

Online Supplement

Oswald, L., & Ernst, A. (2020). Flying in the Face of Climate Change: Quantitative psychological approach examining the social drivers of individual air travel, *Journal of Sustainable Tourism*, <https://www.tandfonline.com/doi/abs/10.1080/09669582.2020.1812616?journalCode=rsus20>

Scales in Questionnaire

Table 1

Scales included in the questionnaire

Scale	Number of items
Attitude towards flying ¹	6
Problem awareness of the environmental impact of flying ¹	5
Environmental attitude ^{1,3}	15
Common human identity ^{2,4}	5
Social norm to travel ²	4
Professional norm to travel ²	5
Social pressure to travel ²	7
Perceived dilemma between environmental attitude and flying ¹	3
Subjective norm of flying ¹	4
Perceived Control - travel mode and destination choice ¹	3
Desire to fly ^{1,5}	3
Openness for alternatives to flying ¹	6
Experience of negative effects of flying ¹	5

*Note.*¹related to the Theory of Behaviour Choice or Theory of Planned Behaviour (TPB, Ajzen, 1991); ² subscales of the Cosmopolitan Identity Scale (CIS).³ (Roser-Renouf et al., 2008). ⁴ (Reese, 2016). ⁵(Gifford et al., 2018). **Changes to scales after factor analysis / item analysis.**

Scales ranging from “strongly disagree” to “strongly agree” – measured on sliders (1 – 101)

*Reversed item

Scales Used in Analysis

Attitude towards flying (6 items)

1. Flying to foreign continents is good.
2. Taking long-haul flights is not acceptable.*
3. One should always choose train, bus, or car travel over air travel.*
4. I refuse to fly.*
5. Flying should be more expensive.*
6. Flying to foreign countries is an unquestionable right of everyone.

Attitude towards flying

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	54.3	29.48	-0.16	0.96 (0.000)	0.54	0.65	0.76
0.00 %	62.35	30.47	-0.36	0.93 (0.000)	0.62	0.65	0.76
0.00 %	34.85	30.93	0.63	0.90 (0.000)	0.35	0.54	0.78
0.00 %	78.65	31.29	-1.36	0.74 (0.000)	0.78	0.52	0.79
0.00 %	34.51	34.81	0.69	0.85 (0.000)	0.34	0.62	0.76
0.00 %	52.53	34.2	-0.13	0.92 (0.000)	0.52	0.43	0.81

Mean inter-item-correlation=0.414 · Cronbach's α =0.806

Problem awareness of the environmental impact of flying (4 items)

1. Longhaul travelling causes serious harm to the environment.
2. For the same distance, the carbon footprint of flying and driving is almost equal.*
3. Flying is the most environmentally harmful behavior.
4. As a society, we all must reduce our flying frequency.

Problem awareness

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	77.8	24.48	-1.12	0.86 (0.000)	0.77	0.58	0.61
0.00 %	77.81	26.79	-1.09	0.83 (0.000)	0.77	0.38	0.71
0.00 %	54.96	33.38	-0.17	0.93 (0.000)	0.54	0.51	0.65
0.00 %	76.35	29.42	-1.15	0.81 (0.000)	0.76	0.55	0.62

Mean inter-item-correlation=0.389 · Cronbach's α =0.712

One item was dropped due to low item discrimination.

Environmental attitude (“summary item” = number of selected items)

“Please indicate which of the actions listed below you currently do.” (Roser-Renouf & Nisbet, 2008)

- Use less energy at home (lights, air conditioning, heat)
- Use less gas (by driving less or getting a more fuel-efficient car)
- Buy products made from recycled paper or plastic
- Buy environmentally friendly products
- Buy products that use less packaging
- Have a simpler lifestyle that uses fewer products
- Recycle at home
- Take fewer trips by plane
- Buy organic food
- Boycott companies with bad environmental records
- Remind others to be environmentally conscious
- Vote for candidates with the best environmental records
- Donate to organizations that support environmental causes
- Join an environmental organization

Common human identity (5 items, Reese, 2016)

1. I feel strongly connected to the world community as a whole.
2. It is important for me to define myself as a part of the world community.
3. I feel strongly connected to the members of the world community.
4. I am aware to be part of the world community.
5. Being part of the world community is an important aspect of my identity.

Common Human Identity

<i>Missings</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>	<i>Item Difficulty</i>	<i>Item Discrimination</i>	<i>α if deleted</i>
0.00 %	58.64	29.41	-0.27	0.58	0.81	0.87
0.00 %	55.29	31.51	-0.15	0.55	0.79	0.87
0.00 %	55.22	29.1	-0.19	0.55	0.81	0.87
0.00 %	75.71	24.85	-1.01	0.75	0.62	0.91
0.00 %	53.54	31.64	-0.14	0.53	0.75	0.88

Mean inter-item-correlation=0.644 · Cronbach's α=0.901

Social norm to travel (7 items)

1. One should see as much of the world as possible.
2. We should travel while we are young.
3. Most people who are important to me have recently taken longdistance flights.
4. Most people like me approve of longhaul travel.
5. Most people who are important to me refuse to take longhaul flights. *
6. Most people like me would never choose a travel destination that can only be reached by aircraft. *
7. Most people who are important to me prefer to use alternative travel modes instead of flying. *

Social Travel Norm

<i>Missings</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>	<i>Item Difficulty</i>	<i>Item Discrimination</i>	<i>α if deleted</i>
0.00 %	58.4	28.98	-0.26	0.58	0.51	0.65
0.00 %	64.14	30.77	-0.54	0.64	0.51	0.65
0.00 %	40.52	28.6	0.35	0.40	0.48	0.66
0.00 %	72.4	27.24	-0.9	0.72	0.44	0.67
0.00 %	72.93	26.38	-0.9	0.72	0.41	0.67
0.00 %	60.54	30.65	-0.47	0.60	0.30	0.70
0.00 %	43.07	30.35	0.31	0.43	0.28	0.71

Mean inter-item-correlation=0.258 · Cronbach's α=0.706

According to factor analysis results, three more items were assigned to this scale (e.g., from the subjective norm scale which was no longer considered independently)

Professional norm to travel (6 items)

1. Having travel experience is an important unstated qualification.
2. My career options improve when I am open to travelling a lot.
3. Openness for geographical mobility is a main requirement for success.
4. Successful people travel a lot for their jobs.
5. I should have at least one long-term international experience.
6. People judge me based on my travel experience.

Professional Travel Norm

<i>Missings</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>	<i>Item Difficulty</i>	<i>Item Discrimination</i>	<i>α if deleted</i>
0.00 %	42.44	29.72	0.26	0.42	0.61	0.64
0.00 %	49.9	33.37	-0.12	0.49	0.58	0.65
0.00 %	51.74	28.15	-0.18	0.51	0.42	0.69
0.00 %	40.57	29.15	0.19	0.40	0.46	0.69
0.00 %	59.19	33.46	-0.41	0.59	0.35	0.72
0.00 %	30.3	27.27	0.61	0.30	0.34	0.72

Mean inter-item-correlation=0.304 · Cronbach's α=0.724

According to factor analysis results, one more item was assigned to this scale.

Social pressure to travel (6 items)

1. I think I did not travel enough to be interesting.
2. I wish I would have traveled to more exciting places.
3. I feel ashamed that I have traveled less than most others.
4. I am impressed by people who travel a lot.
5. I feel bad when I cannot take part in conversations about some travel topics.
6. I feel social pressure to travel the world.

Social Travel Pressure

<i>Missings</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>	<i>Item Difficulty</i>	<i>Item Discrimination</i>	<i>α if deleted</i>
0.00 %	20.72	27.58	1.45	0.21	0.45	0.61
0.00 %	41.14	33.01	0.34	0.41	0.43	0.62
0.00 %	13.1	19.77	2.07	0.13	0.57	0.60
0.00 %	47.34	31.2	0	0.47	0.29	0.67
0.00 %	32.17	31.41	0.79	0.32	0.38	0.64
0.00 %	31.94	29.29	0.68	0.32	0.37	0.64

Mean inter-item-correlation=0.273 · Cronbach's α=0.671

Perceived dilemma between environmental attitude and flying

1. I perceive a mismatch between my environmental attitude and my travels.
2. I feel bad about the emissions caused by my flights.
3. I feel guilty for the environmental problems caused by flying.

Dilemma

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	56.78	33.24	-0.24	0.92 (0.000)	0.56	0.52	0.89
0.00 %	65.72	34.41	-0.63	0.87 (0.000)	0.65	0.75	0.66
0.00 %	59.05	34.84	-0.32	0.90 (0.000)	0.58	0.75	0.66

Mean inter-item-correlation=0.596 · Cronbach's α =0.817

Subjective norm of flying (0 items, all included in social norm)

Perceived Control - travel mode and destination choice (4 items)

1. Whether I take a long-distance flight or not is up to me.
2. I am in control of my travel destination choices.
3. I am in control of my travel-mode choices.
4. Whether I take a flight or not is determined by factors beyond my control.*

Perceived control

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	74.18	29.52	-1.02	0.84 (0.000)	0.73	0.40	0.64
0.00 %	82.63	22.4	-1.57	0.80 (0.000)	0.82	0.46	0.60
0.00 %	73.1	26.26	-0.82	0.90 (0.000)	0.72	0.55	0.53
0.00 %	67.82	29.92	-0.67	0.90 (0.000)	0.67	0.41	0.63

Mean inter-item-correlation=0.344 · Cronbach's α =0.667

One item removed due to low item discrimination.

Desire to fly (1 item measure left after item analysis)

1. Flying to foreign countries is just something I desire to do.

Openness for alternative travel modes (3 items)

2. I am an experienced user of trains or busses.
3. I actively look for alternative ways to get somewhere.
4. When I go on a trip, I am open to conquer long distances by other travel modes than airplane.

Remove current viewer item

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	75.4	30.14	-1.08	0.82 (0.000)	0.75	0.38	0.74
0.00 %	62.02	33.89	-0.38	0.90 (0.000)	0.61	0.61	0.44
0.00 %	71.91	29.47	-0.91	0.87 (0.000)	0.71	0.54	0.56

Mean inter-item-correlation=0.420 · Cronbach's α =0.687

Experience of negative effects of flying (4 items)

1. I feel stressed from travelling.
2. I would like to spend more time at home.
3. I sleep badly while travelling.
4. I feel lonely while traveling.

Negative effects

Missings	Mean	SD	Skew	W(p)	Item Difficulty	Item Discrimination	α if deleted
0.00 %	27.76	26.88	0.92	0.88 (0.000)	0.27	0.56	0.51
0.00 %	34.72	27.39	0.54	0.93 (0.000)	0.34	0.34	0.66
0.00 %	29.66	29.98	0.87	0.87 (0.000)	0.29	0.47	0.58
0.00 %	20.19	23.29	1.39	0.82 (0.000)	0.20	0.43	0.61

Mean inter-item-correlation=0.331 · Cronbach's α =0.662

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