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# The Fear of Not Flying: Achieving Sustainable Academic Plane Travel in Higher Education Based on Insights from South Australia

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**Abstract:** Universities are both disseminators and producers of the climate knowledge needed to institute the social and cultural change required for climate adaptation and mitigation to occur. They also have the opportunity to lead and model pro-environmental behavior, yet often have large carbon budgets, partly caused by staff travel. This paper explores this topic via an institutional case study of what factors motivate the academic community to undertake plane travel and the implications this has for wielding wider societal influence in terms of pro-environmental behavior. We report on a year-long qualitative social science study of academic plane travel at the University of Adelaide, South Australia where we investigated the tension between academic requirements to travel and the institution's formal commitment to sustainability within the Campus Sustainability Plan. We found that, while many academics were worried about climate change, very few were willing to change their current practice and travel less because they are not institutionally incentivized to do so. There is a fear of *not* flying: plane travel is perceived as a key driver for career progression and this is an ongoing barrier to pro-environmental behavior. We conclude that institutional and political change will be required for individual change to occur and sustainable agendas to be met within academic communities.

**Keywords:** climate change; aeromobility; pro-environmental behavior; academics; attitude-behavior gap

## 1. Introduction

Academics are central to the performance and quality of any university. For both teaching and research, and as creators of knowledge, including climate change science, they are also the public face of the sector. They have a role to play in the ongoing discussion about what needs to be done to prevent catastrophic climate change. Yet, to be promoted and undertake research, an academic is expected to travel nationally and internationally. This activity results in much of the carbon emissions produced by any university, which is an activity that continues to grow. For example, carbon emissions for 139 universities in the UK rose by 3.9% between 2005 and 2010. This is despite the fact that emission reductions are now partly funding schemes for UK universities [1]. Academics travel to meet institutional expectations [2], to network [3], and to be 'seen' [4]. In Australia and New Zealand, the

vast distances between major academic institutions means flying is often not only a necessity but an expected part of the job [5–7]. Aeromobility is becoming an enduring feature of professional life [3,7–9] and as Høyer [10] asserts:

There is no other form of mobility bringing with it a similar seriousness of ecological problems, not the least regarding climate change. Few other human activities entail larger differences in ecological impacts between the highly mobile global elite and the vast, relatively immobile majority of the world population.

This is very relevant to the university sector, whose staff travel often and widely. However, action on climate change is minimal. In the first study of its kind, Glover et al. [5] undertook a study that analysed the sustainability policies of Australian Universities, and found that university responses to climate change can be characterized in three ways: (i) “Air Travel Ignorers,” that is, universities that do not have a sustainability policy or identify air travel as an issue, (ii) “Recognition without Intervention,” these are the institutions that accept that air travel causes emissions but do not have any plans to resolve this issue, and (iii) “Air Travel Substituters,” where those institutions that are actively trying to reduce their air travel by other, digital alternatives such as video conferencing. Their study provides the basis for, and sets the scene for the exploration in ours, which was a project that provides insights from an individual case study—the University of Adelaide, Australia. This project sought to understand and offers some insights around the perceptions of and motivations for individual academic aeromobility and its relationship to institutional action. We begin by setting some context, and then present our methods and key aims. In the presentation of our results, we discuss the role various factors play in influencing perceptions of action (or inaction) around academic plane travel. The final discussion provides reflection on the implications of the project for pursuing sustainability agendas, and the role that tertiary education institutions play in creating sustainable solutions. This paper is based on the assumption that the context we are discussing is within the developed world context of the country of Australia. We are not making any assertions that our results would necessarily apply in developing world contexts. We argue that radical institutional change is needed to effect transformative individual change.

## 2. Context: The Tension between Behavior and Attitude and the Psychology of Plane Travel

Plane travel is a present and future climate issue [6,11–13] and is expected to nearly quadruple from 2005 to 2050 and likely to increase up to 3.5% per year [6,14]. Currently accounting for about 2%–3% of global CO<sub>2</sub> emissions, this number is forecast to be 22% by 2050 [14]. However, there remain disparities between peoples’ sustainability practices and their plane travel practices [5–7,11,13,15,16], which affect policy development in this area. Psychological factors remain important in achieving progress and behavioral change around this issue. Professional aeromobility is also very individual, and depends on the age, gender, source country, disciplinary area, and career stage [8,17].

Theories that seek to explain the role and gap between behavior and attitude play a pivotal role in setting the context to explain what factors drive decisions about travel. The attitude/behavior gap refers to the difference between what our attitude to something is, versus our behavior in relation to it [18]. This gap is also referred to as the value-action gap and is, in effect, the difference between what people do and say. It also reflects the differences between how people typify their concerns about the environment and other factors (i.e., economic or social life style choices) and their actions (i.e., purchasing and other—often non-environmental-behaviors).

The influence of the difference between pro-environmental attitude and behavior, and the discrepancies between them is well-researched [19–27]. Hines, Hungerford, and Tomera [28] state that there are six variables that may affect pro-environmental behavior ranging from how individuals assert their knowledge about issues and actions, and the extent to which they feel control over them, and the means by which their attitudes relate to their sense of responsibility. While it might seem reasonable to expect correlation between pro-environmental value orientations and subsequent behavior, this

has consistently been shown not to be the case [29]. Evident in multiple case studies of travel and tourism, it is clear that, despite having pro-environmental attitudes, people still travel by plane [30,31]. Bushell et al. [32] describe this as an action gap between scientists, governments, and the public, while Choi and Ritchie [33], in a study on the willingness to pay offsets for plane travel, show that consumers are supportive of the idea but do not feel they should change. Rather, the airlines should 'fix it.' Decisions made about travel are also often subject to lower levels of environmental concern than daily contexts [6,33–37] such as recycling and energy choices [38–40]. Another barrier that explains the attitude behavior gap is the perception that 'it is too hard to be green' [41] accompanied by the fact that green rhetoric is not always followed by pro-environmental or green behavior.

The Theory of Reasoned Action (TRA) offers some explanation of this gap. It argues that attitudes only direct behavior to the extent that they influence intention [42,43]. Thus, individuals may hold many beliefs about a particular behavior, but only a subset will be salient at any one time. As such, that attitude will be prioritized. Social pressure is still likely to determine people's intention. The Theory of Planned Behavior (TPB) moves further to consolidate elements of the TRA via the inclusion of what is perceived as behavioral control, and exploration of the way it can affect and influence intent and behavior. For example, if you perceive you have greater control, there is likely to be a greater chance that subsequent (aligned) behavior will occur. This theory assumes that individuals want to be rewarded (or avoid punishment) for their actions and behavior. The TPB, thus, provides a conceptual basis by which to address the problem of incomplete volitional control, and ipso facto implies reliance on personal agency—it helps explain the ongoing disjuncture between pro-environmental attitudes and behaviors [43–45]. Insights into this disjuncture are further provided by the notion of cognitive dissonance, which is the feeling of mental discomfort that occurs when one's behavior is at odds with one's beliefs, attitudes, or personas [20,21,46]. Where there is a gap between self and social position, denial is used to justify dissonant behavior. In this context, denial is a mechanism used to explain actions in relation to climate change. In the context of plane travel, denials include justifying travel as a personal right, and the assertion that it does not matter anyway since individual actions alone will not be enough to solve these problems. Reis and Higham [47] illustrate this well in a study of climate change perceptions among Australian non frequent-flyers, where participants did not exhibit any dissonance that led to denial and guilt but instead used the argument that they, as individuals, were unable to enact change anyway—a viewpoint that made them feel better about doing it. In a different study, McDonald et al. [16] argue that, as 'green' consumers continue to fly, they use four strategies to reduce their dissonance, which include: (i) justification of ongoing flying behavior by arguing the high priority need to do the travel, (ii) reduction or restriction of flights, (iii) compensation strategies (i.e., changing other behaviors to compensate for flying), or (iv) to stop flying altogether.

More recent work has added to the discussion about the factors affecting pro-environmental behavior and by association, dissonance, that are relevant to this case study. One study [48] describes the importance of leadership in promoting environmental behavior. This is a factor we argue is important in this paper as an important precursor to achieving change in the university sector. Other studies locate contextual factors as predominant in determining pro-environmental attitudes and behavior. One significant study in this area shows that contextual factors are critical to understanding consumer behavior [49]. Another review [50] of the personal and social factors that influence pro-environmental behavior reflects that influential factors are more complex than we suppose, and are key to understanding them is to also analyse their inter-relations. Another study in Sweden concludes that ecological citizenship is a factor that promotes pro-environmental behavior [51]. A recycling project in Canada is also instructive, which demonstrates that positive messaging (delivered by religious authorities) helped develop significantly more positive attitudes toward recycling and the environment in general. This indicates that communications are also an important factor in the application of TPB and achieving correlative change toward pro-environmental behavior [52]. This study, along with others, also highlights the importance of education as a means for developing pro-environmental behavior, including the initiation of collective behavioral action [53].

Importantly (for this study), this new work on the TPB has focused not just on households, but also on people in the workplace. Nye and Hargreaves [54] have applied and extended the TPB to examine the extent to which pro-environmental behavior in the workplace can be generated. As Blok et al. [55] note, people spend up to one-third of their waking life at work so understanding how to bridge the gap between theory and behavior is crucial. Borg et al. [56] highlight this factor in practice by integrating Schwartz's Values Theory with Organisational Cultural Profiles, to demonstrate that the two are linked and again can help predict pro-environmental behavior, according to risk values. Another study asks whether researchers are 'counting the right thing.' By this they mean - is it relevant to assess what people are doing individually (i.e., recycling, water reduction) when greater trends such as meat consumption and air travel have much greater (proportionate) effects [57]—essentially the crux of our own study into academic travel.

The role of values is, thus, also an important pre-determinant for pro-environmental behavior and may assist in closing the gap between behavior and attitudes. As Schwartz argues, human values show what motivates people to act the way they do, especially in the context of behavioral change in relation to climate change [58,59]. The incongruities between held values can explain gaps between people's attitude and behavior in certain areas of their life, but can also help motivate the implementation of altruistic behavior [58], which in turn helps people translate aspirations into action [60]. His theory has been applied in many recent contexts: Krystallis et al. [61], for example, use it to help them understand consumer behavior in relation to various products. Rioux [62] examines the link between pro-environmental values and young people with regard to recycling batteries, which highlights the role of value systems in affecting people's behavior.

The role of attitudes is also a crucial factor, and has been investigated, via application of Ajzen's TPB, to help understand how attitudes can affect and help predict environmental behavior. Case studies provide rich insights such as Nigbur et al.'s [63] analysis of kerb side recycling that, in documenting attitudes, assisted in predicting community participation of a recycling program. Another study [64] one that sought to understand the factors motivating people in Spain to donate to rural sustainable development programs, found that attitudes were a determining factors (amongst others) in encouraging positive environmental attitudes (and altruistic behavior via donations). In the Australian city of Ballarat, the application of Ajzen's TPB, showed a correlation between positive environmental attitudes and concern about climate change with a willingness to change behavior [65].

While these ideas offer some explanation of the incongruities between and means by which to understand the relationship between attitudes and behavior of plane travel practice [1,11,16,35,66–69], these individual theories do not explain everything. Climate change is, above all, a problem of scale [69] and how it is framed will mediate individual and collective responses to it, including development of climate adaptation [70]. Cognition around climate change can be shaped by socio-physical contexts and social discourse, [71] and framed by a range of factors. For example, Persson et al. [72] argue that there is a distinct relationship between people's values and climate change adaptation. Higham et al. [68] argue this is partly because plane travel is a deeply entrenched practice, while Barr et al. [73] assert it is due to the symbolic discursive appeal of plane travel as the epitome of leisure and consumption. Plane travel behavior is also justified by arguments that there is a lack of political action by the government [30]. In this case, social pressure and norms construct travel as a social right and provide broader discursive tropes of denial that justify the inconsistency between attitudes; which ensures that any discomfort over dissonances are resolved.

Responses to climate change occur within a wide psycho-societal context and social constraints that affect individual decision-making [40,74,75]. In this case, relationships between individual academics, their institution, and wider social and familial networks are also important to justifying plane travel. For example, one position asserts the advantages of flying as a quicker, cheaper option, which enables increased time with family or work [16,74]. Furthermore, Cohen et al. [6] find that there are a number of sociological barriers to achieving more sustainable plane travel behavior, and that, while voluntary change can happen without social intervention, stronger societal interventions can facilitate a greater

likelihood of pro-environmental behavior. Higham et al. [68] concur saying that radical changes are needed to create a climate sustainable pathway. Another study shows that, despite participants undertaking individual footprint exercises that infrastructure, and social and psychological barriers to behavioral change remain, which locks people into unsustainable patterns of behavior [76,77].

Thus, an emphasis on individual change is not necessarily the best way to tackle society's relationship with climate change [78] and infrastructural/socio-cultural contexts remain key barriers (and opportunity) for the uptake of low carbon behavior like car-pooling, less plane travel, or less meat consumption. Radical change is required, change that embraces the complexities inherent to social change processes, and that address the underpinning systemic reasons why people think and act the way they do [79].

Collectively, these ideas provide background to the dynamics of decision-making and motivations for individual behavior-change (how and why people travel) that we sought to explore in our project around academic flying.

### 3. Materials and Methods

For this project, we chose a qualitative social science framework since it provides the opportunity to reveal the range of behaviors and perceptions of the participants regarding specific topics or issues [80]. Furthermore, qualitative analysis allows researchers to go beneath the surface to obtain rich, detailed information about the subject at hand and is particularly useful in policy contexts since it enables the documentation of the barriers, as well as motivating factors that may explain policy acceptance or failure [81]. We were an interdisciplinary research team, with investigators coming from the disciplines of international relations, media communications, human geography, and engineering. Using a case study of the University of Adelaide, we sought to understand why academics travel by plane, and whether these insights would shed any light on how to fulfil the commitment of the University to build its sustainability and adaptation agenda. For the University of Adelaide, academic travel constitutes almost a quarter of the total carbon budget. In 2016, for example, the University of Adelaide's flight emissions accounted for 22% of the University's total emission inventory.

The key aims of the project were to understand: (i) what is the current extent of plane travel, (ii) why academics travel by plane, (iii) identify what incentives and rewards/policies would be considered appropriate by academic staff to use less plane travel, (iv) identify the differences with regard to academic plane travel across faculties and disciplines, (v) identify other possibilities that enable more online or alternative ways of communication, and (vi) document to what extent academic staff are willing to be involved in sustainable travel. The project was approved by the University of Adelaide Human Ethics Research Committee, with the approval number H-2017-160.

#### 3.1. Data Collection

Data was collected via a quantitative survey and interviews across the University of Adelaide's five faculties and used the Universities emissions inventory as a starting point for discussions [81,82]. The survey instrument and interview questions are located in the Supplementary Materials. The use of two methods within a qualitative framework is appropriate and conventionally used together to corroborate, elaborate, establish complementarity, or identify contradictions [81]. The survey was used in a qualitative context in that we did not seek to use it to make generalised conclusions about the findings, but rather used the data to corroborate the rich data we collected in interviews and to identify complementarity and contradictions if they occurred. As such, both methods are consistent for use within a qualitative framework [81]. While there was some slight overlap, we largely used the techniques sequentially, so that one data set 'spoke' to the other. We conducted the interviews first, and then the survey. The interviews, conducted between late 2017 and early 2018, were based on a series of open-ended questions and lasted between 30 and 40 minutes. All team members conducted interviews and we ensured that staff from every Faculty and across appointment levels were represented. Table 1 summarises information about the respondents and shows that there was



a roughly equal representation of males to females, and that all levels are represented with Level E's in slightly higher numbers. At the University of Adelaide, the following classifications equate to the following: Level E: Professor, Level D: Associate Professor/Reader, Level C: Senior Lecturer, Level B: Lecturer, Level A: Associate Lecturer. Only two of those interviewed were under 40 years old. Of the remaining participants, about 50% of them were in between 40 to 50 years of age and the other 50% were in between 50–65 years in age. The number of interviews was determined by data saturation, which is a research technique in qualitative research that indicates the point in a data collection process when the responses become repetitive and no new content is uncovered by the researcher [83]. At this point, it is concluded that no new data will add further benefit or insights and information collection can be concluded [84,85]. For this project, saturation was deemed to have been reached after 33 interviews. The summary of interview questions and the survey is presented in the two appendices.

The survey was implemented via Survey Monkey between March and April 2018. This survey was useful since it enabled the collection of broad information about a topic from a select target group [86]. In qualitative research projects, surveys such as these offer additional information and triangulation with other data sources and enable the analysis of diversity (rather than distribution) in a population to assess meaningful relations between them [87].

This survey was designed to capture specific data on plane travel by academic staff, so question design drew from existing scales aimed at capturing those types of data. The final survey consisted of 20 questions, and utilized a mixture of Likert scales and multiple-choice questions. Although a confidence level of 5 would have required approximately 135 members of academic staff to undertake the survey, we again used saturation to guide us instead of working toward an arbitrary set target [67]. This meant our sample size for this project was deemed adequate after 111 people completed the survey.

### 3.2. Data Analysis

In this study, we used an inductive thematic analysis as an analytical tool to help us distill the key findings across both the survey and interviews. The use of thematic analysis was appropriate since it enabled us to capture patterns of meaning across both data sets in answer to our research queries. [80]. All team members identified themes in common and the co-occurrence of themes, within and across data sets. It is a flexible method that can be used across methodologies since it assists in understanding people's perceptions, feelings, values, and experiences. The survey results were initially generated by Survey Monkey, but we then broke down the interviews into a series of codes, which enabled us to identify patterns and themes across both data sets. For each interview, each respondent was given a number and then coded systematically according to Faculty (See Table 1).

We used a series of stages to conduct our analysis. First, we all became familiar with the data sets, and then collectively interrogated them for patterns (i.e., themes). We then coded the data and met together to assess and then agree on a final set of themes and findings. We then wrote up the results. Since all researchers were involved in the analysis of the data, and independently assessed it for meaning, validity of the results was achieved.

**Table 1.** Summary of information about participants per faculty.

Faculty	Number	Gender	Level/Scale
PROFESSIONS	6	3 Male 3 Female	1 Level E 1 Level D 3 Level C 1 Level B
SCIENCES	7	3 Male 4 Female	3 Level E 3 Level C 1 Level B
ARTS	8	5 Male 3 Female	4 Level E 2 Level C 1 Level B
ECMS	5	4 Male 1 Female	2 Level D 2 Level C 1 Level B
MEDICAL/HEALTH SCIENCES	7	4 Male 3 Female	2 Level E 2 Level D 2 Level C 1 Level B

### 3.3. Evaluation

In order to maximise research validity, we also used triangulation, which is a technique that enables data corroboration across two or more sets of data [88]. Triangulating data and results also enables the deployment of a number of different techniques to explore the same question, which enables consistency and confidence in the reporting of results [88]. In this study, we applied triangulation in our methods via our investigators (i.e., we all interrogated/analysed the data and came up independently with similar conclusions) and we used multiple sources. We also ensured that our project met the criteria set by Lincoln and Guba [89] for trustworthiness in qualitative research. These criteria are: (i) credibility, (ii) trustworthiness, (iii) dependability, and (iv) confirmability. Overall, the advantage of using multiple techniques and then having multiple researchers co-conduct the analysis meant that valid and replicable documentation of the different perspectives on the issue of academic travel was documented. Results for the survey are presented first, and then the interviews.

## 4. Results

### 4.1. The Survey

A total of 111 academics participated in the survey and, as shown in Table 2, a broad spread of faculty representation was achieved.

**Table 2.** Faculty representation in survey results.

Answer Choices	Responses	
Faculty of Arts	20.72%	23
Faculty of Engineering, Computer and Mathematical Sciences	9.01%	10
Faculty of Health and Medical Sciences	11.71%	13
Faculty of the Professions	24.32%	27
Faculty of Science	34.23%	38
TOTAL		111

A majority of those who participated are academics that are teaching and research active, and a broad spectrum of levels and varying degrees of experience are represented, with 60% of participants identifying as teaching and research academics and 65% having worked for the university for more than 10 years. Table 3 shows that a range of all academic levels was represented in the survey.

**Table 3.** Range of participant levels.

Answer Choices	Responses	
A	8.11%	9
B	17.12%	19
C	32.43%	36
D	23.42%	26
E	18.92%	21
TOTAL	11	

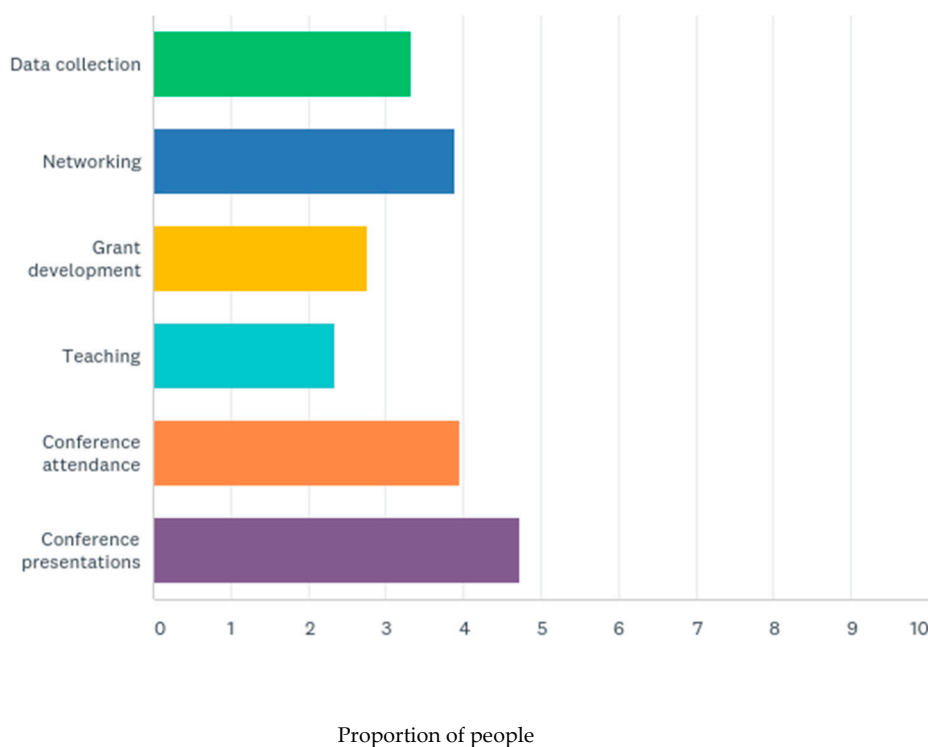
When asked whether they were concerned about the climate impacts of academic plane travel, 59% of participants asserted they were and 41% said no to this question. Of those who took the survey, 72% of participants stated they used plane travel at least once in 2017 to travel overseas for academic business. Of that number, 33% asserted they had travelled once, 15% stated that they had travelled twice, 8% had travelled three times, and 10% asserted they had been overseas more than 5 times. Additionally, 65% of the participants noted that these answers represent the normal rate of international plane travel that they do each year to conduct their academic business. When considering domestic plane travel rates, as Table 4 shows, there is more differentiation in relation to frequency of travel. However, overall, 85% of participants identified that they undertake some domestic plane travel every year.

**Table 4.** Participant rates of domestic plane travel in 2017.

Answer Choices	Responses	
None	14.68%	18
Once	16.51%	18
Twice	21.10%	23
Three times	13.76%	15
Four times	7.34%	8
Five times	4.59%	5
More than five times	22.02%	24
TOTAL	109	

Participants were also asked to rank, in order of importance, the reason why they travel by plane for work (illustrated in Figure 1). Presenting and attending conferences was ranked as the most important, followed by networking and data collection activities.





**Figure 1.** Reasons why academics travel on planes.

When asked whether participants think that plane travel is essential in order to help them do their job effectively, 94.5% answered that they think it is.

Furthermore, and importantly to our findings, in relation to the likelihood of achieving any behavioral change, the survey showed that 95% of our respondents believed that plane travel that they do each year will help them gain a promotion.

However, as Table 5 shows, participants are prepared to use alternatives rather than travel to conduct academic duties outside of Adelaide, and these range from video conferencing, to taking other forms of transport such as train or bus.

**Table 5.** Use of alternative travel options and ways to conduct work without travelling.

Answer Choices	Responses
University video conferencing	4.17% 4
Skype or other online video conferencing	50.00% 48
Phone link-up	16.67% 16
Used interstate train or bus services	3.13% 3
Google docs	3.13% 3
Webinar	1.04% 1
Zoom	21.88% 21
TOTAL	96

#### 4.2. Interviews

The interviews we took corroborated and added rich detail to the broad synthesis provided by the survey. We have chosen to provide indicative or representative quotes from many to give voice to the key themes that were synthesized from the analysis of all interview transcripts. In the following

section, we provide a thematic synthesis of our key findings, and use various (indicative) quotes to provide a vivid representation of the academic voice in this project.

### 4.3. Factors Motivating Academics Re-Travel

#### 4.3.1. Travel Is Essential to Academic Work

Our first key finding is that 100% of respondents think that plane travel is essential to doing a good job/fulfilling one's job. To be a successful academic:

I think it's demanded of us. If I do not demonstrate international travel, then I would have to say why ... I actually have to find some sort of rationale for why I am not travelling. If you are not, if you are not playing on an international field, then you are not playing. (Arts. 8)

I think you need some travel. I do think it is unavoidable. It is part of the core business, because our real core business is knowledge generation. We generate something you are obliged to spread it and disseminate and the very effective way of doing this is just through personal networks and conferences and to stay in the forefront of your fields, and this is something we can not apologise for. (ECMS. 4)

Others noted that, when they had been (or were still in) executive or administrative positions, international travel was similarly crucial.

I find this a hard thing to talk about. For the role, I think it is really important. I do not think you can be the Executive Director of an international organisation and not travel. (Med Sc .1)

#### 4.3.2. Travel Is Essential to Promotion

As the following quotes highlight, the belief that travel was essential to achieving a promotion was a common theme and articulated by 29 of the 32 respondents. Most participants believed that existing institutional policy frameworks, such as the University's Strategic Plan (and other plans), essentially reward staff that travel and build international networks and reputations. Of those interviewed, 18 respondents believed that international travel had actively helped forward their career.

I know people who have had promotions get turned down because they do not have international connections, so the next year they have gone to three conferences and applied again, and they have been successful. (Prof. 5)

Therefore, international travel is important for your grants. It is important for promotion. It is important for how you are recognised in the academic community. (Arts. 8)

#### 4.3.3. Face-to-Face Matters

The belief that face-to-face matters was a common theme across faculties:

Because I mean you do not go to conferences ... you do not go really to give the paper. You really go to meet the amazing people and you cannot do that remotely. (Prof. 6)

What we achieve in those two or three days when we are all together in one room, it would just be incredibly difficult to do remotely and the dynamic shifts when you are face-to-face with someone ... I think some of that human relational stuff is very difficult to overcome using other strategies. (Med Sc. 1)

Human-to-human contact at meeting after meeting after meeting ... you almost cannot beat that. (Arts. 4)

#### 4.3.4. Barriers Incentivising Staff to Travel Less

During the interviews, 19 participants discussed what barriers existed to help staff reduce plane travel, which ranges from technological barriers, managing the scale of the problem, and discussions around changing people's behaviour.

I think the barriers are still technological. I think most of us have—do consider the consequences of what we do, I think we are fairly reflective people by nature but if we need to travel, you know, to do our core business as we were saying earlier, many of us will not have many hesitations, I think. (ECMS. 2)

I see a lot of similarities in changing people's environmental behaviours along with changing people's health behaviours . . . —I mean if people cannot even think within their own lifetime about their own health, you know, thinking about the planet is quite a big stretch for people to see. It takes quite a big philosophical commitment I think to keep that in there every day front and centre in their lives. (Med Sc. 7)

Some participants said that the barriers were institutional, and that change needed to begin with commitments from Senior and executive staff.

I suspect that a lot of the problems are within middle and senior, and I reckon at the executive level, people I reckon people will be flying all over the place . . . that's where the wastage would be. . . . in terms of incentive, the incentive really has got to . . . come to Heads of School because they would approve of the travel. (Arts. 7)

Three respondents simply said that there would be no incentive great enough to stop them traveling, as highlighted by the following indicative quote.

I do not see what incentives you could add that would stop me from traveling, simply because I need to do it as part of my job. So, I mean the incentives would have to be something astronomical for you to see it as a benefit. (Sc. 7)

Two other factors emerged as important drivers in academic travel: isolation and fun. The literal isolation of not only Australia, but often Adelaide in particular, was commonly cited by respondents as a rationale for travel and was raised by 11 of the respondents across all faculties.

Otherwise you are isolated in your own little city or your own little country and you are not getting an opportunity to interact with the people who, you know, the broad range of people who are the movers and shakers in your field. (Med Sc. 6)

I think, I am very, very sympathetic to efforts of the university to reduce carbon emissions and reduce travel but I think the nature of being in one of the most isolated universities in the world—it's a very small city in a country that is very isolated already means that you have to be visible overseas. We will struggle because we are so isolated. (ECMS. 4)

One reason cited is that travel is fun, which emerged as offering significant motivation/rewards that offset the pressure of academic work overall. This factor was openly raised by eight of the respondents.

I love to travel, love to see the world, love meeting other people. I think lots of people like travel for that reason. (Med Sc. 1)

I think internationally academia's a pretty dry job a lot of the time. You spend a lot of the time in front of a book or in front of a computer and I think it is a little bit of our reward, honestly, is that international relationships, those things that money cannot buy . . . . (Arts. 4)

#### 4.4. Ethical Responsibility of Academics

As noted above, one part of the interview process considered the motivations incentivising academic plane travel, but the other part of the interview explored academic positionality with respect to climate change. Overall, responses reveal a wide-ranging concern about climate change but very little inclination to change travel behaviour.

##### 4.4.1. Concern about Climate Change

When asked about whether climate change was an issue, 100% of the respondents agreed they were worried about it, as reflected by this indicative quote.

Look, I am very concerned about climate change. That is clearly an enormous issue and we are not doing too well trying to combat it at the moment. (Med Sc. 6)

However, this concern does not necessarily translate to a preparedness to change flying habits:

Well okay, if I am being really honest, yes, it worries me but probably it has not changed my behaviour because I would put myself in the camp of people who is worried about climate change. My general everyday life tries to engage in activities to avoid car use, look at options at home, but, when it comes to plane travel, I guess, I try and give myself a bit of a free pass. I am not as bad as all those people that jump on planes constantly. (Med Sc. 7)

In some cases, this was because they did not believe their action would make a difference—the plane is flying anyway, so it does not really matter:

... while I am not an economist, you are going to get a bit of an economist rationalist approach from here. There are bazillion planes going all the time and there is a spare seat in every one of them. You know an extra 85, 90 kg is not going to make any difference. That would be my approach. (Prof. 4)

##### 4.4.2. Individuals Express **Skepticism about Capacity for Change**

Associated with the discussion of climate change, four respondents argued that the real task was convincing the university to address its wider environmental impacts. Yet almost all those interviewed (28 people), who were worried, were skeptical about the capacity for individual academics to change anything, and further, of whether the university would invest in wider environmental initiatives anyway.

I guess if there was some sort of policy or interest in it, they could do things like electric cars for the university cars. I just cannot see it happening, to be honest, because they are expensive ... Lights are always on, like sometimes the lights go on and off so they are trying to minimise that. Paper use is huge, always will be, I think. The travel, yeah, I think people would balk at the travel. (Arts. 8)

Reducing travel was not seen as an answer as clearly articulated by one respondent.

If we apply this self-denying ordinance that we are not going to travel, we may be cutting off all sorts of other initiatives that might be excellent for improvement in human welfare. (Med Sc. 6)

This skepticism was mirrored in discussions about the utility and legitimacy of carbon offsets.

Offsets, well I am concerned about green washing or psychological sort of tricks that we might play on ourselves to think that we did something good for the environment so now we can just consume again ... the idea of offsetting in order to maintain one's lifestyle strikes me as wrong handed. (Prof. 4)

#### 4.4.3. Guilt

Five respondents, however, did discuss the issue of guilt in relation to the climate impacts of academic plane travel. Some felt guilty by their plane travel but did it anyway, as stated by the following.

Yeah, yeah. It is probably not something that people think about much because there is such an imperative to travel for your job—so we do it and try and not feel guilty about the air miles. (Arts. 8)

Other participants did not feel guilt at all.

It never would have occurred to me to worry about it. The university, I think, does some things, which at times I think are just stupid in terms of the environment, but I never thought about plane travel. (Med Sc. 4)

However, many people spoke about the importance of ensuring that when they travel, they do so for multiple reasons.

A really important principle for us in this faculty is, when you travel, is how many things can you do. So, we will hardly ever, very rarely travel and do one thing. (Prof. 4)

Others spoke of combining travel with personal activities, such as seeing family.

I came from Canada over two decades ago, so I have aged parents in Canada who I am now consciously trying to see more often. So, I get there at least once a year, usually on the backside or foreshore of one of these other trips. (Prof. 4)

#### 4.4.4. Using Alternatives

Nonetheless, academics do utilise some alternative modes to undertake their work with 100% of the respondents saying that seeking alternative ways of doing business was important. A range of tools, including WhatsApp, Zoom, and Skype are used to supplement academic work. The ethics of travel was a common theme and all respondents agreed that it was an issue worth discussing and three respondents felt that academics had a special role to play in trying to promote less travel, as the following quote shows.

Academics are no different to the rest of the population in terms of their sort of ethical responsibility for reducing travel. [But] as a particular group, if they are working in climate change, yes, I suppose there is some sort of hypocrisy if they are using more resources and trying to suggest that the world should sort of slow down. (Arts. 5)

However, not all academics felt, in fact, that academics had any personal responsibility to take a leading role in this matter nor that universities had any extra imperative to do so.

If we are only 1% of the problem, it does not make sense to just overreact to what we do. It might make sense to cut back a bit, but we do not need to cut back entirely. (ECMS. 1)

Another respondent expressed the need for trade-offs.

The irony, obviously, is that I am a climate researcher focusing on climate and the impacts of climate change on society and that sort of stuff. I think my core philosophy is really about maximising the net benefit of the work that I do and so this is the trade-off . . . It is that trade-off between how much damage I do to the planet by existing and doing my job versus whether I do something useful. (ECMS. 4)

## 5. Discussion

These results reflect a fundamental disconnect between individual academic behavior and what could be perceived as an ethical responsibility to moderate it. In effect, while academics may worry about their impact on climate change, they fear the career consequences of not flying or reducing their flying for academic purposes even more. This is consistent with studies that show career matters more than the environment [90] and that geographic mobility is essential to achieving academic excellence [7,91]. As Young et al. [92] note, it is ironic that “those demographic groups most aware of environmental damage produced by flying (such as tertiary educated, affluent, middle aged people) are also the group most likely to be frequent flyers.”

This has direct implications for how tertiary institutions, which wish to be seen as building knowledge and sustainable solutions about climate change. However, obtaining commitments from the academe to reduce plane travel is challenging. As Smythe [93] notes of her university in the US, as academics assume that plane travel will be offset and paid for by the university, they do not consider reducing their travel. In an analysis of academic mobility across three New Zealand universities, Hopkins et al. [7] find that there is a lack of meaningful commitment to sustainability, and those assumptions about travel or pressure to travel for promotion and to network, inhibit opportunities for behavioral change. Glover et al. [6] similarly find that, although some Australian universities have sustainability policies, none have committed to specific measures to reduce plane travel as part of their policy. Changing current mobility practices will entail taking less convenient and more time-consuming types of transport, which makes academics fear being ‘left behind’ in a fast-moving ‘hypermobile’ professional world. For academics, there is also the intense psychological appeal of what Høyer [10] terms ‘conference tourism.’

Ultimately, the concepts around environmental sustainability do not appear to be applied in practice—or even considered in a conscious way, in this context. This study not only confirms a gap between attitude and behavior, but offers insights into and consideration of what role tertiary educational institutions play in progressing climate friendly sustainability agendas. In this context, our study shows that academics assume that there is little utility in individualizing notions of environmental harm and responsibility, since, as Young et al. [94] (p. 22) point out, the flyers dilemma then “becomes a discursive device through which an unsustainable industry can increase production without shouldering material responsibility. The flying addict scapegoat becomes a necessary precondition for the reproduction of aero mobility.” Nonetheless, we argue that there are ways (via identity, proximity, and role modelling) of contextualizing and incentivizing individual behavior in a collective way within the workplace to build sustainable institutional change practices.

### 5.1. Identities

We suggest that personal identity plays a pivotal role in decision-making over whether to over-ride both cost and environmental concerns in relation to travel [95]. We all have multiple identities and it is the contest between them that often results in dissonant behavior “where actions do not meet the requirements of the identity ‘script,’ the individual will need to reason with themselves about why their behavior is acceptable” [95] (p. 1007). Or people may feel guilty but appease it by drawing on other identities to justify their behavior. Our results highlight the fact that staff at the University of Adelaide felt that their identity as a successful academic was contingent on being able to travel. This demonstrates how identity plays an influential role in how we navigate the attitude/behavior gap and how people conceive of themselves (i.e., the ‘self’ [22] (p. 94)). This attachment to academic identity, was also shown in the prioritization of promotion and staff unwillingness to ‘rock the boat’ by trying different ways of doing things. The desire to achieve and make a specific academic contribution alludes to the importance of having individual identity in disciplinary spaces.

Our results also show the power of such institutionally based/prescribed ‘role’ identities, defined as “self-definitions that individuals apply to their identities as a consequence of the structural role they have” [96] (p. 198) or as “internalized role expectations” that is linked, therefore, to performance [97]



(p. 285). The role individuals play, thus, encapsulates a cluster of expectations that are considered the 'right way to behave' by others, in particular, *institutionally based* others, especially within their discipline [98,99]. In our study, the constellation of reasons given by staff about their travel (as Dean, as Professor, etc.), also reflect the institutional expectations of them as well as their desire to fit into their structural roles. Role identity (both personal and structural) can, thus, have a significant impact on behavioral intention, and be mediated not just by individual orientations, but social norms. This has implications for how universities may grapple with managing this dilemma.

### 5.2. Proximity

Our results also reveal the importance of proximity. Hales and Caton [100], who examine the role of proximity ethics on the 'flyer's dilemma,' argue that the tension between positions on climate change and travel are intertwined with our need for proximity, that is, the desire to have intimate face-to-face contact with others in our family, social, and professional domains. As our findings highlight, all academics **asserted the irreplaceability of face-to-face interactions** (eg. at conferences, field work) for their work. Unsurprisingly, given more than 30% of the staff at the university were born outside of Australia, many staff also discussed the need to travel for family reasons. Furthermore, while staff showed strong willingness (and in some cases, experience) to trial virtual alternatives, their advantages were not considered enough to offset the value of direct experience nor were technocratic solutions seen to be able to provide for the underlying relational complexities of face-to-face interaction. The 'moral pressures' of a hypermobile life, combined with the need to fly for family and work-related reasons show that proximal relations, or face-to-face interactions, drive motivations for and toward climate change care and responsibility [100]. Thus, while changing cultural values (to ones that valorize pro-environmental behavior) may offset the desire to travel by plane [16], the importance of face-to-face interaction has wider implications for how leaders within university institutions think about how to create climate-friendly means of doing academic work.

### 5.3. Institutional Leadership and Role Modelling

Lastly, the intersection of all these factors raises the question of how staff could be incentivized to change their behavior so it is more environmentally-sustainable, or whether the inherent value of academic work, and the ways in which travel reinforces identity and proximal relations justifies flying. Do academics have an ethical responsibility to advocate sustainable behavior change? Hickel et al. [101] reflect on this question in relation to the carbon cost of 6000 anthropologists attending the yearly anthropology conferences. They conclude that it is not morally justifiable because the 900 kg carbon emissions per person attending the conference is equivalent to more than twice that emitted by a citizen of Bangladesh in a whole year. They add that this carbon expenditure is, in fact, contrary to the Anthropology Society's own ethics code, which makes explicit statements about ensuring anthropological work does not compromise the people for whom they advocate/study with and for. They conclude: "by insisting on our carbon-intensive annual meeting, we are effectively saying that our surplus pleasure (if it can be called that) is ultimately worth more than the survival of the very people we claim to care so much about. This is not a morally tenable stance" [101].

Nevins [3] also challenges the practice of 'academic jet-setting' to conferences, and asks whether, in so doing, academics perpetuate the social and environmental injustices they often seek to redress in the papers they give. Others argue that it is incumbent on researchers and institutions both to be role models for the global community and change their travel practice as well as institutional policy about it [15,102–107]. This is a real change possibility: a study of what factors affect pro-environmental behavior (PEB) of individuals in the workplace found that leadership behavior that provided organizational support to pro-environmental behaviors, positively affected both the intention to act, and the pro-environmental behavior of staff [108]. This finding suggests that role modelling can be a catalyst for motivating individual pro-environmental behavior.

One might usefully ask at this point, what kinds of solutions could there be for this dilemma? Various ideas have been touted as opportunities to create such change: increasing the cost of travel as a way of forcing academics to prioritise travel is one. Dolsak and Prakash [103] suggest making carbon footprint data (as with salary information) publically available, or establishing an internal carbon tax [103]. In Australia, the Australian Research Council, a national body that dispenses research monies annually could add a carbon test to its national interest test to spur academics to think about and reduce their carbon impact. In the development of Strategic Plans, all universities could actively explore ways of changing the discourse, practice, and metrics around what constitutes career progression within the university sector, so that staff who choose to travel less, yet still perform at high levels are competitive when they seek promotion opportunities. Active investment in climate smart technologies that will significantly reduce the need for much face-to-face travel is another option. Another solution may simply be to ‘mainstream’ the issue of staff plane travel within a wider organizational sustainability agenda. As Blok et al. [55] highlight in a case study of a university in Holland, institutional action on sustainability across the organization does promote pro-environmental behavior in staff.

Institutions could adopt travel guidelines within each faculty, which make academics think about and make judicious decisions about their travel. The lead author of this paper, for example, always asks a series of questions prior to deciding which travel opportunities to take—and forgo, including: (i) is the travel essential?, (ii) can it be done in any other way?, (iii) can someone else at that location do the task?, (iv) how long and how far away is the location (and therefore proportionate benefit to climate miles expended) and, (iv) is it possible for value to be added to the travel undertaken? Collectively, the asking and answering of these questions has meant that the travel that does get undertaken has value and weight, and that, while academic work expectations are largely met, there is, overall, significantly less travel undertaken each year that would otherwise occur.

In this way, role identities could potentially be reshaped by institutional reform: individuals will incorporate the organizations expectations within their own self-identities to reflect the characteristics of their workplace. Organisations that have the power to enact examples of social responsibility, combined with active ethical leadership, will motivate their employees to do the same [101,109,110].

#### 5.4. Seeding the Conditions for Radical Change

The development of ethical leadership at institutional levels makes connections between individual attitudes and behaviors with wider societal frameworks and trends. This bridging between systems and values potentially creates the circumstances for innovation and transformation within and between institutions. We need to see what other ideas may fertilise a move toward pro-environmental behavior in relation to academic travel. While individual change undoubtedly has power, there is a need to shift the emphasis from individual guilt and blame, to a discourse of forward-looking responsibility, including one that focusses on institutional rather than individual responsibility [111]. It is naive to simply assert that plane travel should ‘simply stop’—and we are specifically *not* advocating this per se. Given the power that institutions have to shift discourse and potentially behavior, however, there are opportunities to mobilize collective action on climate change [112] and change organisational expectations.

Van de Peol et al. [94] (p. 63) note that a ‘problem of many hands’ occurs if there is a gap in a responsibility distribution in a collective setting that is morally problematic. An example of such a problem, climate change has collective effects, and responsibility for both the problem itself and its solution is widely and often unevenly distributed [113]. This is a paradox in that, if no-one is meaningfully asked to be accountable for the impacts after the event, then, no one need feel responsible beforehand. Thus, a collective institutional response and action on academic plane travel could upset what is so often a normative discourse of ‘right and wrong’ and incentivise transformative individual pro-environmental behaviors by role modelling them at an institutional scale. As Doan [112] (p. 550) asserts: “Instead of acting as though an absence of clear solutions absolves us of responsibility for participating in collective action, loosely structured groups might take their shared ‘not knowing’

... as a starting point for generating provisional, working diagnoses, for building their individual and collective problem-solving capacities together.”

## 6. Conclusions

For academics, the issue of flying for work remains a real dilemma and the requirements of the academic profession conditions individuals to rationalize the gap between their attitudes and behavior and reduce their dissonance regarding their flying practices [3,5–7,15,92,114,115]. International collaborations with colleagues remain crucial for career success, and the integral role of academia in knowledge production, including, ironically, knowledge concerning climate change, are significant drivers to continue business as usual. Plane travel enhances academic identity, and aviation-related mobility helps academics build their professional capital and chances for promotion. Academics, thus, need to be supported to get over their ‘fear of not flying’ by provision of alternative ways that do not compromise their careers and research, and, in a way, that will motivate them to implement them.

While (as suggested above) individuals do have the power to reduce or moderate their plane travel, we suggest that the academe could, more broadly, respond to the challenges wrought by professional aeromobility in radical ways. Resistance by institutions to the exploration of alternative ways of doing business has, to date, created a structural and large-scale inertia to tackling climate change impacts caused by staff plane travel. However, leaders within academic institutions have an opportunity to drive institutional reform agendas that will embed ethical choices about sustainability and academic travel, and empower and reward individuals to become climate-smart travelers.

**Supplementary Materials:** The following are available online at <http://www.mdpi.com/2071-1050/11/9/2694/s1>, Box 1: Broad Interview Schedule, and Box 2: The Survey Instrument.

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