on 'aeromobility management' at academic institutions in the future. The idea of such a concept is to work more strategically with travel goals, strategies and policies to cope with travel and meetings at an organisational level based on green sustainability goals. In other forms of knowledge companies, there has historically been a much stronger tradition to work strategically with travel management. Inspiration from this field seems to hold a potential for more reflexive practice in academia in relation to the management of future air travel and meetings.

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12

Means and Meanings of Research Collaboration in the Face of a Suffering Earth: A Landscape of Questions

Birgit Schaffar and Eevi E. Beck

Introduction: Where on Earth Are We?

If the authors of this chapter were to enter a plane to visit each other, we would contribute to a problem. Yet, at times we have been tempted, as it probably would strengthen our collaboration. How to evaluate these different impulses or needs? When considering whether to book a flight to visit an academic collaborator, or whether to offer the next conference on campus or online, we are entering a landscape of practical, technical and ethical considerations with competing concerns. As flying contributes to climate change, extensive flyers—which include most academics—contribute more. Most academics we know have substantial individual choice

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about how much to fly. If as academics we have long ignored the impacts of our travelling habits, this is no longer a tenable position.

Changing our work habits as scholars is necessary, but is this only an individual question? To address this, we need an understanding of the present situation. Seeing the complexity of the current situation can be insightful and helpful for acting on the awareness that comes from it. The task is explorative, non-exhaustive and urgent.

Starting from the urgency of changing academics' habits of travel, the chapter suggests a direction by first exploring the basics of where we are now. Can/should we stop collaborating over distance? This raises the issue of what academic collaboration is for, which is explored in the next section. Could we stop travelling but continue distance collaboration simply by switching to video conferencing? The following section discusses this by raising issues about the meanings of physical presence, the possibilities and limitations of technological mediation and new ethical liabilities introduced by their usage. These two aspects—the meaning of collaboration and the means of collaboration—open questions about understanding academic responsibility for the Earth.

While the option of flying is as recent as a few decades old, considering the ethical consequences of scholarship is not. This was part of the conceptualisation of the university already around the turn of the eighteenth to nineteenth centuries. Drawing on the initial thoughts about establishing a university in Berlin by von Humboldt, Schleiermacher and Fichte, we consider their conceptualisation of independent and high-quality academic work—*Erkenntnis*, which we translate as scholarship—and why academic collaboration across distance matters. In that, this chapter builds on the continental tradition of conceptualising what universities are for. Taking responsibility in and for society is in this tradition an aspect of academic life. *How* to take responsibility, however, is intensely situated in time and place, as is where to draw the boundaries ('how broad?', 'how much responsibility?' etc.). Answers to these questions are contested and subject to debate.

In considering how to act, commitment to change can be based on either individual ('I want to reduce my carbon footprint') or collective (developing a culture for prioritising low-impact forms of collaboration) perspectives. Both are needed, and further, they are not as separate as may

appear at first sight. Thus, in our discussion, both are encompassed. The technology-intensive character of contemporary (academic) life adds layers of complexity to research collaboration. Simplified notions of the roles that geography, embodied presence and technical mediation play—specifically ideas that distance is unimportant and mediation is neutral—downplay the complexities of the ethical questions we face daily. The argument therefore turns to socio-material analysis to reopen this aspect of the complexity of the means of collaboration.

Exploring whether and how to take responsibility helps us reflect on the landscape and the many positionings possible to take within it. Following that, we then propose a set of questions that bring the complexities nearer to daily life and ask how to change habits. This includes 'sticky' issues such as challenging established hegemonies.

Throughout the chapter, we (the authors) explore matters which strongly implicate our own collaboration. To us, the multidimensional complexity of the issue(s) requires helpful metaphors to think with. We are sketching a landscape of questions, in which general directions and signposts coexist with the need to develop specific responses to specific situations. The direction we indicate is towards taking responsibility for the broader impact on society and on the Earth, not only what we research but also how. What might be encountered at first as practical questions of whether to travel, opens a landscape of intertwined issues of where and how to take responsibility, and how to imagine alternatives. One signpost along the way is that collaboration and a concern for a greater good than individual interests are part and parcel of scholarship. Another signpost is that academic collaboration cannot simply be transferred online without further ado, as argued in the section thereafter. Rather, we need to rethink what research collaboration is for and develop tools suited for that purpose.

The concluding section of the chapter broadens the perspective and suggests that an ethics of collaboration is needed. This includes a commitment to taking responsibility—for each other as colleagues, for the society and for the Earth. While as academics, many of us may be habituated into staying with analyses and understanding, taking action is now required of us based on insight into the current and future suffering we are presently contributing to.

The Importance of Academic Collaboration and Expertise (Erkenntnis)

Should academics collaborate? And if so, why over distance? To explore these questions, we first consider what we mean by *academic,* including what distinguishes (academic) *scholarship* from other forms of 'knowledge' or 'expertise', the role of universities in society, and how scholarship is passed on (i.e. how academic communities recognise and promote achievement). To examine these issues, we draw on Fichte's (1807 [2010]), Schleiermacher's (1808 [2010]) and von Humboldt's (1809 [2010a], 1810 [2010b]) ideas about the university and scholarship. Their work led to the establishment of the higher educational system in Prussia, often now referred to as von Humboldt's notion of the university (Schaffar & Uljens, 2015). Aspects of their thinking on academic institutions have been the bedrock of universities as commonly conceptualised today (including the formation of a number of academic disciplines). Less well known are their thoughts on taking ethical responsibility and the importance of research collaboration.

In 1826, Schleiermacher expressed the sentiment of his time, with all the optimism for what scientific knowledge could bring to political and social life when he introduced his theory of education: 'There is nothing that could settle a dispute better than knowledge' (Schleiermacher, 1826 [1994], p. 170). What he had in mind, though, is not generally what we are inclined to think of as scientific knowledge today. The German term *Erkenntnis* establishes a broad conception of knowledge, explicitly not limited to narrow factual knowledge about a specific subject. The university should be a site not only for accumulating factual knowledge but should strive to be *eine Schule der Kunst des wissenschaftlichen Verstandesgebrauchs* (a school for the art of using the faculty of the mind) (Fichte, 2010, p. 14). This is because knowing implies responsibility for what we do with that knowledge (how we apply it etc.); knowledge and its application are not separate.

In Schleiermacher's sense, *Erkenntnis* has two aspects of particular relevance to our discussion. One is that the outcome of a research process is the culmination of a scholar striving for a sufficiently detached stance to

establish conclusions that are consistent with the findings of the research. This is important to prevent academic claims from becoming only opinions or being shaped by power structures such as ideologies, propaganda or totalitarian manipulations of the truth. The other is that *Erkenntnis* includes the ability to critically assess and evaluate complex situations with integrity that is devoted to striving for truth, for humanity and for the common good (Schleiermacher, 1994). Being (academically) educated in this sense has a deeper meaning than having factual knowledge and the capacity to instrumentally apply it towards a given end (Schaffar & Uljens, 2015).

In writings by von Humboldt and his contemporaries Schleiermacher and Fichte, *Erkenntnis* is developed as an essential aspect of establishing human communities, and as the source and result of human striving for enlightenment and moral maturity. These ideas are a reminder that academics' various ways of knowing (despite—or because of—their being continuously contested within the academic community) have value beyond the advancement of a discipline. Broader reasons to undertake academic research may not always surface, but they do exist: The *human enlightenment* and *moral maturity* of those days can be rethought now. For example, we need to awaken the role of stringent academic research in alerting people across the globe to the scale and urgency of the depletion of nature and its dire implications for humans and non-humans alike, and we need to go beyond academic methodology and face our own responsibilities as contributors to the problem. Collaboration to address these issues may include opening our hearts and minds, and our sense of ethics, to non-human messengers,[1] as well as the insights of non-academic humans.

Throughout the Western academic tradition, different circumstances and arguments have been given for why scholarly/academic expertise should be maintained and available in different places. One of the most obvious reasons why scholarship matters is its usefulness. Societies depend on the development of applicable technical solutions to challenges in their industries and various ways of thinking about and understanding challenges in communities. Besides its usefulness in terms of concrete instrumental outcomes, Schleiermacher argued that the education of scholars is a necessary effort to provide (democratic) states with educated

civil servants (Schleiermacher, 2010, p. 129). Civil servants in democratic societies should not just be familiar with and follow the rules of any given political, clerical or economic power. Rather, knowledge is always placed in specific circumstances, with specific challenges and questions that require educated, professional consideration and judgement (Schleiermacher, 2010, pp. 126, 129; Fichte, 2010, p. 25; Schaffar & Kronqvist, 2017).[2] What should be done in particular situations cannot be derived from facts alone. Indeed, facts should be considered in their different modalities: What can be done with what we know versus what should be done? What are we obliged to do and what do we want to do? What ought we to strive for? (e.g. Murdoch, 1997, p. 299). When applying factual knowledge, therefore, there is a need for the specific ability that characterises scholarship: To be able to question and reason with the knowledge at hand, and about our aspirations. Are our aims consistent with some higher conception of truth, justice and a universal good, or are they a means for other, private, local or personal aims? As von Humboldt has pointed out, scholarship is a basic condition for the high demands of democratic structures in free societies (von Humboldt, 2010a, 2010b).

In using the term scholarship, we refer to the specific 'cultures of knowing' characteristic of academic research. It refers to an ability that is developed in specific situations, including through institutionalised processes of education or training, for which structures of formal recognition exist. While the debate flourishes among academics as to how to do this well, academic research and its insights/knowledges constitute forms of expertise that differ from other forms and are recognisable as such. Further, they are specific, situated and themselves imbued with power issues; they structure the conditions for entering academia and ultimately control access to academic knowledges.[3] In this respect, it is fundamental to scholarship (*Erkenntnis*) that it remains a characteristic of the academic community.

Developing, maintaining, living and expressing *Erkenntnis* requires contact between scholars. *Erkenntnis* can be located and accumulated at certain sites—that is universities—where academics can collaborate locally and also between such sites—that is over distance—to critically inspire each other. Researchers need to actively work together and have a lively intellectual exchange with other scholars, in order to realise

Erkenntnis—aus Liebe zur Kunst [der Erkenntnis] (out of love for the art of knowing), with consequences for society such as the flourishing of a sense of freedom (Fichte, 2010, p. 26; Schleiermacher, 2010, p. 131; von Humboldt, 2010a, p. 229).

Von Humboldt, Schleiermacher and Fichte developed their thought for the practical application of founding a model for the University of Berlin and other universities in Prussia. This included attention to Prussia's diplomatic position relative to the other small German states at that time. They argued that nationally financed universities should not try to limit their scholars to attend solely to the interests of their own countries and universities (cf. Schleiermacher, 2010, p. 132; von Humboldt, 2010a, p. 231). On the one hand, they heeded that states and societies may have their own national interests, that is developing advanced technical and social solutions. On the other hand, they paid critical attention to the competitive relations between countries, and through them also the universities of the time. They foresaw that countries and universities would be trying to attract the most influential scholars, develop the more successful inventions and so on, which in turn would appeal to the best scholars from other countries, encouraging them to move and improve academic clusters in opposition to other universities. According to von Humboldt, Schleiermacher and Fichte however, although *Erkenntnis* might be embedded in local circumstances, financed by certain national or private investors with their own interests, scholars should be fully free to cross national and institutional borders and to share their expertise and knowledge with colleagues from other universities and countries without competitive concerns. *Erkenntnis* should remain committed to the service of humankind, and for this reason, the idea of ownership of knowledge was highly problematic (Schleiermacher, 2010, p. 133; Fichte, 2010, p. 26).

Reading today, von Humboldt's, Schleiermacher's and Fichte's thoughts on the role of the institution of the university in serving a greater good reminds us that academics have a responsibility beyond their own subject interests, independent of the institutions they are working in and outside the scope of competitive interests connected to academic results. Institutions serve numerous purposes—cultural, geographic, administrative, and so on—but when the purpose of scholarship is considered to be

working for humanity, the sense of responsibility applies to all disciplines and all scholars. While extending personal responsibility beyond one's own discipline is often considered an optional extra to the 'real work' of scholars, something of marginal significance to their core activity, this approach is no longer sufficient. The magnitude of issues facing humanity today means scholars have a moral obligation to act more widely than the advancement of their own field of research. This is fully consistent with the thinking of von Humboldt and his contemporaries cited earlier, in according to a sense of social or societal responsibility, central to the conceptualisation of what universities are for.

To summarise our argument so far, travelling and flying by academics raises questions about what academic knowledge and/or expertise are in the first place. We have expanded the question: 'Why should academics collaborate over distance?' to 'What is it about scholarship (*Erkenntnis*) that makes it relevant for different views in different places to encounter each other and be influenced by the encounters?' Mutual recognition and challenge serve a constitutive role. Maintaining international communities of academics and their interrelating strengthens independence from political influence. Such independence is vital to the institution of the university, as is taking ethical responsibility for the consequences of our actions as academics. Challenging travel is necessary and requires individual and collective effort.

Given the necessity of research collaboration then, with all its facets: Could collaboration simply go online to save travelling?

Beyond 'Technical Solutions': Geographies and Materialities of Digital Presence and Absence in Collaborative Research

Merely substituting one communication channel for another, treating 'going online' as a simple issue, misses out on the real effects of real materialities, including digital. Further, it misses the point on the sociality of the material and how the two are intertwined. In this section, we explore

some of the socio-material conditions for academic collaboration in Northern Europe.

In a geographic sense, presence indicates that we are in the same room, we see each other's actions and hear each other's voices without mediation. Subtle body language (such as quiet focus vs. restlessness), variations in voice intonation and so on are consciously or unconsciously part of the picture as contributions to the many sources of feedback, which feed (or not) our impression that we are developing mutual understanding with each other. Absence here means not in the same room; not able to take part because not within earshot. Presence and absence are imbued with material conditions and with ideas about materialities (such as the degree to which an academic in his/her work is expected to have/be a body or whether the ecological footprint of our work is a relevant concern). While in daily discourse the material conditions and ideas about them are conflated and appear hardly separable, insisting on a distinction opens a space of possibilities for altering technologies and thinking differently about purposes and potential future designs (Beck, 1997).

Geographic notions of presence and absence highlight that distance does matter. The current plethora of technologies aimed at bridging geographic distance (from buses through video conferencing to Mixed Reality systems), rather than obliterating distance, testifies to its troubled and troubling nature. One way of bridging geographic distance is to remove it by moving our bodies—that is to travel. In our work as academics, we catch buses to committee meetings, and we take trains to present papers at conferences. Place and its differential usage are intertwined with privilege, as social geographers are well aware (see, e.g. Harvey's influential *Spaces of Global Capitalism* (2006) and papers in the journal *Gender, Place and Culture*, including Koskela (1997)) and travel between places very much so. A second way of bridging geographic distance is to send 'travelling' something other than a body—a text, an image, sounds—in other words, mediated contact. In a simplistic (and dominant) discourse, after the initial effort of learning the nuts and bolts of a technology, matters are apparently straightforward for the user—or so the story goes. You see me on your screen, or you do not; the sound quality is sufficient to understand what is being said, or it is not. However, bodies *not-in-the-same-room*, voices mediated rather than heard directly,

contextual details not shared—these markers of non-colocation do make a difference. Systems designed for distributed professional collaboration aim to minimise the disadvantages.

To facilitate some sense of presence when not physically co-located, for example during an online meeting, an extensive infrastructure is needed. As infrastructure, its duty is to remain hidden:[4] Ideally, the technical setup runs so smoothly, and the participants are so used to how it works technically and how to adjust their habits to make it work socially, that during the online encounter, only minimal attention needs to be paid to the necessary sociotechnical adaptations. However, as much research within socio-material approaches and computer-supported collaborative work (CSCW) has shown, achievements such as this requires a host of sociotechnical issues to have settled: technology choices, technical protocols for the processors to communicate with each other, people to oversee and maintain the technologies, money to buy licences, network capacity, a reliable electricity supply and so on. (For an early classic and a summary of general problems in video communication, see Heath and Luff's (1992) study of video meetings; for a recent paper including a concise summary of relevant findings in the field of CSCW, see Saatçi et al. 2020. For an impression of some socio-material approaches generally, see e.g. Law, 1991; Star, 1992; Haraway, 1997.)

A closer look at experiences of use reveals the hybrid nature of the virtuality of a video meeting itself: I materially adjust my chair so you can see my face on your screen. You try moving to a different room in your house to improve bandwidth. Meanwhile, outside our attention some algorithm is continuously monitoring sound quality, calculating estimated quality losses in sound (and picture) and altering the values of parameters such that sound legibility is prioritised above evenness of speed and completeness of image transmission. Thus, a complex mix of alignments, including automated/algorithmic and humanly performed adjustments, is necessary for the technology to apparently *simply work*.

In the work to make the network work, there are layers of infrastructure, generations of sociotechnical development and hours of socialising about annoying features and their fixes plaited together into (and co-constituting) the event. Over time, those of us sufficiently privileged to experience hiccups and the resolution of some of them will learn, thereby

performing what Leigh Star and Anselm Strauss (Star & Strauss, 1999) might have called the invisible work to make the socio-material technology work.

Materialities—physical things (including living bodies) and ideas about them—permeate practices and perceptions of technology, infrastructure and geography. They shape and are shaped by social and political habits, expectations, will to earn money, will to exercise power and much more.

For analyses of materialities as part and parcel of (work) life, we draw on what is currently known as socio-material approaches. The term loosely refers to a set of theories/methods (the conventional separation of Method from Theory is in these approaches frequently contested) that analyse technologies and human activities, ideas and so on, as not only interrelated but closely interwoven into networks. Taking a closer look at technologies and technology-human constellations that frequently are taken for granted is often termed 'opening the *Black Box*' (e.g. Star, 1992; Winner, 1993). In earlier days, the social construction of technology was the focus (for a critical introduction for outsiders, see Winner, 1993). Later, the scope broadened including examining ways in which science and technology are intertwined with commercial interests in worlds-creating ways (for a powerful, influential and early analysis, see Haraway, 1997).

Some of the conditions for the material aspects of academic life are commonly 'Black-Boxed', that is treated as givens and not to be discussed. Such erasures form a necessary part of the hegemony of a specific form of response to the need to reduce travel: The impression that as scholars, we do not need to change our habits much, only to switch to video conferencing. In its simple form, such an argument implies, assumes, and co-creates technological 'solutions' as neutral, a narrative which the authors contest.[5] Rather, we are inspired to return to von Humboldt, Schleiermacher, Fichte, and Walter Benjamin and raise questions about the deeper meanings of scholarly activity.[6]

Exploring the materialities of presence and absence reveals the material dimension as non-trivial; we cannot point to presence as simply being, simply existing. Rather, social and material contexts are already part of (ideas of) geographic, physical, and other kinds of locations, and

furthermore cannot be cleanly separated from them. Many scholars are currently learning not only ways of using various bridging technologies but also ways in which we can start taking them for granted. There is a dual play of (awareness of) a range of conditions—including material, cognitive, emotional, geographic, expectational—that are necessary for the benefits to be reaped, and the simultaneous erasure of many of them. Which conditions, efforts and consequences receive continued attention, and which get routinely downplayed, impact what can readily be thought about them and through them. Therefore, 'thinking them whole' can help to create conditions for imagining new constellations of sociotechnology in the service of deeper purposes—what we previously (Beck, 1997) have termed *techno-responsibility*.

Splits between the social and material, body and mind (and feelings), and present and absent, are commonly perceived as dichotomous (i.e. either-or). This dichotomisation is destabilised upon close examination, as while such divides may have analytical and practical uses, they do not hold up to scrutiny when applying the lens of daily experience.

As the dire implications for the Earth of a culture of easy travel awakens a search for alternatives, contemporary technical solutions such as video conferencing technology move in purporting to fill the gap between the wish to connect and the wish not to travel. There is cause for critical caution when in this move there is scant differentiation between marketing ('buy this gadget' or licence) and ethics ('save the world'). Thus, it is possible to believe that both are well aligned with looking after the Earth—therefore, critical inquiry must dig deeper.

An understanding of the *socio-materiality of presence and absence* can help to widen our thinking and imagination towards better solutions. These need to be based not just on how to facilitate communication when we are physically separate, but what various meanings are served by research collaborations, and further: to understand some of the consequences of technology choices, their ecological footprints, and their limitations in how they commonly are imagined.

For example, von Humboldt, Schleiermacher and Fichte took for granted location-based institutions in a way which scholars no longer can. Today, issues of place and institution are highly complex as scholars may live in one city or country and work in another; institutions establish

themselves in different cities and countries than their origins and names would indicate and network and virtual universities are being established. Such destabilisation of universities as location-based may on the surface be conducted in the name of freedom of thought, freedom of learning and spread of 'best practice'. The underlying logic, that with network technologies location does not matter, can be hard to counter today when this view is heard in many contexts. The ideals for scholarship discussed earlier, however, add clarity: Moves such as establishing non-local degree programmes are typically made for the competitive advantage of an institution, not for joint development of *Erkenntnis.* When, for example, students are located in widely different geographic locations they are treated as recipients of knowledge decontextualised from their local communities, and they have scant chance to influence that.

As for scholarly collaboration, the personal experience of the authors includes living a modest version of the distributed university: living in one city, working in another. While it is a privilege to be able to do so, the weakening of the connection to the local places (both those of living and of working) is problematic and remains so over time. This appears, for example, in the mundane details of small talk (e.g. what kindergartens the colleagues relate to), and hearing when a colleague goes to lunch; in other words, a weakening of the sense of shared experience. As we have previously documented (Beck & Bellotti, 1993), successful research collaboration across distance can include substantial effort to establish and maintain a sufficient sense of shared experience.

While networked and non-localised universities are considered innovative for destabilising their geographical and cultural base, the weakening of ties to locations also creates a problem which requires effort to address. Further, while early institutions for educating over distance, such as the Open University in the UK, were founded on an ideal of outreach, we see no evidence of challenges to competition between universities, or to institutional ownership of knowledge in these recent developments. Rather, these developments operate within and seem to repackage inter-institutional competitiveness in complex ways. An understanding of the ideal of *Erkenntnis* supports such critical questioning through its insistence that scholarship worth the term cannot be limited to specific

academics, institutions, or socioeconomic/political power structures and interests.

In summary, what is needed for us academics to travel less, shorter, and more slowly, remains a key and urgent issue. An apparently simply practical question such as whether to travel opens a host of questions about surface versus depth and ideals versus realities. Applying the Humboldtian ideals of *Erkenntnis* helps to maintain a focus on scholarly responsibility beyond an institution, thus rendering academics accountable to a greater context than our academic specialties.

The argument of von Humboldt, Schleiermacher and Fichte for scholarship to serve the ethical improvement of humanity, however, is insufficient for its lack of platform to the Earth and its non-human inhabitants. The next sections explore how we, as scholars, might create better alternatives.

Building Understanding: Three Questions for Increased Awareness

Our initial concern in this chapter—to understand why academics fly to various places and how we could do so less or not at all—leads us to the above examination of the purposes of distance collaboration, and why switching to mediated presence is not a simple solution as often thought.

How to act on this? First, consider the complexities of ordinary experiences of distributed collaboration. The following is a real-world example from a hybrid research meeting, that is, with some participants physically present and others present by video link (retold with permission):

> In August 2020, four researchers at separate geographic locations were waiting for a hybrid research group meeting to start. None were able to connect to the virtual meeting room at the agreed time. A brief exchange of emails ensued as they tried to understand what was happening, kept each other informed, and cracked and responded to a joke combining tech. vocabulary with Covid-19 precautionary instructions. One person recontextualised a previously erroneous cancellation notice which in light of the current non-communication was perhaps not an error after all. Meanwhile,

> we (the 'in-presence' participants) could not log on to the computer in the allocated physical meeting room. This took 10–15 minutes to resolve. First, to work out why we couldn't log on (technical support was not available because they were working from their homes); after a while we surmised that we probably had a flat battery on a keyboard. Second, to look for alternative solutions inside the physical room and give that up; and third, to go down the corridor in search of another physical meeting room. Only after we found an empty room and were able to log on could the 'non-physicals' be told that the meeting simply was delayed for technical reasons, and that for the same reason we had not been able to let them know.

Here, one tiny flat battery not only spoilt a smooth start to the meeting, but made inroads towards denting the institution of the regular meetings. The required patience, which enabled the meeting to eventually happen despite this start, was sustained by the will to meet each other and to consider the actions of others as probably being reasonable (in a word: trust). Thus, while the cause of the problem was technical, the core problem was relational: The lack of explanation for the wait (not the wait itself). The case exemplifies the intertwined nature of the social, the material and the academic. Simple conceptualisations of *just connecting* do not capture the socio-material complexities involved in starting a meeting with a flat battery. Relational perspectives, however, do not separate human from technology to start with but rather destabilise simplistic technology-human divides. In this case, the technology worked (i.e. worked sufficiently well for its purposes) because human patience and trust made it work; also, the humans could conduct their work because the technology (eventually) facilitated it.

Why insist on the permeability of the human-technology divide? Because if humans—including scholars—co-constitute sociotechnology, then we can alter it. This is a key insight for the possibility of realising the deeper purposes of scholarly collaboration while staying within the capacity of the Earth. Choices scholars make about travel are influenced by and manifest structural conditions. While this might explain why we do not yet see a change on a larger scale, it is time to make connections between analytic understanding and actual changes of habit. In this section and the next, we cut across epistemic differences to propose a set of questions

as signposts in the landscape, to help generate new thinking. We start by developing an understanding of the present situation, and then in the next section, we consider how to realise changes. To develop mutual understanding of the present situation, we find three questions to be helpful:

(a) What are the purposes of collaboration?; (b) What are the conditions and the various material constellations for collaboration?; (c) What are ways in which power structures embedded in existing ways of acting and thinking serve to maintain the status quo?

In more detail:

(a) In order to impact the flying habits of academics, we must consider more closely what are the purposes of research collaboration in general and in specific cases. As an individual and together with potential collaborators, we have to address this on multiple levels: What are the immediate purposes? What are the deeper purposes? And what are the long-term consequences? Furthermore: How do these relate to what I/we want for our lives and those of other humans and non-humans? At times, we may have an urgent need to meet up with distant collaborators to better understand the other's points of view. With reduced face-to-face-meetings with collaborators, how do we address collaboration issues and mutually develop new perspectives?

Some recent and potentially strong drivers of travel are tied-in with superficial (easily countable) ways of evaluating academic work. This touches on questions about internal power structures concerning the maintenance of specific forms of knowledge as being *academic*, the requirements for gaining recognition in academia and the role of an institution such as the university in society. Career recognition or promotion at times explicitly includes extensive international travel, for example, when applying for a grant from the European Research Council.[7] Thus, any ambition to reduce the propensity to travel would need to address the criteria for assessing expertise. Subsequently, there is a need to identify and alter criteria that assume travel and replace them with criteria more

appropriate to the complexity of the dual needs of continued international collaboration and reduced travel.

Discussing such issues not only can help to build understanding among collaborators but also, importantly, to cultivate communities of practice which consider ethical considerations to be part of academic work. Paying more attention to deeper purposes than countable outcomes may inspire more creative constellations of human and non-human, including the development of new sociotechnologies to support distributed research collaboration in rich ways unimaginable today. This can, and we believe ought to, have practical consequences for academics' flying.

(b) As considered earlier, technologies such as video conferencing systems do not bridge 'the gap' between physically separated persons, so much as they create conditions for specific kinds of gaps being seen as bridged, while leaving open other gaps. There is a need to examine ways in which sociotechnical solutions co-constitute (influencing, inhibiting, enhancing etc.) knowledge sharing/development of *Erkenntnis* in research communities. This includes attention to subtle aspects of presence as well as what it means to develop *Erkenntnis* with others.

If I choose to use video conferencing to reduce my impact on the Earth, I may wish to calculate the ecological footprint of the computer infrastructure involved for a comparison. At one level, this is a technical question—but not straightforward (e.g. do we assume the technology is already there, or do we include a proportion of the resource use when making and disposing of computer equipment, and the electric power consumption when using it?). At another level, why is the consideration of total resource usage so invisible in the public discourse? At this level, the simple initial question opens up a whole world of sociopolitical issues such as dominant discourses and the powers of multinational corporations.

When a choice of tools for online collaboration is made, also a set of requirements are received which—through what is readily supported and what is not—condition what is possible to do, how and by whom. The invisible work of making ourselves align with such conditioning is one ingredient in why online collaboration is a complex relational achievement, including new habits of body and of mind.

The design choices addressing technical issues (such as for access, interruptions, reliability, back-up systems) manifest communication structures and formations beyond the situation of design. For example, solutions and support coded into the systems serve to reproduce, solidify and thus amplify culturally specific ideas of human communication. In video-meeting tools, participants are often provided with their own image on a screen, presumably to facilitate our giving of visual markers of being important. Yet, when we meet face to face, the meeting room rarely has a mirror. Thus, this feature constructs *self-surfaceness*, that is, the intersection between self-centredness and attention to surface features.[8] This is not only a distraction but it also subtly affects the meaning of the meeting. In contrast, the non-mirror of the physical room supports a continuous focus on the issues at hand. As such, it embodies the collective insight of generations of academics.

(c) Closely related to (b), technical solutions often perpetuate established structures of power and dominance—perhaps for the simple reason that their development requires financial and other resources. Thus, mediated presence is far from neutral. Rather, it is co-dependent with (and consumes) aligned behaviour. It can easily ingrain habits, skew preferences in the formal structures for recognition of academic work, and entrench a lack of inclusiveness for non-dominant groups of humans, animals, plants and the well-being of the Earth.

In and through the new features, some previously naturalised achievements (such as how the small talk of people gradually arriving and leaving a meeting room can help to establish an atmosphere of mutual interest in each other or a lack of it) are no longer to be taken for granted, and new ones must be constructed—in other words collectively woken up to, painstakingly cultivated and at times fought for.

Online collaboration is as relational as any other collaboration, yet the question of which kinds of relational work are supported and which are not, are marked by familiarly stratified (in)visibilities. For example, *talking heads* (a screen image showing our faces and little else) are well supported, but not the informality of key forms of interactivity, since the video conferencing technology typically constrains one person to speak at a time. This is helpful for clarity, for low bandwidth conditions and for listening in conditions where strictly structured turn-taking is

appropriate (as in most formal and semi-formal meetings, and in some but not all conversations). One person speaking at a time is good for listening to speech but not good for singing or laughing together (the technology cuts the sound from one person or the other), nor for music (the sound managing algorithms may cut low or high notes as being *noise*). Impulsive feedback, such as sounds (interjections) indicating agreement or disagreement, get caught in a binary *either-or*: Either your sounds are filtered out and not transmitted, or they are loud enough and of the right characteristics (calm human voice) that the *Speaker* role is transferred to you. This is carefully designed to serve conventional meetings, which translates as meetings within culturally dominant communities in the US.[9] Further and importantly, experience to date from teachers in higher education indicates that achieving a sense of shared participation from a group of, for example, 50 students is harder to manage online than when co-located. When in the same room, the lecturer sees not only explicit gestures (raising of a hand) but also receives subtle feedback about levels of attention, including from body language.

The technologies come parcelled with assumptions about specific ways of *being together* which are supported over others, that is they are recreated and reproduced. Specific views of the landscape are afforded which obscure other views; just as the introduction of gondola cable cars on a hillside would not only increase the speed of ascent but would forever alter the meaning of ascending that hill. The functionality offered may or may not fit the various needs of academic collaboration for research, teaching and so on and will alter those needs.

While our habituation as academics towards extensive travel renders many of its troubles culturally invisible—un(ac)countable (i.e. absent from accounting)—they have not disappeared. Until recently, money and visas may have been the principal limiting factors; now, environmental impact is an urgent reason for everyone to travel slower or not at all. The COVID-19 pandemic provides an interesting example: powerful, affecting deeply rooted cultural and individual habits—with unpredictable (especially during the initial months) and potentially lethal consequences. The response has seen populations across most countries change daily habits (including travel). This is a major achievement due to the involvement of innumerable bodies from governments and international

NGOs to changing habits of friendship. We ought to ask why no similar wholesale approach has yet resulted from the cry of the young—and the cries of our colleagues the Climate and Biological Scientists and Social Geographers—about the future of humankind and other species? Yet, no redistribution of power, wealth or health impacts has yet been asked of us. Why not?

Having proposed and applied these three questions for *understanding* the complexities of the present situation, we next ask how we can develop ways of challenging or *changing existing structures* deemed unhelpful.

Action and Commitment to Change

The Earth has its own language of suffering and is speaking to us right now—rising average temperatures, increasingly extreme weather conditions, mass extinction of species. Whether or not we want to use a language of love of the Earth, the dependency remains that the Earth needs humans to listen better and act differently for its well-being, and humans need the Earth to continue to provide with sufficient stability air, water, food, shelter and the other foundations for life as we know it. Ignoring human dependence on (or interdependence with) our social and natural environments has mounted to problems of a massive scale, for example as reported to the United Nations Summit on Biodiversity on September 30, 2020.[10] The Introduction to the summit sees the need for 'leadership and commitment to improve our relationship with nature, addressing the causes of change, and ensuring that biodiversity and the contributions it provides to all people are at the heart of sustainable development and the fight against climate change' (United Nations, 2020).

The above reading of von Humboldt's, Schleiermacher's and Fichte's conception of the university as an institution that strives for the good of humanity, reminded us of the need for scholarship to remain in a certain sense responsible for—and responsive to—society. Their work was pivotal in establishing a direction for the academic community as an exercise in ethical commitment, starting a tradition for thinking of the value of collaborative academic work. *What are the deeper purposes* of academic collaboration remains a not-settled question, just as it should be. As

argued earlier, it includes *Erkenntnis* and importantly also collaboration as a counterweight to competition, including sharing insights and evolving academic understanding for the benefit of all. Still, who *all* are, needs to transcend the anthropocentric roots of the Humanism from which this view originated. Thus, the original ideal of von Humboldt, Schleiermacher and Fichte that scholarship should serve the ethical improvement of humanity remains important but no longer suffices. To build on and expand such notions, we turn to more recent European thinking and ancient Asian wisdom.

As human beings, we do not individually choose whether or not to be in relation to others; we constitute our individual being out of the relation with and the presence of each other (Lévinas, 1999; Løgstrup, 1992).[11] Zen Master Thích Nhất Hạnh extends this thinking to non-humans with the term *interbeing* (Nhất Hạnh, 1998). The idea of *interbeing* highlights the insight that 'we cannot *be* without *inter*being'.[12] Humans depend on and are co-constituted by other beings, including living beings (such as humans) and non-living beings (for example, the Earth, the air etc.). A simple example explains the concept: To fill a glass of drinking water from my tap, I depend on clouds and rain, on rivers and lakes. I further depend on irrigation systems, waterworks, extensive networks of pipes and on sewage processing. Further, on the engineers and workers who planned, built and are maintaining these systems. This includes their education and practical training, and the municipality which oversees those waterworks, the taxes paid which provides the municipality with the means to do so and so on. The analysis of the contributing conditions can be conducted endlessly broadly—because everything *inter-is*. How to make use of the insight of *interbeing* is a question less of principled truths than of practical wisdom. Thus, ethical choice enters also from this perspective.

Importantly, the concept of *interbeing* highlights the interconnectedness of not only all living beings but also of the non-living. While this notion of interconnectedness appears radical, it provides terminology for naming an already experienced reality of human life subject to weather changes, the grief of mass extinction of species near and far and so on. Such experiences, widely under-acknowledged including in academic discourse, need to be conceptualised to support articulating and

sense-making of their impacts on habitual ways of relating to humans and non-humans.

A lack of examining what is at stake when switching to video testifies in our view to the salience of at least two issues: a paucity of reflection beyond a need to bridge distance and its technical satisfaction, greatly afforded by the persuasive 'quick fix' language of technology marketing; and a willingness to grasp at simple conceptualisations. The former has been discussed above; the latter may for many researchers and teachers be facilitated for example by sheer exhaustion from dealing with complex layers of systems (administrative, technological, various accountability systems etc.) on the surface of research and teaching (Berg & Seeber, 2016).

Specifically, the (ethical) intention of altering behaviour that suffocates the planet, places under question collaboration across geographic difference (as discussed earlier, including whether to, for what purposes and how to); the possibility and necessity of shifts in the differentials of power and privilege (what is equity between humans, and between humans and non-humans; and how to work towards it); and the frustrations of succumbing to the narrowly designed worlds of bridging technologies (can other choices be developed? Could speculative conceptualisations of new purposes towards which technologies might be designed (Beck, 1997) include *Erkenntnis* and social responsibility?).

To move wisely through such landscapes, we authors suggest that as academics and as citizens, we need to overcome our own resistance to new habits. For example, the previous obstacles to unchecked travel were impacting unevenly, depending as they did on the capacity to *muster resources* such as money and time. They were effective in reproducing an uneven distribution of privilege, which may have been their deeper purpose (cf. arguments by Harvey cited above and Manuel Castells [e.g. 2000], about the necessity of uneven geographic development to secure the interests of élites). Because of habituation into accepting uneven distribution which leaves some in abject poverty and others over-using resources, a shift in collective consciousness into taking *responsibility for depleting* non-local (natural) *resources* is needed. Doing so may turn out to be no less satisfying for our deeper needs.

A key in this endeavour for us academics is commitment; both a willingness to pay closer attention to the conditions and needs that surround

us and a willingness to establish new habits. The purposes of our collaborations could beneficially be reflected upon in light of commitments to other people (colleagues, but also communities outside the university); to the geographical places in which we are working, doing research and sharing our scholarship; and, further, to relations and places further away (geographically and conceptually).

Thus, as newish technologies have been ushered in to rescue people from (fear of) COVID-19—piggybacking the worlds-making powers and the specific forms of presences and absences that the technologies afford—it is the *surface-ness* that draws substantial amounts of attention. There is an unexamined tension between wanting the technology to recede into mere infrastructure (for it to be, so to speak, merely a 'Boring Thing'[13]), and the frequent experience of its refusal to comply with the dreams promised, resulting in much frustration. Such frustration at the sociotechnological 'solutions' we authors view as an individualised manifestation of structural problems at the base of which is the maintenance of difference (as discussed earlier).

Having some understanding of the need for change, questions arise about how to proceed. Specifically, how can academic communities develop ways of challenging or changing existing structures deemed unhelpful? And how might new (socio-material) systems be developed from different stances? For transforming academics' habits of flying, much material-relational (re-)working, un-learning, and re-learning is required, both by individuals and not least from the systems of recognition within which they/we work. Might scholars extend analyses such as these and develop new kinds of theories and practices based on the wisdom of *interbeing*, or radical interconnectedness?

While the magnitude of the necessary change may for some seem insurmountable, for us a lesson from the COVID-19 responses and the evidence of success in slowing down the spread of the virus is that when there is a willingness among sufficient numbers to pull in the same direction, substantial changes can be made in a short time. To change from mustering resources to protecting resources, as discussed above, the key learning may need to happen among those who have been habituated into believing we/they could do as they wanted, yet now are having to desist.

Changes in habits of collaboration then, such as travel, not only entails a technical change of communication channels but also involves ethical work, such as reopening questions of commitment, and structural/political critique and change. In short, in the necessary transformation of academic collaboration to become compatible with responsible cohabitation on and with the Earth, work is needed to (re)create conducive conditions for the interrelational purposes of collaboration in new forms. These include technical solutions and calculations of ecological impacts, but importantly also, strengthening a sense of *interbeing* between not only our peers but also with non-academics, with humans of the future, with other species, and with the Earth itself.

But how to change? The cultural habit of not looking after ourselves by not looking after the needs of the Earth includes our relation to change. We (the authors) claim that in our contemporary culture, change is commonly assumed to be manageable; culturally 'we' 'should' be able to control change (through planning, innovation and managing it well). Based on distinguished development work on leadership within the United Nations, Monica Sharma (2014) sounds an alert about established 'Blueprints for change' (i.e. ways of leading) and argues the need for new approaches. Transformational change requires not only attention to instrumental and systemic issues, but also self-discovery (Sharma, 2007) and trust in the innate wisdom of people (Sharma, 2014). Based on her practical experience, Sharma's 2014 model for a new blueprint provides a relevant framework for the work of change called for in this chapter.

Thus, change is possible. It is already taking place; it is here for us to join.

Notes

1. Such messengers include temperature changes, erratic winds, wild animals intruding into human territory for lack of their own, species extinctions and so on.
2. We see a parallel to this insight in the decentralisation of universities that took place in many Western countries during the 1970s and 1980s. Higher education was provided on smaller campuses in more rural areas

in order to extend the accessibility of academic knowledge to a wider range of environments.
3. Haraway's (1991) term 'situated knowledges' is the source of our use of the plural 'knowledges'.
4. Absent from awareness, that is, absent from ethical presence.
5. The environmental impact of using (building, selling, running) computational technologies is itself a topic worthy of study.
6. Inspired by the quest of Walter Benjamin (1955/1999) for the deeper purpose of translation and our previous application of Benjamin's question to the deeper purpose of science (Beck, 2016). Further, we are inspired by Haraway's (e.g. 1997) 'diffractive' analysis of technoscience.
7. As of 2020.
8. So key is this feature that in the Zoom video conferencing system, toggling Show/Hide Self-View is currently (November 2020) one of the few functions accorded its own button.
9. This claim is based on the personal experience of one of the authors from years in such cultures.
10. Assessments by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) included that: 'Nature across most of the globe has now been significantly altered by multiple human drivers, with the great majority of indicators of ecosystems and biodiversity showing rapid decline. Seventy-five per cent of the land surface is significantly altered, 66 per cent of the ocean area is experiencing increasing cumulative impacts, and over 85 per cent of wetlands (by area) has been lost.' Further, 'The average abundance of native species in most major terrestrial biomes has fallen by at least 20 per cent, potentially affecting ecosystem processes and hence Nature's contributions to people; this decline has mostly taken place since 1900 and may be accelerating' (IPBES, 2019, both quotes p. 11).
11. For a closer discussion of this claim in education, see Schaffar (2014).
12. Personal communication, ca. 1996. Thích Nhất Hạnh has repeated the phrase in numerous public talks. For a closer look at meanings of the term and practice of Interbeing, see, for example, Nhất Hạnh (1998). For an exploration of Levinas and Nhất Hạnh sensitive to 'Western' and non-Western perspectives, see Ucok-Sayrak (2014).
13. Sociologist of Science and of infrastructure S. Leigh Star used to say she wanted to start a 'Society for the Study of Boring Things'.

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13

Academic Air Travel Cultures: A Framework for Reducing Academic Flying

Sherry H. Y. Tseng, James Higham, and Craig Lee

Introduction

As primary producers of knowledge, academics are required to create and disseminate research (Greenbank, 2006; Nursey-Bray et al., 2019). The advent of internationalisation has placed great emphasis on the importance of travel as it pertains to the success of an academic career and the international standing of an institution (Knight, 2011; Nursey-Bray et al., 2019). However, academics who are highly aeromobile—particularly researchers working in the field of climate change—are now facing allegations of hypocrisy which may compromise the efficacy of their (climate) research (Klöwer et al., 2020). While there is a building corpus of research that addresses academic flying practices, the novelty of this chapter arises from the application of the energy cultures framework (Stephenson et al., 2010) to the study of academic air travel. The energy

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cultures framework comprises three key elements—cognitive norms, material culture and practices.

In this chapter, the issues of high carbon emissions and entrenched academic flying behaviours will be addressed first. The energy cultures framework is then discussed to consider how social and cultural factors, such as norms, social inequalities and social networks, interact with motivations and moderators to shape and influence flying behaviours. Next, consideration is given to the significant and immediate changes in academic practices that have been brought about by COVID-19. The practices of virtual conferences will be taken as an example to reconsider the necessity of academic air travel as conference attendance accounts for the highest proportion of academic flying (Wynes & Donner, 2018). This will afford a timely opportunity to rethink the necessity of academic air travel based on the reformulated COVID-19 academic working environment. A modified energy cultures framework is then proposed and applied to model the interactions between social and cultural factors, on the one hand, and the motivations and moderators, on the other—in order to provide a pathway to reducing flying activity. The energy cultures framework is adopted to provide a structure within which to consider individual and institutional pathways to achieve significant reductions in academic flying. By exploring the interplay of cognitive norms, practices and material culture, the gap between academic theory and institutional realities and practices can be systematically explored and fully elaborated. The chapter concludes with reflections on the energy cultures framework and prioritises future research directions. In doing so, academics may be encouraged to engage in critical self-reflection of the cognitive dissonance between personal intentions to reduce air miles and behaviours to the contrary.

Why Do Academics Fly?

Before the enormous disruption caused by COVID-19, academics engaged in largely unquestioned air travel practices that were driven by institutional norms. At the institutional level, internationalisation is firmly embedded in mission statements, policies and strategies not only

in organisations, companies and universities, but also in national policy (Hopkins et al., 2016). 'Internationalization' is a core value that is common to all high-ranking academic institutions (Rumbley et al., 2012; de Wit, 2018). In a globally competitive environment, air travel has become established as an enabler and marker of a successful academic workforce (Glover et al., 2019).

As primary producers and disseminators of knowledge, academics travel frequently to strengthen their abilities and maintain their visibility under the internationalisation imperative. International collaborations, international journal publications and competitive research grants are widely regarded as key measures of academic success and markers of global intellectual capital (Glover et al., 2019). To demonstrate international standing, institutions measure the number of publications in international journals, the number of international students/staff and their collaborative projects.

Most universities are aspirational in terms of their standing on global university rankings. In collecting and considering data for the Times Higher Education World University Rankings, international outlook accounts for 7.5 per cent of the ranking score. Here, the Times Higher Education World University Rankings calculates the proportion of a university's total research journal publications that have at least one international co-author and reward higher volumes for the indicator: International Collaboration (Times Higher Education, 2020). This kind of pressure from the education system as a whole forces academics to travel more in order to meet internationalisation expectations. For example, Glover et al. (2019) found that 48 per cent of academics think their employer encourages air travel. This indicates that academic flying practices have become entrenched among scholars who, beyond the immediate interests of career success, may have continued to function in accordance with the internationalisation imperatives of their institutions (Nursey-Bray et al., 2019).

At the individual level, it is generally accepted that air travel and face-to-face meetings are absolutely irreplaceable elements of a successful academic career (Glover et al., 2019; Nursey-Bray et al., 2019). By travelling and meeting international peers, academics not only disseminate and promote their own research (Nursey-Bray et al., 2019), but also build

their social networks (Higham et al., 2019; Lassen et al., 2006; Nursey-Bray et al., 2019). From a personal perspective, building social networks by presenting, meeting, networking and socialising at conferences is critical to climbing the academic career ladder. Networking is a very common justification for air travel, extending to informal social networking and the forging of relationships characterised by a strong need for physical proximity and co-presence (Lassen et al., 2006). Despite our globalised world, face-to-face trust and implicit knowledge between peers still dominate over intermittent digital communication (English-Lueck et al., 2002; Growe, 2019). A face-to-face meeting is a strong facilitator for building both recognition and interpersonal trust, such as meeting the editors of high-impact journals (Higham et al., 2019). Urry (2012) considers physical travel to be required to maintain academic productivity and ensure job satisfaction.

Issues Concerning Academic Flying

Worldwide, transportation is responsible for 24 per cent of annual global emissions of carbon dioxide (CO_2) (International Energy Agency, 2020). In 2019, air transport produced 915 million tonnes of CO_2 or approximately 2 per cent of anthropogenic CO_2 emission (Air Transport Action Group, 2020). Prior to 2019, emissions from global air transport were known to be increasing at an accelerating and unsustainable rate (Overton, 2019). If air transportation technology can be improved to 100 per cent biofuel, aviation will have consumed 12 per cent of the global carbon budget for 1.5 °C by 2050 (Carbon Brief, 2016; International Civil Aviation Organization, 2017). If the industry fails to reach this target and assuming the international flights grows 5 per cent per year, its share of the budget could rise to as much as 27 per cent (Carbon Brief, 2016; International Civil Aviation Organization, 2017).

Because of intensifying concern that the world is failing to deal with accelerated global warming, there has been growing disquiet over the carbon footprint of academic travel (Eriksson et al., 2020; Grant, 2018). Since they are aware that the environmental impact of academic flying is an integral ethical and moral consideration in academic work, many

academics across different disciplines have dedicated themselves to developing methods to reduce aviation-related carbon emissions from technological, social, economic and cultural perspectives (Grant, 2018). For example, the use of biofuel in aviation is regarded as a viable technological strategy to mitigate climate change (Moore et al., 2017). Moreover, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is an economical method to achieve the global aspirational goal (International Civil Aviation Organization, 2020). Academics serve as critic and conscience of society (Education Act, 1989), and they have been vocal in urging preventative measures against climate change to society. But, they are encouraged to travel to build their collaborative networks, to produce high-impact research and to maintain visibility, all of which is encouraged by institutions that seek to internationalise (Storme et al., 2013; Wynes et al., 2019).

Work-related travel, such as attending conference and fieldwork, is a major carbon-emitting activity for climate change researchers (Whitmarsh et al., 2020). Before the COVID-19 pandemic, many academics accumulated vast air miles due to the frequent long-haul flights they took. Due to the highly aeromobile activity, it becomes an important task for climate change researchers to curb their own aviation emissions to align their practices with their assertions in relation to emissions reduction (Whitmarsh et al., 2020). Klöwer et al. (2020) point out that at the world's largest earth and space science conference—the Fall Meeting of the American Geophysical Union (AGU)— 28,000 delegates travelled 285 million kilometres return and emitted about 80,000 tonnes of CO_2.

There is an active debate as to whether extensive academic travel is justified by the positive contribution that academic research and teaching provides to society (Buchs, 2019). Wynes and Donner (2018) used the University of British Columbia (UBC) as an example and analysed UBC's business-related air travel emissions. UBC's annual business-related air travel emissions were found to be 63–73 per cent of the total emissions of the entire institution. Emissions associated with conferences accounted for 55 per cent of the listed main purpose of their business travel.

The responses to climate change from every university are different; some universities do not recognise air travel as an issue, some recognise the problem but have no sustainability policy, while others try to reduce

their air travel via alternatives such as virtual meetings or different transportation modes (Glover et al., 2017). While many universities emphasise sustainability, there seems to be little integration of their sustainability rhetoric within wider policies. For example, academics are usually asked to consider aspects of their travel such as transportation mode, duration of travel and necessity of travel from a financial rather than an environmental perspective (Hopkins et al., 2016). Institutions have implemented policies to achieve both the mutually exclusive goals of internationalisation and sustainability, highlighting a disconnect within and between policies at institutions (Hopkins et al., 2016). Therefore, institutions cannot claim to be working towards meeting sustainability targets without tackling the issue of their academics' air travel emissions.

In addition to the high environmental cost, some researchers argue against the necessity of flying for face-to-face meetings and conferences based on funding and professional success issues. The inclusiveness of current meetings and conferences is sometimes questioned because of the expensive cost for transportation and accommodation and the high cost of attendance fees for conferences. These are key reasons which keep emerging researchers from labs, low- to middle-income countries and junior principal investigators away from other researchers (Sarabipour et al., 2020). Furthermore, Wynes et al. (2019) found that in-person conference attendance is not linked to career progression, and air travel does little to boost academic productivity or encourage collaborations. In addition, when measured against per annum salary increase, frequent air travel does not coincide with career success. Also, for some academics, it is very difficult to find a balance between personal achievement and family life. Academics travel to attain a successful academic career, but in doing so, they may sacrifice family time (Higham et al., 2019). Travelling may be a source of stress and frustration for academics and their family, which skews the work and life balance of academics. These findings provide academics with a chance to rethink the necessity of their academic flying intentions.

Addressing the high emissions of academic air travel is a complex field to contemplate. It is necessary to consider how social and cultural factors, such as norms, social inequalities and social networks, interact with motivations and moderators to shape and influence flying behaviours. Within a complex system such as transportation, single-discipline solutions are

typically ineffectual. Conceptual models are necessary not only to identify key interactions and opportunities for change but also to bridge different perspectives across academic disciplines (Stephenson et al., 2015b). The energy cultures framework (Stephenson et al., 2010) is discussed in the next and subsequent sections as a potential pathway to reduce academic flying not only through the decisions and actions of individuals but also by identifying and addressing structural issues.

The Energy Cultures Framework

The energy cultures framework was originally developed in the context of renewable energy use to understand the factors that influence energy consumption and to identify opportunities for behavioural change (Stephenson et al., 2010). It has been applied to evaluate behavioural changes relating to energy saving (Sweeney et al., 2013), energy transitions (Sarrica et al., 2016), personal mobilities (Hopkins & Stephenson, 2014), the reduction of automobility (Hopkins & Stephenson, 2016) and conceptualising transport transitions (Stephenson et al., 2015b). The energy cultures framework is a useful tool as it provides an interdisciplinary language which is useful and easy for researchers from different disciplinary perspectives to understand how the different elements interact within the socio-technical-cultural sphere (McKague et al., 2016; Stephenson et al., 2010).

The energy cultures framework is useful in complex systems to understand the different ways elements interact within the socio-technical-cultural sphere. Because of this simplicity, this framework is general enough to be applied to studies in different disciplines (Stephenson et al., 2015a). Moreover, the energy cultures framework can be applied to different scales, such as the individual or household through to the institutional or national scale. It can also be used in different areas/scales such as urban, regional or national. The energy cultures framework is easily adapted and applied to a wide range of study contexts. It accommodates the fact that the culture of one individual or one area/scale may be very different from another. For example, at the individual level, the academic flying culture of an early-stage academic may be very different from the materials, norms and practices of a mid-career or senior academic. The

simplicity of the energy cultures framework allows it to be shared amongst researchers from different disciplines in order to widen the pool of experience and perceptions accessible from each of the different disciplines (Stephenson et al., 2015a).

The energy cultures framework (see Fig. 13.1) was developed based on a recognition of the complex interactions amongst cognitive norms, material culture and practices. The behaviours that arise from the interplay among these three elements of the framework are only somewhat shaped by the individual (Stephenson et al., 2015a). In addition, the behavioural patterns arising from these elements of the framework can be difficult to deviate from, due to the elements interacting with each other in ways that are mutually reinforcing. The example of new multi-mobilities culture (the element of the push to use multiple modes of transportation) will be taken to explain how the elements from Hopkins and Stephenson (2016) influence the reduction of automobility through their application of the cultures framework. Hopkins and Stephenson (2016) use the energy cultures framework as a foundation to explore how cognitive norms, material culture, practices and external influences reduce participation in automobility culture amongst young adults.

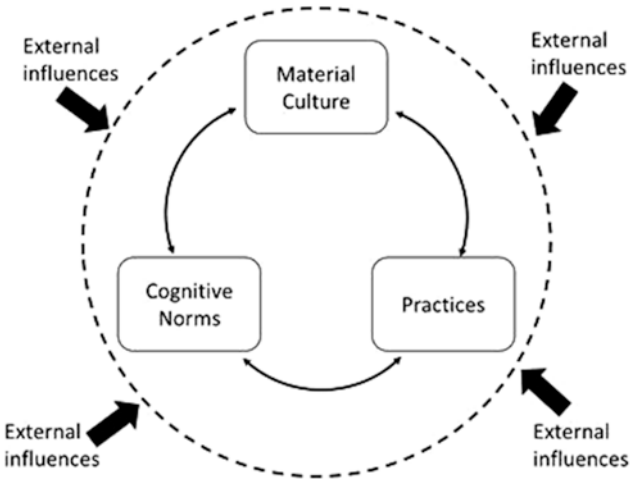

Fig. 13.1 The cultures framework. (Stephenson et al., 2010, 2015b)

Cognitive norms reflect the attitudes, values, beliefs and understandings of specific behaviours. In the framework, norms are an individual's expectations and aspirations about their practices and material culture (Hopkins & Stephenson, 2016; Stephenson et al., 2010, 2015a; Sweeney et al., 2013). It strongly influences an individual's choice of technologies and the practices that they undertake (Stephenson et al., 2010). In the example of the multi-mobilities culture to reduce automobility, awareness of the carbon intensities of transport modes, an interest in increasing physical activity and aspirations to dematerialise are included in cognitive norms (Hopkins & Stephenson, 2016).

Material culture refers to relevant technologies and physical infrastructures that play a role in how aeromobility can be reduced, including virtual communication products, transport infrastructure and other available technologies (Hopkins & Stephenson, 2016; Stephenson et al., 2010, 2015; Sweeney et al., 2013). Material culture has a strong effect on cognitive norms and on the range of an individual's potential energy practices (Stephenson et al., 2010). Taking reducing automobility as an example, the different types of transportation mode and the facilities used for public transportation, such as public transport timetables, bus passes, rain jackets and walking shoes, are regarded as crucial aspects of material culture that are required to increase the usage of public transportation and reduce automobility (Hopkins & Stephenson, 2016).

Practices are everyday activities, including regular and irregular actions (Hopkins & Stephenson, 2016; Stephenson et al., 2010, 2015a; Sweeney et al., 2013). They determine how technologies are used and also partly shape people's beliefs, understandings and reactions (Stephenson et al., 2010). In the example of building a multi-mobilities culture, practices of this element would be characterised by the use of a range of transportation modes, rather than a single mode of transportation, to reduce automobility, urbanised lifestyle, multi-modality and shared mobility are the practices which are included in the model (Hopkins & Stephenson, 2016).

These three elements not only influence each other but are also influenced by external factors. External influences are factors that individuals have little or no control over but have the potential to shape individual's norms, practices or material culture (Hopkins & Stephenson, 2016; Stephenson et al., 2010). In the example of building a multi-mobilities

culture to reduce automobility, external influences such as changes to driving test rules and regulations, health concerns and public transportation infrastructures are the factors which can drive change in one or more of the internal elements away from car dependency and may contribute to the destabilisation of automobility (Hopkins & Stephenson, 2016). These factors enable and perform alternative mobilities (Hopkins & Stephenson, 2016). By adding the impacts caused by external influences, the energy cultures framework is regarded as a strong model to form the basis of energy behaviour cultural studies (Klaniecki et al., 2020; Stephenson et al., 2011; Walton et al., 2020).

In the original energy cultures framework, Stephenson et al. (2010) focused on the wide array of different factors influencing energy behaviours. In the years since, the framework has evolved and expanded to reflect the behaviours of all participants in energy systems. This refinement not only explicates the interactions between norms, practices and material culture but also key external influences (Stephenson et al., 2015b). Despite this, some researchers criticise the oversimplicity of the model and point out the lack of key elements in behavioural change such as motivation, barriers or distinct circumstances (McKague et al., 2016; Sweeney et al., 2013). McKague et al. (2016) and Sweeney et al. (2013) described the energy cultures framework as providing elements which act in isolation.

In response, Sweeney et al. (2013) extended the framework by framing a person at the centre of all interactions and regarding the individual as driven by motivations towards a behavioural goal—the practice-based energy cultures framework (see Fig. 13.2). In the practice-based energy cultures framework, the material culture, cognitive norms and practices were at the outer ring and categorised as the communal/cultural level. Sweeney et al. (2013) also considered the motivation, support, barriers and constraints as critical factors when developing behaviours since they were recognised as core determinants of energy-saving behaviours. In this model, Sweeney et al. (2013) emphasised that a change in one component of the framework will lead to changes across all of the components in the framework until a balance between components is achieved.

The support, barriers, constraints and external influences broadly influence individual energy behaviour on both social and cultural aspects. To develop a comprehensive framework of academic flying in this

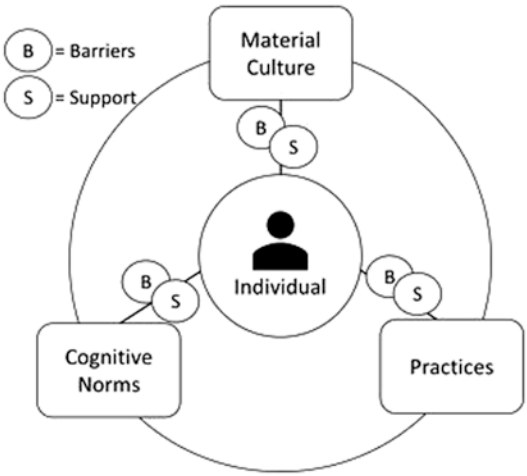

Fig. 13.2 The practice-based energy cultures framework. (Sweeney et al., 2013)

chapter, we regard these factors as moderators, in that they can change the strength or nature of the relationships among the core elements and motivations (Hair Jr et al., 2016). In order to address limitations and develop a comprehensive model, this chapter will integrate the original energy cultures framework (Stephenson et al., 2010) and the practice-based energy cultures framework (Sweeney et al., 2013). The proposed framework not only focuses on the interactions among material cultures, cognitive norms and practices but will also emphasise the impact of moderators (see Fig. 13.3). In doing so, the impact of moderators and the relationships between moderators and cognitive norms, material culture and energy practices will be clear and easily evaluated by future research.

The Impact of COVID-19: Rethinking Academic Air Travel

The outbreak of COVID-19 at the end of 2019 induced panic throughout the world (Nicomedes & Avila, 2020) and extensive social and economic lockdown. A study shows that the COVID-19 outbreak significantly affected the mental health of the Chinese public; this

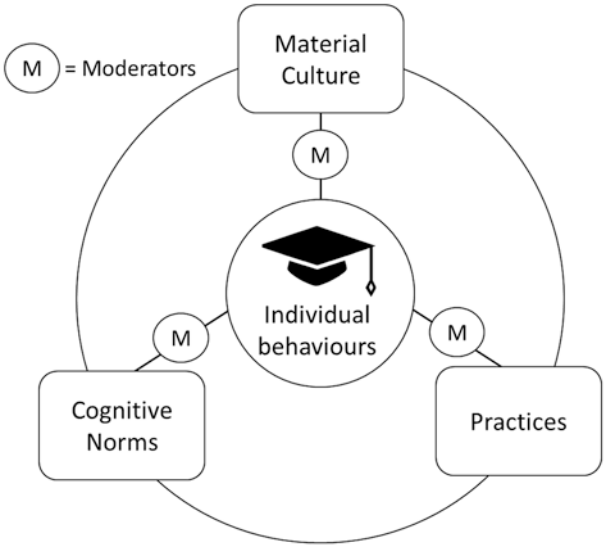

Fig. 13.3 The proposed transport cultures framework. (Source: authors)

manifested itself as generalised anxiety disorder, depressive symptoms and poor sleep quality during the pandemic (Huang & Zhao, 2020). Furthermore, almost every country closed its borders and/or implemented full or regional lockdown to prevent the spread of the virus (Gössling et al., 2020). Many people were forced to work from home and stop travelling due to lockdowns and border closures. In April 2020, the air transport industry-wide revenue passenger kilometres (RPKs) fell by an unprecedented 94.3 per cent year-on-year (International Aviation Transport Association, 2020). The sudden and dramatic decrease in tourism and air travel caused by COVID-19 is very serious and obvious. However, it is very difficult to determine when and how the pandemic will end since it is usually determined not by medical and public health data, but by socio-political processes (Kolata, 2020).

In response to the COVID-19 pandemic, many conferences were either cancelled or postponed, with some immediately moving online. In order to encourage virtual meetings and conferences, the improvement of technology becomes a crucial issue to increase convenience. Information and communication technology (ICT) is often referred to as a method of

reducing work-related travel. For instance, virtual communication (via Skype or Zoom meetings) may be able to replace face-to-face contact. Information sharing platforms also plays an important role to smooth the experience of virtual meetings and conferences. By uploading all research materials to a free, open-access online platform, all interested academics can interact with each other and follow the most recent updates in their field (Sarabipour et al., 2020). Online conferences not only provide a more affordable way for academics to connect with each other (Wynes & Donner, 2018) and generate and share knowledge, they also reduce carbon emissions caused by the transportation of academics and the conference itself (Klöwer et al., 2020; Wynes & Donner, 2018; Wynes et al., 2019).

For example, the University of California Santa Barbara (UCSB) has dedicated to holding nearly carbon-neutral conferences annually (Environmental Humanities Initiative, 2020). The first nearly carbon-neutral conference was held in 2016 (Climate Change: Views from the Humanities) and had a nearly non-existent carbon footprint despite the attendance of 50 speakers from eight countries. In the conferences, all presentations are pre-recorded, with voice-recognition software automatically generating captions which provides an important service for deaf or hard of hearing attendees. Recordings of the presentations are also provided on the conference website, as well as on YouTube and SoundCloud accounts, which makes it easier for participants to listen and watch the presentations in their own time. Additionally, participants can also take part in panel Q&A sessions for two or three weeks while the conference remains open for interaction with the presenters. The UCSB noticed that, on average, the conferences' Q&A sessions generated at least three times more discussion than what would normally take place at a traditional Q&A (with some sessions hosting 10 to 15 times more discussion).

However, there are problems with conferences and meetings moving to an online format following COVID-19. For example, an international team of scientists are writing a global climate science report for the Intergovernmental Panel on Climate Change (IPCC) (Intergovernmental Panel on Climate Change, 2020). The scientists and academics were slated to meet in Ecuador in April for a five-day meeting about how best to reduce

greenhouse gas emissions and remove carbon dioxide from the atmosphere. Due to the COVID-19 pandemic, the meeting was forced to be held virtually. The biggest challenge the IPCC faced was that the scientists were located in 23 different time zones, and there were only two hours per day that the scientists could meet outside of 12–6 am. The time zone issues prolonged the meeting by an extra two days and, even with the additional time, the scientific goals had to be scaled back. Participation was another serious issue, with a third of the attendees claiming that they were not able to participate fully due to complicated reasons ranging from family and childcare issues to technological issues according to an IPCC survey (Hersher, 2020; Intergovernmental Panel on Climate Change, 2020).

Despite advances in online conferencing technology, many academics complain about the limitations of the technology, such as the quality of the voice or video and firewall settings (Lassen et al., 2006; Wynes & Donner, 2018). The connection between knowledge of technology and the willingness to use it has become a crucial issue for academics. Also, most academics still prefer building relationships with others through face-to-face meetings. Some researchers suggested changes to meeting and conferences venues. Klöwer et al. (2020) proposed the three-hub model conferences to reduce academic flying miles by holding the conferences simultaneously in three-hub locations, where academics can travel to the nearest hub of the conferences. Sarabipour et al. (2020) suggested replacing national and international meetings with more ground-based travel to regional meetings. This can not only reduce an academic's carbon emissions and costs but also potentially bring benefits to the local community by offering attendees the opportunity to visit local labs, tourist attractions and interacting with the local community.

Based on experiences during the pandemic, this is a good time for academic associations, funding bodies, academic institutions, researchers, conference organisers and virtual-technology providers to rethink how the changes can be made to reduce travel emissions associated with international conferences. By integrating current academic flying practices and experiences gained during COVID-19 with the energy cultures framework, this chapter proposes the transport cultures framework of academic flying in order to suggest pathways in which the necessity of academic travel can be rethought for the future.

The Transport Cultures Framework of Academic Flying

The conceptual organising framework developed in this section intends to offer insights into key elements and relationships within the field of academic flying. The transport cultures framework of academic flying is developed by combining the foundational framework and the findings from current academic flying literature and the alternatives implemented during the COVID-19 pandemic. The proposed foundational model (see Fig. 13.3) raises many important questions about changing academic flying practices. It not only focuses on the interactions among material cultures, cognitive norms and practices, but also emphasise the impact of moderators. Based on the energy cultures framework, this chapter categorises all the factors which may influence the motivation behind academic flying into three elements (material culture, practices and cognitive norms) and moderators. From an energy cultures perspective, the material culture, practices and cognitive norms are not only highly interactive, self-reinforcing and self-replicating (Stephenson et al., 2015b), but also shaped or reinforced by the moderators either individually or collectively. It is extremely difficult to break out of the behaviours reinforced by the foundational model's elements (see Fig. 13.3) without a change in at least one of the three elements themselves. However, by changing the moderators, the strength of the relationship between behaviour and element may be modified. This framework can be used to explain how material culture, practices and cognitive norms form academic flying culture and highlight the role of moderators (see Fig. 13.4).

Cognitive Norms

Cognitive norms reflect academic's attitudes, values, beliefs and understandings about flying-less behaviours. These are the main pressures that force academics to travel and fly frequently. These pressures include university expectations which are directly related to career progression through confirmation (tenure) and promotion. By understanding the

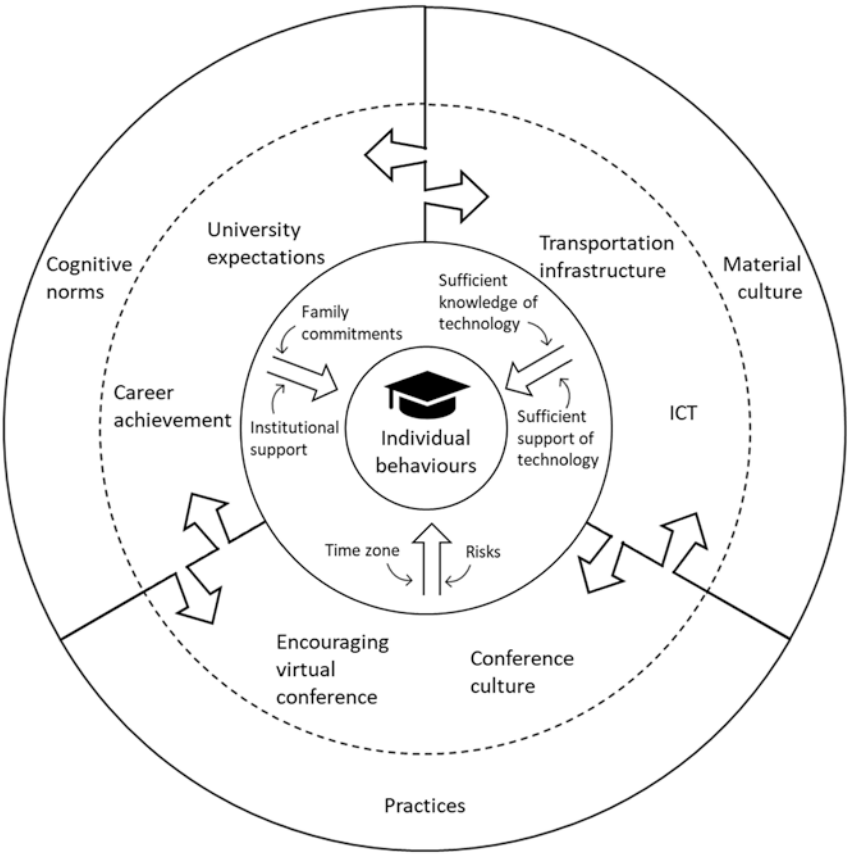

Fig. 13.4 The proposed transport cultures framework of academic flying. (Source: authors)

main pressures that force academics to travel, the related universities and institutions may consider how to change the social atmosphere (e.g. institutional expectations and travel policies) to significantly ease demands on academic staff relating to the necessity for academic flying.

As the key contributors in the institutional internationalisation process, academics seek a balanced, appropriate and effective process which is both in their personal interests and in those of the wider institution (Friesen, 2013). University expectations are usually a reflection of the

pressure towards internationalisation including international journal publications, collaborations and research grants. Career achievement includes network building, academic performance, career planning and satisfaction. In order to achieve the university's expectations, building and maintaining social networks has become a crucial reason for academic flying, especially for early-career academics. In doing so, their academic performance can be strengthened by collaborative projects and international journal publications, hence, achieving their career plans and work satisfaction.

However, family commitments and institutional support act as moderators between cognitive norms and flying behaviour. While pursuing career progression and fulfilling university expectations, academics spend a lot of time travelling, which reduces engagement with their family. Family commitment has become an important issue which may influence an academic's travel decisions. For example, flying provides a quicker travel option for academics, which also enables decreased time away from family (Glover et al., 2019; Nursey-Bray et al., 2019). As for institutional support, this refers to the support and resources institutions can provide such as the capacity for funding travel, the push for digitalisation and an easy administrative procedure.

Material Cultures

Material cultures are the available technologies and material products which help academics fly less. Improvements in information and communication technology (ICT) and transportation infrastructure have played an important role in strengthening virtual communication and have reduced the need for air transportation (Wynes & Donner, 2018).

Information and communication technology (ICT) refers to the capability of institutions to provide a means of stable, high-speed virtual communication technology. With better ICT, it will be easier for academics to attend conferences or build social networks without flying. Transportation infrastructure mainly focuses on the substitution of air transport. The per-person kilometre emission from air transport is much greater than other modes of transportation. Air transport produces

around 100–250 gCO_2/p-km, while rail produces around 40–110 gCO_2/p-km and waterborne produces around 20–150 gCO_2/p-km (Intergovernmental Panel on Climate Change, 2014). Therefore, carbon emissions may be reduced if academics are able to use rail or water transport to substitute for air transport.

Following the improvement of technology, academics need to update and renew their skills and knowledge to use technology. Sufficient knowledge of technology refers to the moderating influence of whether academics have been provided with sufficient training in ICT, the quality of IT support provided by the institution and the knowledge of using alternative modes of transportation. Sufficient support of technology taps into whether the university provides sufficient support of virtual communication technology to help academics feel comfortable about using technology.

Practices

Practices reflect the practical aspects of reducing academic flying behaviours. By examining the practices implemented during the period of COVID-19, it is clear that practices can readily and rapidly be changed to reduce academic flying, by encouraging virtual conferences and holding of three-hub model conferences.

Reallocating conference funding, rewarding regional attendance, supporting the reorganisation of conferences based around emissions reduction and inclusivity can be regarded as efficient ways to encourage virtual conferences. For example, carbon budgeting can be an efficient strategy to encourage virtual conferences. Institutions should implement differentiated carbon budgets based on different career stages and other criteria and consider carbon budgeting in grant applications (Klöwer et al., 2020). Conference culture indicates social norms and practices surrounding the use of air travel for work purposes (Whitmarsh et al., 2020). There are many different kinds of options for academics and related institutions to think about. For example, biennial conferences, virtual conferences or three-hub model conferences. Three-hub model conferences take place simultaneously in three-hub locations; academics can travel to

the nearest hub of the conferences resulting in less carbon emissions (Klöwer et al., 2020).

When important events go purely virtual, time zone differences moderate an academic's motivation and become an issue that needs to be considered since it increases the difficulties for academics to attend meetings or conferences during their work/sociable hours. Because of the spread of COVID-19, many meetings and conferences were forced to be cancelled (e.g. American Academy of Dermatology 2020 Annual Meeting), postponed (e.g. the Twenty-Ninth International Joint Conference on Artificial Intelligence) or held online (e.g. the CAUTHE 2021 conference). According to the experience from COVID-19, it is clear how natural and artificial risks affect people's travelling behaviours. Alongside disease, political issues, wars, terrorism and extreme weather events (Chang, 2016) are also risks that may affect people's travel intentions.

Applying the Framework to the Post-COVID New Normal

Globally, as of December 2020, there have been more than 66 million confirmed cases and 1.5 million deaths from COVID-19 (World Health Organization, 2020). Baseline forecasts envision a 5.2 per cent contraction in global GDP in 2020, which would be the deepest global recession in decades (The World Bank, 2020). When and how COVID-19 will end is still unclear. However, COVID-19 has shown us how moderators shape elements in the energy cultures framework. In the transport cultures framework of academic flying (see Fig. 13.4), cognitive norms, material culture and practices have a moderated influence on the formation of academic flying behaviours. By changing one or some of the three elements and moderators, the strength of the relationship between behaviour and element may be modified; hence, academic flying behaviour may be changed.

Taking 'material culture' as an example element, based on virtual meeting and conference experiences, most people were satisfied with their experiences, while others noticed the unstable quality due to subpar virtual communication systems or their internet connection (Trust Radius,

2020). Based on the transport cultures framework of academic flying, solving technological issues would strengthen the intentions of an academic to reduce flying activity and would represent an example where the influence of a moderator can produce elements that produce positive behavioural changes in academic flying. To this end, virtual-technology providers need to develop high-quality and standardised communication systems to optimise virtual communication experiences. Universities should not only provide academics with sufficient IT training and support but also guide investments into new technologies and integrate ICT into everyday operations via a centralised push from administration (Wynes & Donner, 2018). By strengthening different aspects, the interactions between material culture, moderators and academic's behaviour can be reinforced and produce positive behavioural changes.

The impacts of COVID-19 included the closure of borders and the mandating of social distancing. These impacts incentivised meetings and conferences to go online and showed that the need for academic flying was not as strong as once thought. COVID-19, which functions as a risk moderator, has strengthened the influence of the practices element to reduce academic flying and acted as an example of the influence of moderators on elements. Despite the convenience of virtual conferences and meetings, some academics faced time zone issues. In order to solve this problem, some of the conferences and meetings extended their active hours and days. Moreover, all the presentations were recorded in advance. This allowed participants to watch the presentations in their own time and participate in Q&A panels at their leisure. While the hurdle of time zones has been overcome, the willingness of reducing academic flying can still be increased. This can serve as a good chance for academics and institutions to rethink the necessity of face-to-face interactions.

Conclusions

Aviation is the fastest-growing contributor to greenhouse gas emissions (Creutzig et al., 2015). In response to this, many organisations and celebrities have begun to work on reducing the carbon emissions caused by aeromobility (Flight Free UK, 2020; We Stay on the Ground, 2020).

Academics have been at the forefront of propagandising preventative measures against climate change to society at large. At the same time, they are encouraged to build their collaborative networks, increase publishing frequency, produce high-impact research and maintain visibility through air travel. Because of this perceived hypocrisy, so-called 'climate sceptics' receive validation, while those who warn of the dangers of climate change are continuing, in many cases, to fly without restraint (Higham & Font, 2020; Wolff, 2019).

The framework presented in this chapter provides insights into factors which form and influence academic flying cultures. The conceptual model builds upon previous research (Stephenson et al., 2010, 2015a; Sweeney et al., 2013) and the experience during the period of COVID-19 (Hersher, 2020; Intergovernmental Panel on Climate Change, 2020; Klöwer et al., 2020). These findings are then applied to the energy cultures framework to explore the individual and institutional pathways to achieving a reduction in academic flying. Future research might build upon this work to evaluate the interactions between the elements of academic flying and the influence of the elements on the motivation to reduce academic flying. By exploring the interplay of the key elements (material culture, practices and cognitive norms), the gap between academic theory and institutional realities will be systematically elaborated and could be undertaken to inform individual and institutional responses to the need to reduce academic air travel emissions. It is also suggested that future research may analyse the perceived value and experience quality of online interaction experiences learnt from the COVID-19 lockdown.

This chapter categorised the necessity, motivation and possible avenues for the reduction of academic flying through the energy cultures framework to explain the systematic academic flying culture. Furthermore, this chapter indicates the online interaction experiences learnt from the COVID-19 lockdown to explore the experiences of working online without flying. This topical issue can help academics to start thinking about replacing physical travel with virtual interactions and encourage academics to engage in critical self-reflection of the cognitive dissonance between personal intentions to reduce air miles and behaviours to the contrary. The transport cultures framework of academic flying presented in this chapter provides a theoretically informed basis for the empirical study of

academic aeromobility practices, and how they may be actively managed in times of change, to urgently move to more inclusive and climate-conscious academic practices.

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