Ready for take-off? Effectiveness of Different Green Communication Strategies in the Aviation Industry

The influence of evidence type and eco-label type on willingness to pay for sustainable kerosine

Johannes H. Hinkel

Bachelor Thesis

University of Twente-

Faculty of Behavioural, Management and Social sciences (BMS)

Supervisor: drs. M.H. Tempelman

Submission date: 1st of July 2022

Abstract

Objective: The study at hand deals with the effectiveness of different communication strategies related to convincing travellers to embrace green initiatives. The goal was to examine how the use of different message contents would influence the willingness to pay for sustainable kerosene for potential passengers. **Method:** To answer this question, a 2 x 2 experimental design was created, using videos as the stimuli. The videos differed with regards to evidence type (emotional vs. factual) and the sender of an eco-label (EU vs. airline association), resulting in four different videos. It was examined to what extent these two design factors can influence the trustworthiness, credibility, and consumer attitude of an airline. Lastly, a connection between evidence type in combination with label type and the willingness to pay for sustainable aviation fuel was studied. **Results:** The results of this study suggest no connection between the design factors and the dependent measures. The mean scores of the dependent measures barely differed within the sample and showed no statistical significance. Eventually, this research discusses possible reasons for the insignificance of results and provides implications for future research.

Keywords: SAF, evidence type, eco-label, sustainable aviation, behavioral change

Table of Contents

1 Introduction

Planet earth is in the middle of a climate crisis. However, this was not discovered yesterday. For many years already, companies but also people in their private life try to tackle that problem by changing their behavior. But while companies' actions towards sustainability are sometimes rather marketing-driven (Cislak et al. 2021) and can therefore often be considered greenwashing, the actions of a single person to stop climate change are limited, and, looking at the sizes and environmental impacts of certain companies and industries, by far not as impactful. Hence, it can be concluded that large industries and the reduction of their environmental impact is key to tackling climate change as a whole.

But which particular sector is most relevant? How can sectors be prioritized? It sounds logical to look out for the industry with the largest impact on the environment. Transportation causes most of the CO2 emissions with around 27 % (Lee et al., 2009). The aviation industry, however, is only responsible for around 2.5 % (Lee et al., 2009). However, one should not make the mistake of assuming that all focus should therefore be given to other modes of transportation. Sectors like ground transportation might cause more CO2 but already have good alternative sources like electric cars and solar energy and are therefore expected to become more sustainable at a faster pace (Baumeister, 2020). So far, this is not the case for the aviation industry. Hence, one should not only look at plain numbers when forming opinions about industries regarding sustainability.

The aviation industry has received less attention in terms of more sustainable operating than other industries. While the aviation industry grows around 5 % every year (Baumeister, 2020), researchers focused on developing solar energy or electric cars. And although airplane technology became much more efficient since the beginning of commercial flights, technology has now reached a point of saturation (Baumeister, 2020) meaning that a new aircraft design would be needed to live up to the expected growth of the industry (Åkerman, 2005). However, Green (2003) claims that even in a scenario in which these required airplanes could be developed, the implementation of the required infrastructure at all relevant and less relevant airports would take decades. There is, however, still hope for the aviation industry to make flying more environmentally friendly without the existence of new, more efficient airplanes. Airplanes in the near future and already now can fly with sustainable aviation fuel- SAF.

SAF is essentially environmentally (more) friendly kerosine. This alternative fuel is made from used cooking oil, waste, or plants, for example (Ng et al., 2021). SAF possesses similar characteristics as conventional aircraft kerosine and can therefore simply be added to

it without further adaption (Ng et al., 2021). Mark Corbett, the founder of tech company Thrust Carbon, stated at the Advantage Travel Partnership's annual conference in April 2022 that "A 50 % blend [of SAF] with traditional aviation fuel yields about an 80 % reduction in emissions on a flight, which is fantastic and a big step towards net zero." While on the one hand enthusiastic about this new, promising option, on the other hand, he still reminds the audience that SAF is "not quite zero". With all these benefits in mind, one might ask why sustainable aviation fuel has not received much attention yet. The main reason for that is its comparatively high price.

SAF is more expensive than conventional aircraft fuel. To be concrete, it can be two to eight times more expensive than traditional kerosine (Ng et al., 2021). This surcharge must be paid by someone. Since airlines are commercial and must perform according to the benefits of their shareholders, the vast majority are not willing to pay more than they need. The goal is to offer a fair price for the service they provide. Paying more for sustainable fuel, a service that is not visible to the passenger, does not seem to be of interest to most airlines. So far, governments or other institutions have not created any incentives for airlines to start using more sustainable aviation fuel. If that does not change in the near future, someone else needs to pay the price if the global impact of aviation should be mitigated.

The most promising approach according to scholars is to make the passenger pay the surcharge for SAF. Baumeister (2020) calls this desired development a "behavioral change" in the passenger. This behavioral change is seen as promising because airlines will try to keep their prices as low as possible (if no incentives are given) while the awareness and willingness to pay of the average consumer for sustainable consumption grows. Baumeister (2020) also claims that behavioral change has received little attention in the literature so far. This paper will address the question of how consumers can be influenced when buying a flight ticket to voluntarily pay more for the use of sustainable aviation fuel.

To influence consumers effectively, the aviation industry needs to develop communication strategies. These communication strategies, in return, can consist of text, visuals and, if the chosen medium allows it, music. A medium allowing to transport all these things is the video. It gains even more relevance when looking at a study by Lu & Wang (2018) who found that video media improved the environmental knowledge concerning aviation and carbon offsetting. Videos appear to be effective in communicating a certain message because it includes all audio-visual aspects. But other elements can also be included.

Another element that can be of relevance, especially for sustainability causes, are eco-labels. Whereas the history and research of eco-labels, in general, is extensive, only a few

studies (e.g., Baumeister & Onkila, 2017) have discussed the influence and effectiveness of eco-labels in the context of aviation. This may be because there is simply no eco-label on the market that certifies the sustainability of a flight. The EU, however, is planning on launching such a label in 2022. Therefore, the effectiveness of this EU-driven label can be studied a few years from now. Little is known so far about this label and its design. It is also not known whether IATA (The International Air Transport Association) ever planned on launching an eco-label themselves. Moreover, the effectiveness of an IATA-label could be questioned due to potential greenwashing accusations. The question of whether a label of a democratic institution in comparison to a label of an industry association like IATA will be addressed in the paper at hand. But not only an eco-label can be employed to convince potential passengers of more sustainable flying.

It is also how information is presented to passengers. As already mentioned, communication strategies need to be developed to impactfully educate passengers about their options. This information can be transported in different ways, though. Individuals are confronted with different ways of information transportation on a daily basis, in an advertisement for example. Most commonly, the evidence types marketers make use of are either emotional or statistical (factual) evidence (Hoeken & Hustinx, 2009). Since this field is rather unexplored, this distinguishment in evidence types also poses a question that needs to be answered in the long run. If passengers need to be informed, it is of high relevance to study what the most effective way is.

Overall, the possibilities that sustainable aviation fuel entails seem promising. Little is known about how to persuade passengers in that regard, but videos appear to be able to do so. An eco-label can potentially support claims, but how information is presented should not be left aside. Therefore, the research question addressed in this paper goes as follows:

RQ: To what extent do different eco-labels and different evidence types in videos influence passengers' willingness to pay more for SAF & the perception of credibility, trustworthiness, and attitude.

2 Theoretical background

As already depicted in the introduction, scholars see the most promising solution to more sustainable flying in evoking a change in the behavior of the passengers. Multiple other attempts have been introduced in the past decades without ground-breaking success. These attempts will be discussed in more detail during this theoretical framework.

When it comes to evoking a change in passengers' behavior, several predictors must be considered. How can this change in behavior be reached? How can potential passengers be led in a certain direction when buying a plane ticket? All potential questions will be discussed in this framework. First, environmentally friendly behavior and its natural barriers will be discussed. Afterwards, past initiatives concerning more sustainable flying will be examined. Deriving from these, the dependent variables measured in this study will be introduced. Consequently, the independent variables (the design choices) will be introduced, and hypotheses will be formulated. Since the study at hand was designed using a 2 x 2 design, interaction effects will also be discussed. The following hypotheses are concluded in a research model.

2.1 Environmentally friendly awareness & its natural barriers

The extent to which an individual reflects ones' behavior regarding consequences for the environment is considered to be one of the main predictors of willingness to pay for ecological purchases. This assumption is supported by many studies carried out in this field.

One might argue that it simply sounds logical that the more a person cares about their behavior concerning the environment, the more they also act like it. However, this assumption neglects the existence of relevant barriers to sustainable behavior.

Price can be seen as one of these barriers to sustainable behavior. One might be aware of their actions and how these negatively influence the environment, but simply lack the financial opportunities to do differently. Compared to the "original" product, the sustainable alternative is often more expensive (Keulemans & van de Walle, 2017). The surcharge consumers need to pay for more sustainability can be considered a problem.

This often negatively impacts peoples' opportunities for sustainability. In a study carried out in Greece, Tilikidou (2007) found that people are more inclined to choose an eco-friendly alternative if the price is comparable to the traditional version of the product. Kaklamanou et al., (2015) support this finding. In their study, it was tested whether proactive ecological behavior by an airline can work as a differentiation strategy. In their sample,

almost half of the participants (47 %) stated that they believe in the positive effect of carbon offset (Kaklamanou et al., 2015). However, only 20 % of all participants indicated that they had paid for carbon offset before (Kaklamanou et al., 2015). Hence, many people know about the possibility and effect of carbon offsetting, but the minority has acted upon it. Possibly, this can be explained by the fact that 66 % of that sample mentioned that they consider the ticket price as an important factor in their purchase decision (Kaklamanou et al., 2015). One might therefore conclude that individuals might be aware of the consequences of their behavior for the environment, but that the higher price that often comes along with it puts many people off, at the same time.

After acknowledging the impact of product price on sustainable behavior, environmental awareness will be examined in more detail concerning the aviation industry. Although higher prices for more sustainability might put people off, environmental awareness still impacts the extent to which people are willing to pay more. Logically spoken, this makes sense. Why would someone who knows nothing about the environmental consequences of flying and the possibilities of carbon offsetting be willing to pay for it? Brouwer, Brander, & van Beukering (2008) found that Asian air travelers' low willingness to pay for compensating their carbon emissions could be traced back to their lack of knowledge about the impact of flying on the environment. Lu & Shon (2012) support this finding. They stated that if passengers possessed no knowledge about carbon offsetting, their motivation to pay for it would be reduced notably. In a follow-up study, Lu & Wang (2018) tried to create media tools to educate passengers about the impacts of flying as well as the principle of carbon offsetting. After creating these tools and using them to educate passengers, the attitudes and intentions of passengers were measured. One relevant finding was that video media improved the environmental knowledge concerning aviation and carbon offsetting better than the use of card briefings (Lu & Wang, 2018). Moreover, it was stated that improving participants' knowledge in that area can increase their awareness and cause them to address and act upon these impacts. Hence, the extent to which people are educated about aviation and its environmental consequences impacts their attitude towards flying in general and concepts like carbon offsetting.

Concerning the willingness to pay for carbon offsetting, it can be concluded that it is notably influenced by the price and the knowledge. Studies have shown that people are especially willing to pay for more sustainable options if it does not higher the price of the product. Other studies have also shown that people with higher concern for sustainability are

also willing to pay more for a sustainable option. The extent to which people are aware of the environmental consequences of their behavior is relevant to predicting their purchase behavior. Therefore, environmental friendliness will also be measured in this research and treated as a co-variate variable for willingness to pay. Therefore, a sub-question (SQ1) of this research is:

Environmentally friendly behavior will positively influence willingness to pay.

2.2 Airline initiatives

Trying to counter the effects of aviation on the environment is no current trend. For many years, different actions have been undertaken to tackle these environmental issues. What has changed over the past couple of years, though, is the growing demand for green offers concerning aviation (Baumeister, 2020). According to Baumeister (2020), green demand and green offer must be brought together. Currently, the demand is bigger than the offer. But that has not always been the case.

The beginnings of commercial aviation can hardly be compared to the status quo. The technical abilities and efficiency of airplanes were nowhere near the current standards (Baumeister, 2020). Therefore, the technological developments during the four decades following the 1950s could make up for the rapid growth of the industry which kept aviations' impact on the environment constant (Green, 2003; Penner et al., 1999). However, the more developed technology became, the harder it was to find new impactful technologies (Baumeister, 2020). According to Gössling & Peeters (2007), the efficiency potentials were almost fully exhausted by the beginning of the 2000s. Since then, a few other approaches were taken.

Second, market-based changes were implemented through taxes, charges, subsidies, or emissions trading (Daley, 2010). However, several studies declared the effect of these changes ineffective (see for instance Lu & Morrell, 2001; Scheelhaase & Grimme, 2007).

Third, operational changes were seen as a potential solution. According to Baumeister (2020), operational changes refer to working more efficiently in the operation of aircraft. Inefficiencies, in that case, can be caused by certain regulations and systems that, for example, force airplanes to spend more time in the air than they would need to. And although Penner et al. (1999) found that efficiency improvements could reduce fuel usage by 6 to 12%, the act of implementing such changes would require collaboration between systems that are

currently fully independent of each other. Hence, the problem at hand could not be solved by operational changes, either.

Fourth, regulatory changes were put to the test. These regulatory changes "have mainly focused on the certification of engines and certification limits imposed on newly-manufactured engines" (Baumeister, 2020, p. 2009). However, these regulatory changes are widely critiqued for several reasons. First, the original ICAO (International Civil Aviation Organization) certification standards for plane engines ignored CO2, the most relevant pollutant (Daley, 2010). Secondly, the carbon offsetting scheme that was introduced after that was criticized for being voluntary and solely focusing on CO2 emissions, neglecting other pollutants (ICAO, 2017). Overall, regulatory changes could also not lower aviations' emissions significantly.

With that being said, scholars see the most promising approach in evoking behavioral changes in the passengers. Every kind of modification of human behavior can be regarded as behavioral change. Looking more closely into the context of sustainability, Kollmuss & Agyeman (2002) define behavioral change as "behavior that consciously seeks to minimize the negative impact of ones' actions on the natural and built world" (p. 240). And although scholars regard behavioral change as promising, this approach is also one having received little attention in the literature so far (Baumeister, 2020). But in what particular area should this behavioral change occur regarding aviation and the environment?

Whereas one might argue that people should be encouraged to fly less, for example, the most efficient way to provide more sustainable flying opportunities is the use of sustainable aviation fuel, also called SAF (Rains et al., 2017). SAF is a more sustainable fuel compared to traditional kerosine. It can be made from waste, used cooking oil, or plants (Walker, 2020). Using SAF instead of conventional fuel can reduce carbon emissions of a flight by up to 80 % (Walker, 2020). However, the low demand, as well as the (more) expensive production costs, make SAF and its potential unknown as well as expensive. Producing SAF in comparison to conventional kerosine costs two to three times as much (Walker, 2020). So far, airlines have shown little to no willingness to pay for this more sustainable method themselves.

And this is where the potential of behavioral change can be connected to the potential of sustainable aviation fuel. Airlines do not voluntarily pay more for sustainable fuel, yet. Several studies have shown that passengers would be willing to pay for more sustainable aviation (Rains et al., 2017; Hinnen et al., 2017; Rotaris et al., 2020). Hence, the willingness of passengers combined with the advent of more sustainable fuel offers a promising step

toward emission-free aviation. However, as already mentioned, a behavioral change regarding sustainable flying has received little attention in the literature so far. Therefore, the paper at hand aims at reducing that gap and finding motivational factors influencing potential passengers in their willingness to pay for SAF. It is also interesting to study peoples' general willingness to pay for SAF since it is not a well-known fuel. Therefore, one sub-question of this paper (SQ2) is:

How much are people willing to pay for sustainable aviation fuel?

But not only willingness to pay is interesting to study. Airlines engage in these initiatives for several reasons. It can be argued that they do want to lower the environmental consequences of their operations, but it is also a welcomed tool to polish their reputation (Baumeister, 2020). Airlines with high environmental engagement try to differentiate themselfes by showing this off. This, however, does not solely influence the passenger's willingness to pay for sustainable actions. It also impacts the way passengers perceive credibility, trustworthiness, and attitude towards the airline. Hence, credibility, trustworthiness, and attitude towards the airline are the dependent measures of this research next to willingness to pay.

2.3 Willingness to pay

Eventually, whether participants would voluntarily be willing to pay for sustainable fuel is the focus of this study. Without the (financial) help of passengers, it is very unlikely that airlines pay for SAF themselves, unless being forced to do so. The question if and to what extent participants of the study at hand would be willing to pay for sustainable fuel will be posed towards the end of the study. At this point, the participant has seen one of four different videos. With willingness to pay being treated as one of the dependent variables, it will then be possible to tell what factors can influence it and to what extent. For fluent reading purposes, willingness to pay will sometimes be referred to as WTP.

When it comes to existing literature, scholars have found relevant connections between certain factors and the willingness to pay for sustainable flying. As already discussed earlier, the extent to which an individual behaves themselves environmentally friendly in the first place influences their willingness to pay for sustainable flying. In numerous studies, this assumption has been confirmed (see for instance Araghi et al., 2016; Choi, 2015;

Sonnenschein; Smedby, 2018; Brouwer et al., 2008). However, not only environmentally friendly behavior proved to be a good predictor of willingness to pay for sustainable aviation.

As highlighted in the preceding section, the extra charging for sustainable products can be a barrier for people to act sustainably. Hence, one might assume that the higher the income of a person, the more they will be willing to pay for sustainable flying. In numerous studies, this assumption is confirmed, too (see for instance Araghi et al., 2016; Cheung et al., 2015; Fatihah & Rahim, 2017; Lu & Shon, 2012). Although this does not seem surprising, passengers still voluntarily pay for more sustainability and therefore still need to be convinced to do so. Therefore, whether income has an impact on how well manipulations work for certain people will also be measured in the study at hand.

Apart from environmental consciousness and income, four other predictors for willingness to pay are constant elements in existing literature regarding willingness to pay for sustainable aviation. Namely, these four predictors are travel frequency, age, education, and gender. What is interesting to see about those four variables is that the findings of scholars differ in their impact on willingness to pay.

For travel frequency, Araghi et al. (2016), Jou & Chen (2015), Brouwer et al. (2008), and Choi & Richie (2014) found a positive connection between the number of flights a person takes per year and their willingness to pay for more sustainability. The rationale behind this connection can be considered as the following: “I fly often, therefore I have to make up for it.” However, Blasch & Farsi (2012; 2013), as well as Sonnenschein & Smedby (2018), found the exact opposite. In their studies, people who took more flights were less willing to pay for environmental actions. Here, the rationale would be described as: “I fly often, therefore it would cost me a lot of money to make up for it.” Scholars cannot find common ground regarding the effect of travel frequency on willingness to pay. In the context of this research, it will also be measured, and its effects discussed.

In terms of age, the findings differ, too. Fatihah & Rahim (2017) claim to have found a positive connection between age and WTP. Hence, they state that the older a participant in their sample was, the more they were willing to pay. However, many other studies that examined the impact of age on WTP suggest differently. Blasch & Farsi (2012; 2013), Lu & Shon (2012), as well as Schwirplies et al. (2019) found a negative connection between the age of a participant and their WTP. In their samples, younger participants were likely to pay more for sustainable flying (it is worth mentioning that every participant was at least 18 years old). This supports the claim made by many scholars that younger generations tend to be more aware of environmental consequences and are therefore willing to pay more. Overall,

scholars are not unified concerning the impact of age on WTP, but the majority claim that the younger a person, the more likely they are willing to pay more for sustainable aviation.

In addition, education is often captured in studies regarding WTP. Again, the existing literature is not consistent in describing the influence of education on WTP. As described earlier, the extent to which individuals are environmentally aware influences the way they behave. But to be aware, at least a certain basic knowledge about what is good and bad for the environment must be acquired. Hence, education and access to that knowledge can be of relevance. This claim is supported by Cheung et al. (2015) who found that the higher the degree of education was, the more they would be willing to pay for more sustainable flying. To potentially support or reject this claim, education will also be captured in the study at hand.

Lastly, gender can play a role in WTP. Whenever existing studies found a relationship between gender and WTP, it was always the connection that males were less likely to pay for sustainability. This relation was found by Choi & Ritchie (2014), MacKerron et al. (2009) and Sonnenschein & Smedby (2018). Rice et al. (2018) also studied the relationship between gender and WTP and confirmed the existing findings of women being willing to pay more for sustainable aviation. However, they add to it by stating that this connection was more prominent for domestic compared to long-distance flights (Rice et al., 2018). Overall, women seem to be more willing to pay for more sustainable aviation. This willingness may, however, depend on the distance of the flight.

To conclude, there are numerous factors potentially influencing the WTP. Environmental awareness has been found to be a good predictor and so have income, education, and, in some studies, gender. Travel frequency and age can also influence WTP, but not always positively, according to existing literature. To check how all these potential predictors for WTP play out in the study at hand, they will be captured by demographic questions. For a clearer overview of studies, variables, and their respective influence on WTP, see Appendix IV.

Knowing that airlines take certain initiatives and that WTP can be regarded as crucial for the fulfilment of these initiatives, airlines need to come up with a good communication strategy. A good persuasive communication strategy is key to convincing the passengers to pay for SAF. These communication strategies can consist of text & claims, but they can also include other content elements, such as eco-labels, for example. Before discussing the use of eco-labels, the evidence type will be discussed in the following as one of the content elements.

2.4 Evidence type

Information can be presented in different ways with different evidence types. Evidence, in this case, is defined as "data (facts or opinions) presented as proof for a claim" (Dillard & Pfau, 2002, p.429). However, this data can be presented in a variety of different ways. In this study, this data are two different types of videos that participants will see. These videos both address the impact that flying and the resulting emissions have on the environment. However, the videos differ in the way that they present this information. Depending on the focus that the creator of a medium has, messages can be communicated in different ways.

The act of highlighting different aspects of the same message can be crucial when trying to convince the audience. Highlighting different aspects of the same message is commonly known as the concept of "framing". Framing describes the action of highlighting certain bits of information in a specific matter and thereby elevating them in salience (Entman, 1993). The way in which messages are transported greatly influences the way they are perceived (Entman, 1993). This kind of power that the creator of, for example, a video possesses was important for this study to see whether one type of information presentation would be more effective than another. In the following, the two types of presenting information will be explained and examined regarding their success according to existing literature.

An interesting distinction to study is the difference between anecdotal and statistical evidence. In existing studies, the word 'emotional' is sometimes also used when describing anecdotal evidence. Simultaneously, statistical evidence is also often referred to as 'factual' evidence. This wording was adopted in the study at hand. According to Freling et al. (2020), anecdotal evidence can be considered as "narratives, personal anecdotes, case histories, personal stories, and testimonies" (p.51), whereas "statistical evidence is broadly defined as empirically quantifiable information about objects, persons, concepts, or phenomena" (p. 51). Both directions have their specific purposes and uses.

Freling et al. (2020) carried out a meta-analysis examining 61 existing studies regarding the use of statistical vs. anecdotal evidence. This meta-analysis concluded that no method of presenting information is superior to the other. However, the authors found that the overall difference in the effectiveness of anecdotal vs. statistical presentation is dependent. The effectiveness seems to depend on the extent to which an individual is involved with the topic in doubt. Precisely, Freling et al. (2020) state that when emotional involvement engagement

is high, statistical evidence appears to be less impactful. Situations with high emotional involvement are considered as problems regarding an individuals' health or issues associated with a severe threat, for example. In return, when emotional engagement is low (e.g., low threat severity, involving a non-health issue), statistical evidence seems to work more effectively. Although one might assume that self-relevant decisions will be made with greater rationality, Freling et al. (2020) refute this assumption. They claim that decision-making is more biased and less rational if they affect oneself. Decisions for others, in return, are made by more thorough information search and processing (Freling et al., 2020). Hence, there is no suggestion that statistical or anecdotal evidence works better than the other, it depends on the topic and context.

However, statistical vs. anecdotal evidence can also be examined in more detail regarding the topic of sustainability. Although literature tailored to this specific question is limited, a few studies addressed it. Kim et al. (2012) tested how people could be convinced that the retreat of glaciers (in a specific example) was caused by deforestation rather than global warming. Statistical, as well as anecdotal information, was given to participants. In their specific research, the statistical evidence proved to be more effective in changing attitudes than the anecdotal one. Hinnant et al. (2016) support this finding in a study about risk perceptions of environmental issues. They also confirmed the statistical evidence was more effective than the anecdotal one. Overall, though, literature specifically tailored towards the use of anecdotal vs. statistical evidence regarding environmental issues is limited, but for the ones existing, the statistical approach appeared to be superior to the anecdotal approach. Hence, H1 is the following:

Communication strategies using statistical (factual) evidence will result in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, and d) willingness to pay for SAF as compared to messages using anecdotal (emotional) evidence.

2.5 The use of eco-labels

The second factor that will differ in the manipulations of this study is an eco-label. An eco-label can be considered as a tool that should facilitate the information search of the consumers concerning the environmental quality of the product (Chamorro and Bañegil, 2006). When taking part in the study, participants were confronted with one of the two eco-labels that were designed for this study. One is supposed to be sent from a democratic

institution (in this case the EU), and one from the industry (in this case the international airline industry). The reason for choosing these two will be elaborated on in the following.

The effect of eco-labels can vary depending on their trustworthiness. Existing literature suggests differences in consumers' perceptions of an eco-label depending on the sender. Brécard (2017) found that consumers struggle to evaluate existing eco-labels for different reasons. First, there are many eco-labels present in the market (Brécard, 2017) and it is hardly possible for the average consumer to be familiar with all 460 certified eco-labels. Secondly, many eco-labels seem to be certified by an unknown third party, leaving the consumer with skepticism about the true nature and intention of the label (Brécard, 2017). Hence, one might argue that there should be fewer eco-labels and they should also be certified by a unifying, well-known, independent body. Horne (2009) conducted an analysis suggesting that labels created by governments are generally preferred over any other type of label. It is concluded that governments hold a crucial, supportive role in the development of all eco-labels (Horne, 2009). Hence, the mass of existing eco-labels hinders their desired effect on the customer and, as the literature suggests, should be controlled by an independent source.

The reason for skepticism towards eco-labels certified by an unknown third party can, however, also be traced back to the concept of greenwashing. Greenwashing is considered as a behavior of a company performing poorly in terms of sustainability but at the same time communicating positively about it (Delmas & Burbano, 2011). Essentially, they try to wash their image green. Since the awareness of more sustainable behavior has witnessed an impressive increase in the past decade, more and more companies jump on the bandwagon by promoting their products with green initiatives (see for instance Mögele and Tropp, 2010; Leonidou et al., 2011; Testa et al., 2011). This development entails problems.

On the one hand, companies utilize green claims in promoting their products more and more (Testa et al., 2011). On the other hand, however, consumers tend to become resistant to these claims because they doubt the reliability and question the nature of these claims (Testa et al., 2015). Being skeptical about the green claims, in return, leads to consumers steering their purchase intention away from greener products (Banerjee and Solomon, 2003; Oates et al., 2008). Testa et al. (2015) state that this "distortive effect generated by misleading claims" (p. 4) could be countered by implementing a generally accepted and reputable certificate including rules and promising consumers the provision of all necessary and trustworthy information.

Overall, eco-labels are very present and can be found on a variety of different products. The fact that they do not have to be certified by one main, independent body leaves room for interpretation behind every product carrying such a label that consumers are presented with. Due to the mass of eco-labels, consumers fail to trust these and tend to often not purchase greener options. Many studies criticize the rising number of eco-labels and suggest a controlling authority. Moreover, the literature suggests that eco-labels presented by a known, independent authority, like the EU, perform better in terms of trustworthiness and credibility. Based on the literature assessed in this section, H2 is:

Communication strategies using an EU-label will result in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, and d) willingness to pay for SAF as compared to messages using the industry label.

2.6 Moderators

In addition to the two design factors and the co-variate environmental friendliness, other factors might be of interest. As discussed before, the use of different labels and evidence types can influence people. However, making generalizations about these influences is hard. This can be traced back to the individual personality of every human being. Some people make more emotional decisions, while others might rely on stone-cold facts when facing an important decision (Seo & Barrett, 2007). It can be argued that people who are prone to emotional decision-making are more impactfully influenced by the emotional video and vice versa. Therefore, the extent to which people tend to make decisions out of their emotions is captured in the main study. Therefore, H3 is:

The extent to which a person is prone to emotional decision-making will moderate the effect of evidence type.

The same argument can be made for the label condition. Some individuals are more easily influenced by external factors like labels and others rely on the knowledge they possess and make their decision based on it (Beretti et al., 2009). The extent to which people are influenced by labels potentially impacts the effectiveness of the design factor label type. Therefore, H4 is:

The extent to which a person is intrinsically or extrinsically motivated moderates the effect of eco-labels.

2.7 Interaction effects

As mentioned before, the field of behavioral change in the aviation industry is still quite unexplored. The combination of design factors utilized in this research has not occurred in this particular field. Hence, there are no existing studies that could be consulted when trying to hypothesize about an interaction effect. Thus far, the theoretical background suggested a positive influence of the EU-label (in comparison to the industry label) and statistical evidence (in comparison to the emotional evidence) on the dependent variables. Therefore, the assumption can be made that the combination of these two factors will also have the highest impact on the dependent variables in comparison to any other combination. Since there is not enough literature to formulate a hypothesis on interaction effects, it will be an exploratory sub-question of this research. This sub-question (SQ3) is:

Do different manipulations of evidence type, and eco-label interact?

2.8 Conceptual research model

In the following, the research model (Figure 1) and the formulated hypotheses and sub-questions (Table 1) of this research are presented.

Figure 1

Conceptual research model

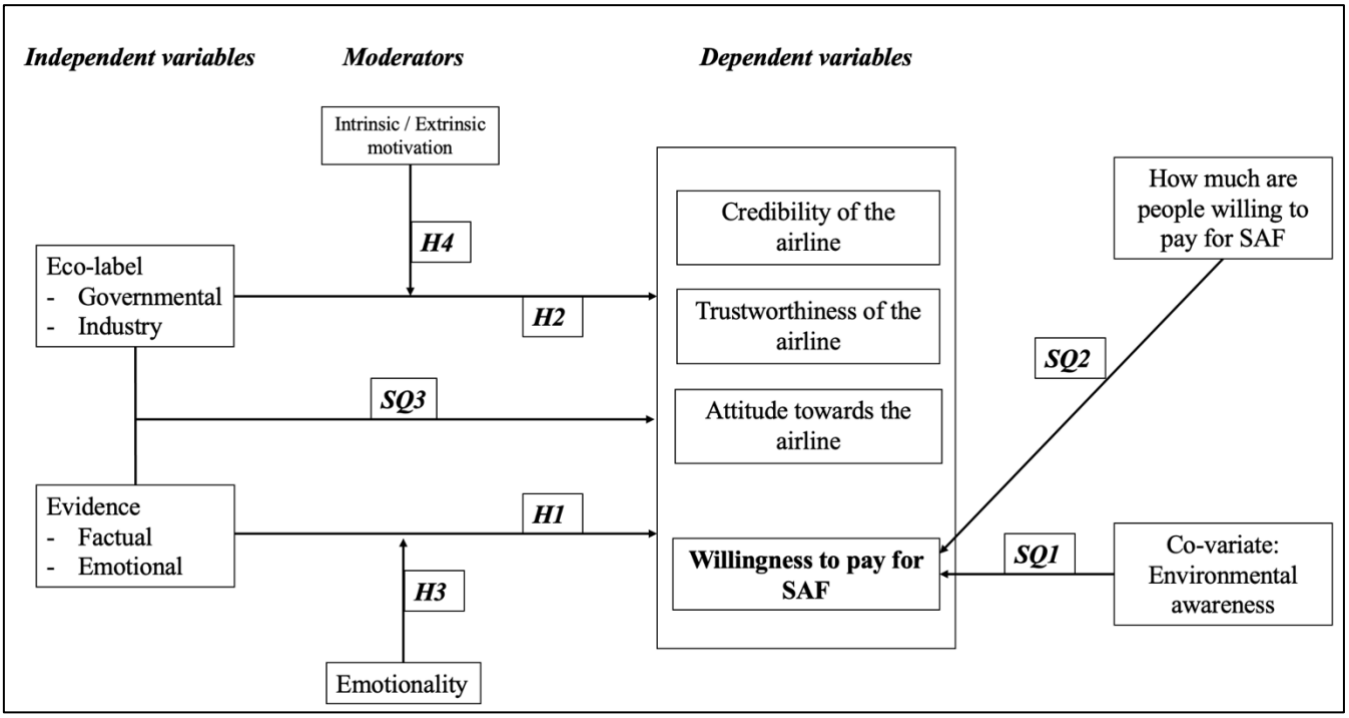

Table 1

Hypotheses & questions overview

Hypotheses and questions	
H1	*Communication strategies using statistical (factual) evidence will results in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, d) willingness to pay for SAF as compared to messages using anecdotal (emotional) evidence.*
H2	*Communication strategies using an EU-label will results in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, d) willingness to pay for SAF as compared to messages using the industry label.*
H3	*The extent to which a person is prone to emotional decision-making will moderate the effect of evidence type*
H4	*The extent to which a person is intrinsically or extrinsically motivated moderates the effect of eco-labels.*
SQ1	*Environmentally friendly behavior will positively influence willingness to pay.*
SQ2	*How much are people willing to pay for sustainable aviation fuel?*
SQ3	*Do different manipulations of evidence type and eco-label interact?*

H= Hypothesis

SQ= Sub-question

3 Method

The paper at hand aims at providing new insights into how evidence type, and eco-labels can influence the purchase intention of air-travel passengers. These design factors were tested in a hypothetical scenario, in which a potential passenger was shown a video before paying the ticket. To ensure the effectiveness of the chosen design factors, a pre-test was conducted (Appendix I). Based on the pre-test, the final stimuli were created. After doing so, the main study was carried out utilizing an online survey to study how participants react towards those stimuli.

3.1 Research design

This research studied how certain factors influence purchase behavior. In order to test the formulated hypotheses, a 2 x 2 experimental design (Table 2) was employed. The independent variables in this case were the design factors. The first design factor was evidence type. It was distinguished between "emotional" and "factual" evidence. The second design factor was eco-label. Here, the differentiation was between an eco-label sent from the EU and an eco-label sent from the airline industry. The hypotheses were tested by randomly assigning one of the four stimuli to all participants. Using a 2 x 2 study design allowed to examine how evidence type and eco-label influenced the willingness to pay. The independent variables were also used to examine their influence on other dependent measures, namely: Credibility, trustworthiness, and attitude towards the brand. In addition, a potential interaction effect between the two independent measures was studied. Participants were both male and female and between the ages of 16 and 65.

Table 2
Stimuli conditions

		Evidence type	
		Emotional	*Factual*
Eco-label	*EU*	Emotional video & EU label	Factual video & EU label
	Airline industry	Emotional video & airline industry label	Factual video & airline industry label

3.2 Stimuli design and pre-test

The stimuli employed in the study at hand were manipulated messages. These manipulations were based on the two independent variables: Evidence type and design as well as sender of the eco-label. Since both independent variables had two options, the final stimulus material consisted of 4 different types of videos (Table 2).

In this research, these four different videos were used to examine their influence on consumers choices concerning voluntary payment for more sustainable kerosine. Before seeing one of the four different videos, however, every participant was shown a short introductory video, explaining the scenario they should imagine themselves in. The videos all had the same message by highlighting the importance to pay for sustainable aviation fuel. However, these messages were framed differently (emotionally vs. factually) and presented by a different sender and eco-label (EU vs. industry). The videos as well as both labels were solely created for the purpose of this research and are no real eco labels. In the following, the elements of the videos will be discussed in more detail.

3.2.1 Evidence type

When it came to the evidence type, several factors were of importance. When using a video as stimulus, visuals, voice-over, as well as the background music must be considered. In the theoretical background, the relevance of studying the difference between emotional and factual evidence was highlighted. Consequently, it had to be ensured that the two different evidence types fundamentally differed from each other. The emotional video is described in Table 3 and the factual one in Table 5. The music is not listed in the tables because it did not change throughout the shots. In the emotional video, a slow, melancholic background music was chosen to align with voice-over and visuals. In the factual video, the music was neutral, and almost a bit playful. The links to the final videos can be found in Table 4. The collection of all videos (including the pre-test videos) can be found in Appendix III. The effectiveness of the evidence type was measured in a pre-test in section 3.2.3.

Table 3

Flow of the emotional video

Time (in seconds)	Voice-over	Visuals
0:00-0:30	Label introduction	Either EU or industry label
0:30-1:00	"Have you ever questioned your daily consumerism and how it affects the environment? Have you ever asked yourself what world you will leave your children and their children once you are gone?" […]	Pictures of a beach full of plastic waste followed by a slow motion shot of children playing on a field.
1:00-1:30	"One main consequences of travelling are people who lose their homes due to natural disasters. But it doesn't have to stay like this…you can contribute"	Pictures of a house swimming away in a flood followed by a shot in which the viewer sees the spoken words "You can contribute".
1:30-1:45	"SAF can be made of out waste and used cooking oil and reduces carbon emissions significantly"	Icons for waste and used cooking oil appear to support the voice-over visually.
1:45-2:10	"Thank you for watching this video. And thank you for contributing to sustainability. It is much appreciated"	Slow motion shot of a child that puts its thumbs up and starts smiling followed by the final zoom-in on the eco-label.

Table 4

Links to videos of main study

Customer journey final version	https://youtu.be/L-L-UoMEH9I
Stimuli 1 (EU, emotional)	https://youtu.be/RskUSQYdmtg
Stimuli 2 (EU, factual)	https://youtu.be/5zpTuDQtCE4
Stimuli 3 (Industry, emotional)	https://youtu.be/V_C5Syi2XkQ
Stimuli 4 (Industry, factual)	https://youtu.be/YhMtJkKhALo

Table 5

Flow of the factual video

Time (in seconds)	Voice-over	Visuals
0:00-0:30	Label introduction	Either EU or industry label
0:30-1:10	"To inform you about environmental add-ons, we kindly ask for your attention now. Currently, aviation causes around 2 % of global CO2 emissions. This amount is still small in comparison to other sectors […]. But these sectors already have good alternative energy sources and technologies […] allowing them to become more sustainable at a faster pace."	An animation where a hand draws an airplane and a truck and adds the respective CO2 emissions.
1:10-1:30	"So, what exactly is our goal? No increase in carbon emissions despite of traffic growth. These goals might seem contradicting, but it is possible but the use of sustainable aviation fuel- SAF"	An animation where a hand draws arrows pointing up and down to represent the growth and the reduction of CO2 emissions. The words "sustainable aviation fuel" appear eventually.
1:30-1:50	"SAF is a cleaner substitute of the conventional fuel […] and is derived from an alternative feedstock made out of used cooking oil, for example. SAF can simply be added to existing fuel without any adaption needed"	An animation where a hand draws up the sources and characteristics of conventional fuel and sustainable aviation fuel.
1:50-2:00	"SAF is made from 100 % waste and residues. It reduces CO2 and non-CO2 emissions and is available now"	The words that are said in the voice over are written in text while a small airplane is flying from left to right on the screen.
2:00-2:30	No voicer over, text only.	Text saying "Using SAF instead of conventional fuel reduces CO2 emissions by up to 80 %. Thank you for your consideration" followed by the final zoom-in on the eco-label

3.2.2 Eco-label

In terms of the eco-label, other factors had to be considered. As already mentioned, in one condition it was a label created and shown by the EU. In the other conditions, it was a label created and shown by the airline industry. The benefit of choosing this distinction was highlighted in the theoretical background. For research purposes however, it was of utmost importance that the participant can easily identify those labels and their respective sender. To do so, the stars of the EU flag were the core element in the design of the EU label (Figure 2). For the industry label, it was ensured that an individual could easily recognize the topic by making an airplane most prominent in the design (Figure 3). However, not only the design of the two labels differed.

The way in which the labels were introduced before the video started were different, too. When a participant was presented with the EU-label condition, the voice over would emphasize that the label was created in agreement with all EU-states and even the EU parliament is shown for a few seconds to remind the participant of what the EU is and does. When a participant was presented with the industry-label condition, the voice over would emphasize that the industry came up with this label in consultation with all relevant airlines. To highlight this, a graphic including numerous airlines was shown.

The labels were shown on full screen at the beginning and the end of the videos. During the video, it was shown in small in the top-right or bottom-left corner of the screen. Since both design factors could be perceived subjectively by the creator, a pre-test was conducted before the designs ended up in the final study.

Figure 2 - EU Label

Figure 3 – Industry label

3.2.3 Pre-test

To see whether the created videos and design would be perceived in the intended way, a pre-test was conducted. In a pre-test, a smaller (compared to the main study) sample is asked to evaluate the qualities of the stimuli. In this case, the pre-test should determine three things. Firstly, it should be checked whether the scenario presented to the participant was perceived as realistic. Secondly, the pre-test should detect to what extent the emotional and factual videos were seen as emotional and factual. Lastly, the extent to which the eco-labels are perceived in the intended way was examined. Aiming at answering these three questions, a pre-test design was created.

3.2.4 Design of the pre-test

The pre-test was supposed to give insights about the three factors mentioned above. To test the perceived realisticness of the introductory video, every participant of the pre-test was shown the video. After doing so, the respondents were supposed to evaluate the perceived realisticness. This was measured by the items “To what extent do you perceive this scenario to be realistic?” and “To what extent do you see yourself in a comparable situation?”.

Afterward, the participants were shown the emotional and the factual video, as well as two short clips (~15 seconds) in which both eco-labels were introduced. To rule out any order bias, the order in which participants saw those four video clips was randomized. The procedure of the eco-labels will be described first.

Both two eco-label clips were followed by the same items asking the participant to indicate whether the label originates from a democratic institution or from an industry. This was done on a 7-point, bi-polar Likert scale. In addition, the two items “To what extent do you believe that this label represents the interests of the general public?” and “To what extent would you consider the sender of this label neutral?” were asked.

For the two videos including the two different evidence types, other items were used. The questions participants were asked to answer after watching the videos were again the same for both videos. The extent to which a respondent perceived the video as factual or emotional was measured by the items “To what extent do you think the video contains factual information?”, “To what extent would you consider the visuals to be emotional?” and “To what extent would you consider the music to be emotional?”. The emotional video was supposed to score low on the factual item question and high on the other two. For the factual

video it was the other way round. In the following, the participants and results of the pre-test will be discussed.

3.2.5 Participants & results of the pre-test

The pre-test conducted for this research included 10 participants. Since the participants were shown 5 videos (Introductory video, EU-label, industry-label, emotional video, factual video), 50 observations were made. Eight of the respondents were male, and two were female. The respondents were reached through convenience sampling.

It was intended that participants perceive the presented scenario as realistic. Therefore, the items measuring realisticness were analyzed by means of a one-sample t-test, taking four as the mid-point of the 7-point Likert scale. According to this one sample t-test, the means of the two items significantly differed from the midpoint of the scale. The M, SD and p-values can be found in Table 6. Based on these results, it was decided that the introductory video would not be altered for the main study because the results were satisfactory.

Table 6

Perceived realisticness of the scenario

	M	**SD**	**Sig.**
To what extent do you perceive this scenario to be realistic?[a)]	5.60	1.17	<.005
To what extent do you see yourself in a comparable situation?[a)]	5.30	1.06	<.005

a) Measured on a 7-point Likert scale (1= Not at all, 7= Extremely)

Secondly, the results for the label videos were analyzed. To do so, the three items for the labels were also analyzed with a one-sample t-test taking four as the midpoint of the scale. According to the t-test (Table 7) only the results for the second item of the EU-label significantly differed from the midpoint of the scale. Every other item, regardless of EU-label or the industry-label, is non-significant. Based on these results, it was decided to alter parts of the labels and their presentation. These alterations will be discussed in the section 3.2.6.

Table 7

Pre-test results label type

Item	Label					
	EU			*Industry*		
	M	**SD**	**Sig.**	**M**	**SD**	**Sig.**
Please indicate to what extent you think the label shown to you is driven by an industry or by a democratic institution[a)]	4.5	1.78	.40	4.0	1.33	1
To what extent do you believe that this label represents the interests of the general public?[b)]	4.9	1.20	<.05	4.9	1.45	.08
To what extent would you consider the sender of this label neutral?[b)]	3.8	1.40	.66	3.5	1.35	.27

a) Measured on a 7-point bi-polar scale (1= Industry, 7= Democratic institution)

b) Measured on a 7-point Likert scale (1= Not at all, 7= Extremely)

Lastly, a final t-test was carried out for the evidence type. Based on the results of this t-test, it can be said that the mean scores significantly differed from each other (Table 8). The anecdotal video scored significantly higher on the items that it was supposed to. Based on the results of this final t-test, it was concluded that the videos need no further alteration for the evidence type.

Table 8

Pre-test results evidence type

Item	Evidence type					
	Emotional			*Factual*		
	M	**SD**	**Sig.**	**M**	**SD**	**Sig.**
Please indicate to what extent you think the information given to you is factual or emotional[a)]	5.2	0.92	<.05	3.3	1.34	.13
To what extent do you think the video contains factual information?[b)]	3.9	1.1	.78	5.5	0.53	<.05
To what extent would you consider the visuals to be emotional?[b)]	6.0	0.94	<.05	3.6	1.51	.42
To what extent would you consider the music to be emotional?[b)]	6.0	0.82	<.05	3.7	1.70	.59

a) Measured on a 7-point bi-polar scale (1= Factual, 7= Emotional)

b) Measured on a 7-point Likert scale (1= Not at all, 7= Extremely)

3.2.6 Alterations to stimuli versions:

Due to the above-mentioned t-test results regarding the eco-labels, it was decided to alter them. The pre-test showed that the differences intended to highlight by the researcher did not reach the recipient. Looking back at why exactly these two labels were chosen, changes were considered. Based on the theoretical framework and the formulated hypotheses, it was relevant to see whether participants in the main study would be willing to pay more if the eco-label sender is a rather neutral institution rather than an industry that might more easily be accused of greenwashing.

To make that distinction clearer for the final study, it was decided to add something to the labels in their presentation. For the EU label, it was decided that a short (~5 seconds) insertion of a picture of the European parliament can help. By including this picture, the viewer is reminded about the purpose and goals of the EU and that it is supposed to be a democratic institution representing the interests of the general public. Moreover, the voice-over sentence "As European Union, we came up with this eco-label for sustainable flying" was changed to "All the represented countries belonging to the European Union came up with this eco-label for sustainable flying" to emphasize the independency of the EU. These changes were incorporated to make the EU-label seem more democratically driven.

For the industry label, it was decided that briefly (~5 seconds) showing a collection of airlines will remind the recipient of the purpose and goals of the airline industry. It should be clear, that the airline industry does not necessarily represent the interests of the general public, but their own interests. Therefore, the voice-over sentence "As International Airline Association, we invented a new-eco label" was changed to "The International Airline association recently invented a new eco-label. We are also a member and try to act upon climate change as good as we can". These changes were implemented to make the industry-label look more like a label that could be used solely for image purposes.

Next to altering the eco-labels, another change was made based on the pre-test. Although it was not asked for in the pre-test, a few participants criticized the usage of the words 'statistical' and 'anecdotal' as description for the videos. Before this criticism, the words statistical and anecdotal were used in this research. After the criticism, these words were changed into 'factual' and 'emotional' to facilitate their comprehension. Hence, whenever statistical and anecdotal evidence is mentioned in this paper, they mean the same as factual and emotional evidence.

3.3 Measures

In the following section the measures will be described in detail. First, the co-variate and moderators will be presented. Afterward, the dependent measures and their respective measurement items will be shown. The full survey and items can be found in Appendix II.

3.3.1 Environmentally friendly behavior

After giving their consent to participation, participants were asked to answer questions regarding their sustainability behavior. The scale consisted of four items which were taken from a study carried out by Beytullah & Muhammad (2015). Examples of items included in this scale were: "I prefer to use long lasting products (rechargeable batteries, cloth bags) for a sustainable environment instead of disposable products" or "I pay attention to water consumption when using the sink and toilet". This scale was used to answer SQ1.

3.3.2 Emotionality

Afterward, respondents had to indicate to what extent they make rational or emotional decisions. This scale consisted of two items taken from a study conducted by Fisher et al. (2015). The scale included the items "When making a decision, I like to stick to the facts rather than be swayed by peoples' feelings" and "Regardless of what is logical, I generally listen to my heart when making important decisions".

3.3.3 Motivation type

In the following, participants were asked some more personality questions regarding their intrinsic and extrinsic motivations. This scale was included to see whether people who are more extrinsically motivated would be more affected by an eco-label than intrinsically motivated people. This scale consisted of three items taken from a study conducted by Bonsaksen et al. (2013). The scale included items like "I can remain calm when facing difficulties because I can rely on my coping abilities".

3.3.4 Credibility

After seeing the video, participants were asked about the perceived credibility of the airline. The scale used consisted of four items tested on a 7-point agreement scale ranging from "Strongly disagree" to "Strongly agree". The items used for this scale were taken from a study by Newell & Goldsmith (2001). The scale included items like "I trust *chosen airline*" or "*Chosen airline* makes truthful claims".

3.3.5 Trustworthiness

In addition, participants were asked to what extent they trust the claims made by the airlines of their preference. The scale consisted of four items tested on a bi-polar scale taken from a study by Sirdeshmukh et al. (2002). This scale was the only one not being measured on a 7-point, but on an 8-point scale as Sirdeshmukh et al. (2002) suggest. This scale included items like "I feel like *chosen airline* is very undependable/very dependable" or "I feel like *chosen airline* is very incompetent/very incompetent".

3.3.6 Attitude

Moreover, participants were asked to indicate their attitude towards the airlines and the claims made. The scale used consisted of five items measured on a 7-point, bi-polar scale taken from a study by Becker-Olsen (2003). This scale included items like "My overall impressions of the *chosen airline*-company is bad/good" or "My overall impressions of the *chosen airline*-company is satisfactory/unsatisfactory".

3.3.7 Willingness to pay

For the last measure, participants were asked to indicate their willingness to pay (more) for sustainable aviation fuel. Two items were used to measure WTP. Firstly, respondents had to indicate how willing they were to pay more for their ticket to contribute to SAF. This was done on a 5-point scale ranging from "not at all" to "definitely". Secondly, participants had to indicate how much more of the ticket price they would be willing to pay, provided they were willing at all. This item was used to answer SQ2. This was done in percentages because there was never a price mentioned for the flight in the presented scenario.

3.3.8 Reliability and validity

To ensure the reliability of the measures and their respective items, the Cronbach's alpha was measured for every scale. The measures motivation type, credibility, trust, and attitude all showed a CA of higher than $\alpha = .70$. For environmental friendliness, the CA was $\alpha = .67$ and for emotionality it was $\alpha = .55$.

After verifying the reliability of the scales, a factor analysis was carried out (Table 9). The results of this factor analysis indicated that the six constructs accounted for 69.6 % of the variance in the sample. The rotated component matrix indicated that by removing three items measuring attitude, it was possible that every item measured what it was supposed to

measure. The first, second and fourth item of the attitude scale were therefore removed. The remaining two items of the attitude scale still formed a reliable scale with a Cronbach's alpha of higher than $\alpha = .70$. After removing the items another factor analysis was carried out. The six constructs now accounted for 70.7 % of the explained total variance.

Table 9

Factor analysis

Constructs	Items	Factor loading	CA	Explained variance	Eigen-value
Credibility	*Airline* makes truthful claims.	0.88	.90	16.8%	4.75
	Airline is honest.	0.87			
	I trust *Airline.*	0.85			
	I do not believe what *Airline* tells me.(R)	0.8			
Trust (Airline is…)	Very incompetent:Very competent	0.87	.85	14.7%	2.74
	Of very low integrity:Of very high integrity	0.84			
	Very unresponsive to customers:Very responsive to customers	0.81			
	Very undependable:Very dependable	0.66			
Motivation type	I am confident that I could deal efficiently with unexpected events.	0.86	.79	11.6%	1.90
	If I am in trouble, I can usually think of a solution.	0.82			
	I can remain calm when facing difficulties because I can rely on my coping abilities.	0.81			
Environmentally friendly behavior	I consider myself to be person that behaves environmentally friendly.	0.80	.66	11%	1.78
	I pay attention to water consumption when using the sink and toilet.	0.70			
	To prevent unnecessary use of energy, I use light and electric devices only when it needs.	0.69			
	I prefer to use long lasting products (rechargeable batteries, cloth bags) for a sustainable environment instead of disposable products.	0.66			
Attitude	Satisfactory:Unsatisfactory (R)	0.84	.77	9%	1.25
	Favourable:Unfavourable (R)	0.82			
Personality	Regardless of what is logical, I generally listen to my heart when making important decisions.	0.86	.55	7.6%	1.01
	When making a decision, I like to stick to the facts rather than be swayed by peoples' feelings.(R)	0.75			

(R)= Item was reversed because of reverse formulation
CA= Cronbach's alpha

3.4 Procedure

The survey for the main study was created in the Qualtrics Survey Software, too. Every participant following the link they received was forwarded to the first page of the questionnaire. This page included general information about the study, the researcher, the estimated time of completion as well as contact information. In addition, participants were told that videos would be shown during the study and were therefore asked to tilt their phone and turn up their volume when videos appeared. The participant was also guaranteed an anonymous data treatment and the opportunity to withdraw from the study at any given point in time. At the bottom of the page, participants had to agree to consent to participating in the study. After giving consent for participation, the survey started.

At first, the items for the measures of environmentally-friendliness, emotionality and motivation type were presented to the respondent. After answering those questions, the video introducing the customer journey was presented. This video was shown to every participant, regardless the condition. After watching this first video which took around a minute, the participant had to indicate to what extent the scenario was realistic.

After watching the first video and indicating the perceived realisticness, respondents were asked to rank the three Airlines presented in the first video (KLM, Lufthansa, British Airways) to their preference. It was chosen to let the participant make their preferred choice rather than the researcher to rule out the chance that the participant might have a negative predisposition towards a researcher-chosen airline. The airline ending up first in the ranking of each participant was then embedded in follow-up items whenever items included the airline name. For that, the piped-test function of Qualtrics was used.

After choosing their airline, the stimulus material was shown. The division of stimuli was randomized by the Qualtrics Survey Software. Overall, 33 participants saw the first video, 39 saw the second, 30 watched the third video and the remaining 37 were shown the fourth video. These are the numbers after participants were deleted for several reasons. The process of deleting participants will be explained in more detail in the following section.

After the video, the questions for the constructs credibility, trust, attitude, and willingness to pay were presented. Before moving on to the last part of the questionnaire, participants had to answer two control questions to see whether they perceived the information provided the way they were supposed to be perceived. Therefore, respondents had to indicate to what extent they perceived the information presented as emotional/factual

and whether they perceived the eco-label to originate from the airline industry or from a democratic institution. The results of the manipulation checks will be discussed in the results section.

3.5 Participants

The questionnaire was distributed by convenience sampling. It was sent out via WhatsApp, Instagram, Facebook and sometimes shared by other participants in their networks. Overall, 233 people started the survey. However, many responses had to be deleted. One person being excluded from the data was a researcher taking the survey via the preview link for control purposes. Three people did not consent to their participation. In addition, 51 respondents did not answer all questions until the end. Moreover, 39 people had to be excluded because they did not watch the videos for more than 75 % which was equivalent to around 100 seconds. Eventually, data of 139 participants was used for the analysis.

3.5.1 Descriptive statistics

The detailed division of characteristics like age, gender, profession, and country of residence can be found in Table 10. These numbers suggest that the average age of participants is similar in all conditions, pending around 24 and 25 years of age. To check whether there are significant differences for age among the conditions, an ANOVA analysis was carried out. This ANOVA analysis reported no significant difference for age among the conditions [$F(21,138)=1.23$, $p=.24$].

Looking at the gender of participants, it can be said that the distribution is balanced in the whole sample, as well as for all four conditions. A chi-square test of independence was performed to test for significant differences in the experimental conditions between genders, X^2 (9, N=139)= 7.69, p= 0.57. There is no significant relation between gender of the respondents and the indicated answers.

In addition, it can be said that the percentage of students for every condition is considerably higher than the percentage of any other profession. This can be explained by the fact that 77 % of all valid participants were students and therefore accounted for the majority in this sample. A chi-square test of independence was performed to test for significant differences in the experimental conditions between professions, X^2 (12, N=139)= 10.60, p= 0.56. There is no significant relation between the profession of the respondents and the indicated answers.

Lastly, the percentage of German respondents for every condition is considerably higher than the percentage of Dutch, other European or non-European participants. Again, this can be attributed to the fact that 67 % of all valid cases were German and therefore accounted for the majority in this sample. A chi-square test of independence was performed to test for significant differences in the experimental conditions between nationalities, X^2 (9, N=139)= 7.87, p= 0.55. There is no significant relation between nationality of the respondents and the indicated answers.

Table 10

Distribution of sample characteristics

		Emotional evidence	*Factual evidence*
EU Label	Age[a)]	M = 24.24 SD = 4.54	M = 24.69 SD = 7.88
	Gender[b)]	Male 64% Female 36%	Male 46% Female 49%
	Profession[c)]	1 85% 2 9% 3 3% 4 3% 5 0%	1 77% 2 18% 3 3% 4 3% 5 0%
	Country of residence[d)]	1 12% 2 64% 3 24% 4 0%	1 23% 2 62% 3 15% 4 0%
Airline industry label	Age[a)]	M = 24.2 SD = 6.95	M = 25.51 SD = 9.52
	Gender[b)]	Male 47% Female 53%	Male 49% Female 51%
	Profession[c)]	1 83% 2 13% 3 0% 4 3% 5 0%	1 65% 2 19% 3 3% 4 8% 5 5%
	Country of residence[d)]	1 13% 2 70% 3 13% 4 3%	1 16% 2 73% 3 11% 4 0%

a) *Mean + SD of age*
b) *Percentage division Male / Female*
c) *Percentage of indicated profession: 1 = Student, 2 = Full-time employee, 3 = Part-time employee, 4 = Self-employed, 5 = Other*
d) *Percentage of indicated country of residence: 1 = Netherlands, 2 = Germany, 3 = Other in Europe, 4 = Other outside Europe*

4 Results

4.1 Manipulation checks

Before examining the main and interaction effects of the design factors, manipulation checks were carried out to test the effectiveness of the stimuli.

4.1.1 Realisticness of the scenario

Regardless of the stimuli condition, every participant saw a video setting the scene. It was a video to set the scene for the actual stimuli video. In that video, respondents were introduced to the scenario of booking a flight ticket and going on a website to compare prices etc. To check, whether participants perceived the presented scenario as realistic they had to indicate the extent to which it was perceived realistic. The mean score of the realisticness item was 5.47 (*SD*= 1.53) on a 7-point Likert scale which was satisfactory.

4.1.2 Evidence type

To make sure that the factual and emotional evidence conditions were correctly recognized., an independent samples t-test was performed. This t-test evaluates the effectiveness of the design factor and gives insight about the questions whether emotional and factual evidence was perceived in the desired way. The t-test showed a significant difference for emotional evidence (*M*=5.06, *SD*=1.66) compared to factual evidence (*M*=2.95, *SD*=1.37); *t*(137)= -8.26, $p < .001$. Hence, it can be concluded that the manipulation of evidence type proved successful.

In addition, a one-sample t-test was conducted. This one-sample t-test showed that all mean scores differed significantly from the mid-point of the scale, testing against 4 as being the midpoint of the 7-point Likert scale ($p < .001$). These results suggest that the emotional video was perceived as emotional, and the factual video was perceived factual by the participants.

4.1.3 Eco-label

The same t-tests were carried out for the other design factor- the eco label. In that case, it was supposed to prove whether the EU-label was perceived more to come from a democratic institution than the industry label. It was measured on a 7-point Likert, bi-polar scale. The higher the indicated score, the more it was regarded as being sent by a democratic institution by the participant. The independent samples t-test indicated that there was a significant difference for the EU-label (*M*=4.42, *SD*=1.56) compared to the industry-label

(*M*=3.40, *SD*=1.55); *t*(137)= 3.84, p < .001. Therefore, it can be concluded that the manipulation of eco-label proved successful.

For the condition eco-label, another one-sample t-test was conducted. This one-sample t-test showed that all mean scores differed significantly from the mid-point of the scale, testing against 4 as being the midpoint of the 7-point Likert scale (p < 0.001). These results suggest that the EU-label was perceived as more democratic, and the industry-label was perceived as originating from an industry by the participants.

4.2 Amount of willingness to pay

The second item measuring willingness to pay focused on the amount that people would be willing to pay more in percentages. Because respondents were able to fill out any number between 0 and 100, the answers will be grouped for a better overview. This grouping can be found in Table 11. Based on this grouping, SQ2 can be answered by saying that most participants belonged to group 2, indicating they would be willing to pay between 10 and 19 percent of the original ticket price. There was only one participant who indicated to be willing to pay 0 % of the ticket price for SAF, accounting for 0.7 % of the sample. No participant was willing to pay more than 50 % of the original ticket price for the use of SAF. SQ2 indicates that there is a general willingness to pay among the sample.

Table 11

Willingness to pay in percentages: Grouped

Indicated percentage	Group	Frequency	Percentage
1-9	1	47	34.5
10-19	2	64	46
20-29	3	19	13.7
30-39	4	5	3.6
40-50	5	3	2.2
Total	-	138	99.3%

4.3 Moderators & co-variate

As highlighted in the theoretical background of this research, one co-variate variable and two moderator variables were included. To check whether these had a meaningful influence on the dependent variables, a correlation analysis was conducted. However, this correlation analysis indicated that none of the moderators and co-variates correlated with the dependent measures (Table 12). One exception was the moderator emotionality significantly correlating with willingness to pay. It was considered to not further analyze this correlation because it was a weak correlation. Therefore, H3 as well as H4 are rejected. In addition, SQ1 is rejected. As summary of all hypotheses and their outcome can be found in table 16 in section 4.6. After examining the moderators and the co-variate, the analysis of variance could be carried out. Based on this, an ANOVA analysis was conducted.

Table 12

Pearson's R correlations between co-variate/moderators and dependent measures

	Trust	Attitude	Credibility	WTP
Environmental friendliness[a)]	0.02	0.08	-0.03	0.11
Personality[b)]	0.1	0.003	0.07	0.23*
Motivation[c)]	0.04	-0.08	-0.09	-0.10

a) Measured by four items. Higher score indicates more environmental friendliness
b) Measured by two items. Higher score indicates more emotional decision-making
c) Measured by three items. Higher score indicates more intrinsic motivation
** Correlation is significant at the 0.05 level (2-tailed)*

4.4 Main effects:

An ANOVA analysis was conducted to study the main effect of the independent variables, the design factors, on the dependent variables credibility, trustworthiness, attitude and willingness to pay. First, the main effect of evidence type is presented. Afterwards, the same is done for the eco-label type. Lastly, interaction effects will be discussed.

4.4.1 Main effect of factual vs. emotional evidence type

Based on the results of Table 13, the mean scores show only marginal differences between factual and emotional evidence. In addition, resulting from an ANOVA test, these differences appear not to be statistically significant. As a result, H1a), H1b), H1c) and H1d) are rejected.

Table 13

Main effect of evidence type

				ANOVA		Hypothesis
		Factual M(*SD)*	*Emotional* M(*SD*)	F	Sig.	
Variable	Credibility[a)]	4.63 (*1.00*)	4.56 (*1.05*)	0.19	.67	H1a - Rejected
	Trustworthiness[b)]	5.49 (*1.17*)	5.48 (*1.08*)	0.00	.96	H1b - Rejected
	Attitude[c)]	4.78 (*1.18*)	4.83 (*1.21*)	0.06	.81	H1c - Rejected
	Willingness to pay[d)]	3.80 (*1.08*)	3.81 (*0.95*)	0.00	.97	H1d - Rejected

a) Measured on a 7-point Likert scale (1=strongly disagree / 7=strongly agree)
b) Measured on an 8-point bi-polar scale
c) Measured on a 7-point bi-polar scale
d) Measured on a 5-point Likert scale (1= Not at all / 5=Definitely)

4.4.2 Main effect of EU vs. industry label

Based on the results of Table 14, the mean scores show only small differences between EU-label and industry-label. In addition, resulting from an ANOVA test, these differences appear not to be statistically significant. As a result, H2a), H2b), H2c) and H2d) are rejected.

Table 14

Main effect of label type

				ANOVA		
		EU M(*SD*)	*Industry* M(*SD*)	F	Sig.	Hypothesis
Variable	Credibility[a)]	4.57 (*1.05*)	4.63 (*1.00*)	0.11	.74	H2a - Rejected
	Trustworthiness[b)]	5.34 (*1.25*)	5.64 (*0.96*)	2.51	.12	H2b - Rejected
	Attitude[c)]	4.90 (*1.22*)	4.69 (*1.17*)	0.99	.32	H2c - Rejected
	Willingness to pay[d)]	3.76 (*1.11*)	3.85 (*0.93*)	0.25	.62	H2d - Rejected

a) Measured on a 7-point Likert scale (1=strongly disagree / 7=strongly agree)
b) Measured on an 8-point bi-polar scale
c) Measured on a 7-point bi-polar scale
d) Measured on a 5-point Likert scale (1= Not at all / 5=Definitely)

4.5 Interaction effects evidence type and eco-label type

To examine a possible significant interaction effect between the chosen design factors, an ANOVA analysis was carried out (Table 15). None of the four combinations presented to participants of this study resulted in significantly different values. Therefore, SQ3 can be rejected.

Although the effects of the independent variables on the dependent measures were found to be insignificant, it remains interesting to look at the means of each condition. Willingness to pay is the main dependent variable. Since the probability of the participant paying more for SAF was measured on a 5-point Likert scale, the value 3.00 can be seen as the midpoint of the scale. The means for all four conditions lie above that mid-point. Overall, they are however relatively close to each other. The two conditions containing the industry labels scored higher than the EU label ones. Based on the reported means, it can be concluded that there is a general willingness to voluntarily pay more for sustainable aviation fuel. The values for every condition lay approximately between the midpoint and the maximum of the 5-point scale.

Table 15

Descriptive statistics of dependent variables

	Emotional evidence		Factual evidence	
	Mean	SD	Mean	SD
EU-Label				
Credibility[a)]	4.62	1.12	4.53	0.99
Trustworthiness[b)]	5.50	1.29	5.21	1.22
Attitude[c)]	4.82	1.33	4.96	1.12
Willingness to pay[d)]	3.73	1.04	3.79	1.17
Industry label				
Credibility[a)]	4.49	0.99	4.74	1.00
Trustworthiness[b)]	5.47	0.82	5.79	1.05
Attitude[c)]	4.83	1.09	4.58	1.23
Willingness to pay[d)]	3.90	0.85	3.81	1.00

a) Measured on a 7-point Likert scale (1=strongly disagree / 7=strongly agree)
b) Measured on an 8-point bi-polar scale
c) Measured on a 7-point bi-polar scale
d) Measured on a 5-point Likert scale (1= Not at all / 5=Definitely)

4.6 Hypotheses conclusions

After examining main as well as interaction effects, conclusions about the hypotheses can be drawn. Table 16 shows that neither the hypotheses, nor the sub questions could be supported. In the following section, these findings will be discussed.

Table 16

Hypotheses & questions overview and outcome

Hypotheses and questions		**Outcome**
H1	*Communication strategies using statistical (factual) evidence will results in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, d) willingness to pay for SAF as compared to messages using anecdotal (emotional) evidence.*	Not supported
H2	*Communication strategies using an EU-label will results in higher scores on a) credibility of the airline, b) trustworthiness of the airlines, c) attitude towards the airline, d) willingness to pay for SAF as compared to messages using the industry label.*	Not supported
H3	*The extent to which a person is prone to emotional decision-making will moderate the effect of evidence type.*	Not supported
H4	*The extent to which a person is intrinsically or extrinsically motivated moderates the effect of eco-labels.*	Not supported
SQ1	*Environmentally friendly behavior will positively influence willingness to pay.*	Not supported
SQ2	*How much are people willing to pay for sustainable aviation fuel?*	
SQ3	*Do different manipulations of evidence type and eco-label interact?*	Not supported

H= Hypothesis

SQ= Sub-question

5 Discussion of the findings

5.1 Discussion

After reporting the results, the findings will be discussed and explained in the following. First and foremost, it is important to mention that none of the formulated hypotheses could be proven. The connections made in the theoretical framework between independent and dependent variables could not be statistically significantly supported.

The literature about evidence type suggested that factual (statistical) evidence would work better when environmental topics are at stake. This was in line with a study by Kim et al. (2012) or Hinnant et al. (2016). The hypothesis was formulated despite ambiguity among scholars about the effectiveness of emotional as well as factual evidence. The relevant studies that were discussed in the theoretical background of this research did not show homogeneity among their results. Looking back at the studies discussed and the obtained results of this research, it can be said that the question of which evidence type is more effective remains unanswered. This research does not add to answering this question but fosters the assumption that there is no clear answer to it. Context, recipients, and other factors are of high relevance and therefore, the question about evidence type remains ambiguous.

The hypotheses regarding the use of eco-labels suggested superiority of the EU-label in comparison to the industry-label. This hypothesis was formulated based on studies of for example Horne (2009), who claimed that labels created by governments are generally preferred over any other type of label. This claim could not be supported in the study at hand. Other studies regarding the use of eco-labels discussed an over-saturation of eco-labels (Brécard, 2017; Testa et al., 2015). Researchers argue that individuals struggle to process all the different eco-labels that are present and as a consequence become resistant to sustainability claims because the consumers doubt the reliability and question the nature of these claims (Testa et al., 2015). This trend, however, can be a reason for the insignificance of the results of the research at hand. It can be assumed that Horne's (2009) claims may be outdated and that the market of existing eco-labels makes consumers feel overwhelmed.

This assumption is partly supported by the literature. Although this assumption could not be discussed in the theoretical background because it is an assumption formulated post-research, there is literature targeting the so-called "eco-label fatigue". Studies of Brécard (2014), or Thorndike et al. (2012) address this topic. The latter claim that consumers develop label-fatigue after a certain amount of time which causes the label to lose its influence on the consumer. Therefore, the use of eco-labels can be questioned in general.

The study's interaction effect did also not provide significant results. There was limited literature regarding the combined use of evidence types and eco-labels. That was the reason for not formulating a hypothesis, but an exploratory sub-question. This question showed that not only evidence type and eco-label affect the dependent variables of this study, but also their combination had no significant impact. Regardless of the combination the participants saw, their answers did not differ significantly. This may lead to the assumption that the chosen design factors do not interact well. This may be because recipients do not know what to focus on. They were shown a video with an eco-label apparent in the top-right corner. It is possible that the eco-label distracted participants from digesting the contents of the video or vice versa.

5.2 Limitations

There are several limitations in this study that need to be addressed. At first, it can be said that the realisticness of the fictitious scenario played a role. It can be assumed that people have difficulties imagining themselves in a fictitious situation in which they are not involved. Even though the scenario was perceived as realistic by the participants as mentioned in section 5.1.1, it remains a fictitious scenario. Variables like "involvement" or "frequency of travelling" were not recorded and would have given a deeper understanding of the involvement of respondents in the scenario. The fact that only 139 participants remained from the initial 233 (because of exclusion criteria) supports the assumption that the participants were not that involved with the study. Possibly, the ongoing COVID-19 pandemic which disallowed people to travel by plane for a long period of time can be seen as a hurdle to the realisticness of the presented scenario. It can therefore be concluded that the design of the study was realistic, but in general, a fictitious scenario can be seen as problematic.

A second relevant limitation are certain characteristics of the sample. As mentioned in the results section, the majority of respondents were students. This is also supported when looking at the average age. Since students on average must pay more attention to their budget than for example part- or full-time employees, it impacts the outcome variable willingness to pay. A more balanced sample regarding the profession or income of participants might then give a better picture of the populations' willingness to pay for more sustainable aviation fuel.

Lastly, the main dependent variable willingness to pay was only measured once after the stimuli were shown. Hence, one cannot know whether the stimuli influenced respondents' willingness to pay or if the willingness to pay was already existent before participation. If a

repeated measures design had been used, participants could have been asked once before and after seeing the video about their willingness to pay. By doing so, comparisons between before and after could have been made and impact scores could have been calculated.

5.3 Academic and practical implications

Contrary to the formulated hypotheses, no main effects were found between the independent variables of evidence type and eco-label type and the dependent measures of attitude towards brand, perceived credibility of the brand and trust towards the brand. Neither were main effects found for the interaction effect of the two independent variables.

Moreover, no significant effect could be found between the independent variables and the willingness to pay. However, it can be noted that most participants were willing to pay more for SAF, regardless of the condition. Although the influence of the design factors on WTP was not significant, it can be concluded that the average participant regarded it as "probable" to pay more for SAF. Since the independent variables in this study were not able to significantly influence WTP, another way of approaching those dependent variables could be explored.

In the discussion of results, multiple studies targeting eco-label fatigue are discussed. This remains an interesting concept to study since there are already 460 on the market and the number is growing constantly. At the same time, the demand for sustainable services and awareness grows among the general public. Therefore, new ways of communicating and certifying sustainability can be explored and studied with respect to their effectiveness.

An assumption for the insignificance of the interaction effects was that the elements of video in combination with an eco-label distract from each other. This could also be studied with eye-tracking, for example. If studies show that with this specific combination of design factors, participants spend most of the time only looking at the eco-label and thereby missing important parts of the video, it could be concluded that this combination might not be the most effective one.

In addition, there are also some practical implications for this study. These practical implications are especially relevant for people working on making flying more sustainable as well as aviation marketers who have to promote sustainable flying to passengers of their airlines. Moreover, it can be interesting for institutions like the EU who are planning to launch an aviation eco-label themselves.

The study could not prove a significant influence of the use of different eco-label senders. The label fictitiously sent by the EU did not score higher on variables like

trustworthiness or credibility. Possible reasons for this have been discussed in section 5.1. However, there was a general willingness to pay among participants. That indicates that individuals are not completely opposed to the idea of paying an extra fee to make their journey more environmentally friendly. Marketers should keep this in mind and find strategies that effectively highlight the relevance and opportunities of SAF. Especially looking at the current development of climate change, it is fair to assume that this matter will only rise in importance.

In addition, it could be questioned if the medium of videos is the most effective one in this particular context. Although studies have shown that videos positively influenced the environmental knowledge concerning aviation and carbon offsetting better than the use of card briefings (Lu & Wang, 2018), this field might have to be explored in greater detail with different media- especially for the use of SAF.

Lastly, practitioners should stay up to date regarding the developments of eco-labels. The EU plans on launching an aviation eco-label in 2022 but this research has also questioned the effectiveness of eco-labels in an age where the average consumer can barely distinguish between the multiple existing ones. Scholars might research and publish new methods of convincingly transporting sustainability claims in the near future. As soon as that is the case, practitioners should translate these into action and communicate accordingly with potential passengers.

5.4 Conclusion

The paper at hand tried to examine how potential air passengers could be influenced into voluntarily paying more money for sustainable aviation fuel. To do so, four different videos were shown to participants to see if the videos differ in their effectiveness. This was done by means of a 2 x 2 experimental design. The videos differed with regard to evidence type (emotional vs. factual) and sender of a presented eco-label (EU vs. airline industry). It was researched how these differences would impact the passengers' attitude, trustworthiness, and the credibility of an airline and whether it would make them voluntarily pay more. This study provides a theoretical framework which discusses the status quo of the opportunities for sustainable aviation. Furthermore, it highlights the ways in which air travelers can be influenced in their purchase decision. Studies in the past have shown that different evidence types can lead to higher purchase intention. In addition, the use of eco-labels has been proven successful in the past.

In this study, no significant main effects of the chosen design factor on the dependent measures were found. Moreover, no effect was found between the moderators personality (whether a participant is generally rather intrinsically or extrinsically motivated) and emotionality (the extent to which a participant often makes emotionally driven decision) and the dependent measures. The co-variate environmental friendliness (the extent to which a participant behaves emotionally friendly) was expected to influence willingness to pay positively but was also found to not significantly influence it in this study. Overall, no significant results were discovered in this research.

This research suggests further research in the field, especially addressing the question if the use of eco-labels is still effective in an apparently saturated market. Moreover, other theoretical and practical implications are provided. These mainly focus on other or possible communication strategies and certification processes that might be developed in the future.

Reference list:

Åkerman, J. (2005). Sustainable air transport—on track in 2050. *Transportation Research Part D: Transport and Environment*, *10*(2), 111–126. https://doi.org/10.1016/j.trd.2004.11.001

Araghi, Y., Kroesen, M., Molin, E., & Van Wee, B. (2016). Revealing heterogeneity in air travelers' responses to passenger-oriented environmental policies: A discrete-choice latent class model. *International Journal of Sustainable Transportation*, *10*(9), 765–772. https://doi.org/10.1080/15568318.2016.1149645

Banerjee, A., & Solomon, B. D. (2003). Eco-labeling for energy efficiency and sustainability: A meta-evaluation of US programs. *Energy Policy*, *31*(2), 109–123. https://doi.org/10.1016/s0301-4215(02)00012-5

Baumeister, S. (2020). Mitigating the Climate Change Impacts of Aviation through Behavioural Change. *Transportation Research Procedia*, *48*, 2006–2017. https://doi.org/10.1016/j.trpro.2020.08.230

Baumeister, S., & Onkila, T. (2017). An eco-label for the airline industry? *Journal of Cleaner Production*, *142*, 1368–1376. https://doi.org/10.1016/j.jclepro.2016.11.170

Becker-Olsen, K. L. (2003). And Now, A Word from Our Sponsor--A Look at the Effects of Sponsored Content and Banner Advertising. *Journal of Advertising*, *32*(2), 17–32. https://doi.org/10.1080/00913367.2003.10639130

Beretti, A., Grolleau, G., & Mzoughi, N. (2009). How Cognitive Biases Can Affect the Performance of Eco-Labeling Schemes. *Journal of Agricultural & Food Industrial Organization*, *7*(2). https://doi.org/10.2202/1542-0485.1276

Beytullah, E., Muhammad, Y. (2015). Environmental consciousness survey of university students. Retrieved on 28th June 2022 from: https://www.researchgate.net/publication/335737641_Environmental_Consciousness_Survey_of_University_Students

Blasch, J., & Farsi, M. (2012). Retail demand for voluntary carbon offsets – a choice experiment among Swiss consumers. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2145267

Blasch, J., & Farsi, M. (2013). Context effects and heterogeneity in voluntary carbon offsetting – A choice experiment in Switzerland. *Journal of Environmental Economics and Policy*, *3*(1), 1–24. https://doi.org/10.1080/21606544.2013.842938

Bonsaksen, T., Kottorp, A., Gay, C., Fagermoen, M., & Lerdal, A. (2013). Rasch analysis of the General Self-Efficacy Scale in a sample of persons with morbid obesity. *Health and Quality of Life Outcomes*, *11*(1), 202. https://doi.org/10.1186/1477-7525-11-202

Brécard, D. (2014). Consumer confusion over the profusion of eco-labels: Lessons from a double differentiation model. *Resource and Energy Economics*, *37*, 64–84. https://doi.org/10.1016/j.reseneeco.2013.10.002

Brécard, D. (2017). Consumer misperception of eco-labels, green market structure and welfare. *Journal of Regulatory Economics*, *51*(3), 340–364. https://doi.org/10.1007/s11149-017-9328-8

Brouwer, R., Brander, L., & Van Beukering, P. (2008). "A convenient truth": Air Travel Passengers' willingness to pay to offset their CO2 emissions. *Climatic Change*, *90*(3), 299–313. https://doi.org/10.1007/s10584-008-9414-0

Chamorro, A., & Bañegil, T. M. (2006). Green Marketing Philosophy: A Study of Spanish firms with Ecolabels. *Corporate Social Responsibility and Environmental Management*, *13*(1), 11–24. https://doi.org/10.1002/csr.83

Cheung, J., Kragt, M., & Burton, M. (2015). The awareness and willingness of air travellers to pay for voluntary carbon offsets and their co-benefits. *Business Strategy and the Environment*, *33*(4), 134-161. https://doi.org/10.22004/ag.econ.199231

Choi, A. S. (2015). An experimental study to explore WTP for aviation carbon offsets: The impact of a carbon tax on the voluntary action. *Journal of Environmental Planning and Management*, *58*(9), 1617–1634. https://doi.org/10.1080/09640568.2014.940515

Choi, A. S., & Ritchie, B. W. (2014). Willingness to pay for flying carbon neutral in Australia: An exploratory study of offsetter profiles. *Journal of Sustainable Tourism*, *22*(8), 1236–1256. https://doi.org/10.1080/09669582.2014.894518

Cislak, A., Cichocka, A., Wojcik, A. D., & Milfont, T. L. (2021). Words not deeds: National narcissism, national identification, and support for greenwashing versus genuine proenvironmental campaigns. *Journal of Environmental Psychology*, *74*, 101576. https://doi.org/10.1016/j.jenvp.2021.101576

Daley, B. (2010). *Air Transport and the Environment* (1st ed.). Routledge.

Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, *54*(1), 64–87. https://doi.org/10.1525/cmr.2011.54.1.64

Dillard, J. P., & Pfau, M. W. (2002). *The Persuasion Handbook: Developments in Theory and Practice* (1st ed.). Sage Publications, Inc.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, *43*(4), 51–58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x

Fatihah, S. N., & Rahim, A. A. (2017). The Willingness To Pay of Air Travel Passengers To Offset Their Carbon Dioxide (Co2) Emissions: A Putrajaya Resident Case Study. Journal of Tourism, Hospitality and Environment Management. 2(5), 18-32. Retrieved from: http://www.jthem.com/PDF/JTHEM-2017-05-09-02.pdf

Fisher, H. E., Island, H. D., Rich, J., Marchalik, D., & Brown, L. L. (2015). Four broad temperament dimensions: description, convergent validation correlations, and comparison with the Big Five. *Frontiers in Psychology*, *6*. https://doi.org/10.3389/fpsyg.2015.01098

Freling, T. H., Yang, Z., Saini, R., Itani, O. S., & Rashad Abualsamh, R. (2020). When poignant stories outweigh cold hard facts: A meta-analysis of the anecdotal bias. *Organizational Behavior and Human Decision Processes*, *160*, 51–67. https://doi.org/10.1016/j.obhdp.2020.01.006

Gössling, S., & Peeters, P. (2007). 'It Does Not Harm the Environment!' An Analysis of Industry Discourses on Tourism, Air Travel and the Environment. *Journal of Sustainable Tourism*, *15*(4), 402–417. https://doi.org/10.2167/jost672.0

Green, J. E. (2003). Civil aviation and the environmental challenge. *The Aeronautical Journal*, *107*(1072), 281–299. https://doi.org/10.1017/S0001924000013579

Hinnant, A., Subramanian, R., & Young, R. (2016). User comments on climate stories: impacts of anecdotal vs. scientific evidence. *Climatic Change*, *138*(3–4), 411–424. https://doi.org/10.1007/s10584-016-1759-1

Hinnen, G., Hille, S. L., & Wittmer, A. (2017). Willingness to Pay for Green Products in Air Travel: Ready for Take-Off? *Business Strategy and the Environment*, *26*(2), 197–208. https://doi.org/10.1002/bse.1909

Horne, R. E. (2009). Limits to labels: The role of eco-labels in the assessment of product sustainability and routes to sustainable consumption. *International Journal of Consumer Studies*, *33*(2), 175–182. https://doi.org/10.1111/j.1470-6431.2009.00752.x

Hoeken, H., & Hustinx, L. (2009). When is Statistical Evidence Superior to Anecdotal Evidence in Supporting Probability Claims? The Role of Argument Type. *Human Communication Research*, *35*(4), 491–510. https://doi.org/10.1111/j.1468-2958.2009.01360.x

ICAO. (2017). What is CORSIA and how does it work? Retrieved from: https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx

Jou, R.-C., & Chen, T.-Y. (2015). Willingness to pay of air passengers for carbon-offset. *Sustainability*, *7*(3), 3071–3085. https://doi.org/10.3390/su7033071

Kaklamanou, D., Jones, C. R., Webb, T. L., & Walker, S. R. (2013). Using public transport can make up for flying abroad on holiday. *Environment and Behavior*, *47*(2), 184–204. https://doi.org/10.1177/0013916513488784

Keulemans, S., & van de Walle, S. (2017). Cost-effectiveness, domestic favouritism and sustainability in public procurement. *International Journal of Public Sector Management*, *30*(4), 328–341. https://doi.org/10.1108/ijpsm-10-2016-0169

Kim, S. Y., Allen, M., Gattoni, A., Grimes, D., Herrman, A. M., Huang, H., Kim, J., Lu, S., Maier, M., May, A., Omachinski, K., Omori, K., Tenzek, K., Turkiewicz, K. L., & Zhang, Y. (2012). Testing an additive model for the effectiveness of evidence on the persuasiveness of a message. *Social Influence*, *7*(2), 65–77. https://doi.org/10.1080/15534510.2012.658285

Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239–260. https://doi.org/10.1080/13504620220145401

Lee, D. S., Fahey, D. W., Forster, P. M., Newton, P. J., Wit, R. C., Lim, L. L., Owen, B., & Sausen, R. (2009). Aviation and global climate change in the 21st century. *Atmospheric Environment*, *43*(22–23), 3520–3537. https://doi.org/10.1016/j.atmosenv.2009.04.024

Leonidou, L. C., Leonidou, C. N., Palihawadana, D., & Hultman, M. (2011). Evaluating the green advertising practices of international firms: A trend analysis. *International Marketing Review*, *28*(1), 6–33. https://doi.org/10.1108/02651331111107080

Lu, C. H. Y., & Morrell, P. (2001). Evaluation and implications of environmental charges on commercial flights. *Transport Reviews*, *21*(3), 377–395. https://doi.org/10.1080/01441640119415

Lu, J.-L., & Shon, Z. Y. (2012). Exploring airline passengers' willingness to pay for carbon offsets. *Transportation Research Part D: Transport and Environment*, *17*(2), 124–128. https://doi.org/10.1016/j.trd.2011.10.002

Lu, J.-L., & Wang, C.-Y. (2018). Investigating the impacts of Air Travellers' environmental knowledge on attitudes toward carbon offsetting and willingness to mitigate the environmental impacts of aviation. *Transportation Research Part D: Transport and Environment*, *59*, 96–107. https://doi.org/10.1016/j.trd.2017.12.024

MacKerron, G. J., Egerton, C., Gaskell, C., Parpia, A., & Mourato, S. (2009). Willingness to pay for carbon offset certification and co-benefits among (high-)flying young adults in the UK. *Energy Policy*, *37*(4), 1372–1381. https://doi.org/10.1016/j.enpol.2008.11.023

Mögele, B., & Tropp, J. (2010). The emergence of CSR as an advertising topic: A longitudinal study of German CSR advertisements. *Journal of Marketing Communications*, *16*(3), 163–181. https://doi.org/10.1080/13527260802648359

Newell, S. J., & Goldsmith, R. E. (2001). The development of a scale to measure perceived corporate credibility. *Journal of Business Research*, *52*(3), 235–247. https://doi.org/10.1016/s0148-2963(99)00104-6

Ng, K. S., Farooq, D., & Yang, A. (2021). Global biorenewable development strategies for sustainable aviation fuel production. *Renewable and Sustainable Energy Reviews*, *150*, 111502. https://doi.org/10.1016/j.rser.2021.111502

Oates, C., McDonald, S., Alevizou, P., Hwang, K., Young, W., & McMorland, L. A. (2008). Marketing sustainability: Use of information sources and degrees of voluntary simplicity. *Journal of Marketing Communications*, *14*(5), 351–365. https://doi.org/10.1080/13527260701869148

Penner, J. E., Lister, D., Griggs, D. J., Dokken, D. J., & McFarland, M. (1999). *Aviation and the Global Atmosphere*. Cambridge University Press.

Rains, T., Winter, S. R., Rice, S., Milner, M. N., Bledsaw, Z., & Anania, E. C. (2017). Biofuel and commercial aviation: will consumers pay more for it? *International Journal of Sustainable Aviation*, *3*(3), 217. https://doi.org/10.1504/ijsa.2017.086846

Rice, S., Capps, J., Baugh, B. S., Anania, E. C., Ragbir, N. K., Winter, S. R., Milner, M. N., & Walters, N. W. (2018). Consumer willingness to pay for new airports that use renewable resources. *International Journal of Sustainable Aviation*, *4*(2), 79. https://doi.org/10.1504/ijsa.2018.10015448

Rotaris, L., Giansoldati, M., & Scorrano, M. (2020). Are air travellers willing to pay for reducing or offsetting carbon emissions? Evidence from Italy. *Transportation Research Part A: Policy and Practice*, *142*, 71–84. https://doi.org/10.1016/j.tra.2020.10.014

Scheelhaase, J. D., & Grimme, W. G. (2007). Emissions trading for international aviation—an estimation of the economic impact on selected European airlines. *Journal of Air Transport Management*, *13*(5), 253–263. https://doi.org/10.1016/j.jairtraman.2007.04.010

Schwirplies, C., Dütschke, E., Schleich, J., & Ziegler, A. (2019). The willingness to offset CO2 emissions from traveling: Findings from discrete choice experiments with different framings. *Ecological Economics*, *165*, 106384. https://doi.org/10.1016/j.ecolecon.2019.106384

Seo, M. G., & Barrett, L. F. (2007). Being Emotional During Decision Making—Good or Bad? an Empirical Investigation. *Academy of Management Journal*, *50*(4), 923–940. https://doi.org/10.5465/amj.2007.26279217

Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer Trust, Value, and Loyalty in Relational Exchanges. *Journal of Marketing*, *66*(1), 15–37. https://doi.org/10.1509/jmkg.66.1.15.18449

Sonnenschein, J., & Smedby, N. (2018). Designing air ticket taxes for climate change mitigation: Insights from a Swedish valuation study. *Climate Policy*, *19*(5), 651–663. https://doi.org/10.1080/14693062.2018.1547678

Testa, F., Iraldo, F., Tessitore, S., & Frey, M. (2011). Strategies and approaches Green Advertising: An empirical analysis of the Italian context. *International Journal of Environment and Sustainable Development*, *10*(4), 375. https://doi.org/10.1504/ijesd.2011.047772

Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2015). Why eco-labels can be effective marketing tools: Evidence from a study on italian consumers. *Business Strategy and the Environment*, *24*(4), 252–265. https://doi.org/10.1002/bse.1821

Thorndike, A. N., Sonnenberg, L., Riis, J., Barraclough, S., & Levy, D. E. (2012). A 2-Phase Labeling and Choice Architecture Intervention to Improve Healthy Food and Beverage Choices. *American Journal of Public Health*, *102*(3), 527–533. https://doi.org/10.2105/ajph.2011.300391

Tilikidou, I. (2007). The effects of knowledge and attitudes upon greeks' pro-environmental purchasing behaviour. *Corporate Social Responsibility and Environmental Management*, *14*(3), 121–134. https://doi.org/10.1002/csr.123

Walker, A. (2020). Guest Editorial: Johnson Matthey Technology Review Special Edition on Clean Mobility. *Johnson Matthey Technology Review*. https://doi.org/10.1595/205651320x15874763002058

Appendices:

Appendix I: Pre-test

Consent form

Dear participant,
Thank you for taking part in this study.
You will be presented with a few short video clips. After each clip, you will be asked to answer some questions about the video you just saw. If you want to do so, you can watch the videos more than once if you think you missed something important.
If you participate with your mobile phone, I recommend tilting it by 90° for optimal video watching experience.
You can withdraw from this study at any given time, all data will be anonymous. Please check the box below to agree with your participation.

- ○ Yes, I consent.
- ○ No, I do not consent.

Context/Customer journey

You will now be shown a video including a fictious scenario. Please watch this video carefully. After the video, you will be asked some questions.

To what extent...

	Not at all	Little	Slightly	Neutral	Moderately	Very	Extremely
...do you perceive this scenario to be realistic?	○	○	○	○	○	○	○
...do you see yourself actually in a comparable situation?	○	○	○	○	○	○	○

You indicated that you did either find this scenario not at all, little or only slightly realistic. Please indicate why that is the case.

EU Label

Please watch the following video carefully. Afterwards, you will be asked to answer some questions.

Please indicate to what extent you think the label shown to you is driven by an industry or by a democratic institution.

Industry label ○ ○ ○ ○ ○ ○ ○ democratic institution label

To what extent...

	Not at all	A little	Slightly	Neutral	Moderately	Very	Extremely
...do you believe that this label represents the interests of the general public?	○	○	○	○	○	○	○
...would you consider the sender of this label neutral?	○	○	○	○	○	○	○

Industry label

Please watch the following video carefully. Afterwards, you will be asked to answer some questions.

Please indicate to what extent you think the label shown to you is driven by an industry or by a democratic institution.

Industry label ○ ○ ○ ○ ○ ○ ○ democratic institution label

To what extent...

	Not at all	Little	Slightly	Neutral	Moderately	Very	Extremely
...do you believe that this label represents the interests of the general public?	○	○	○	○	○	○	○
...would you consider the sender of this label neutral?	○	○	○	○	○	○	○

Anecdotal video

Please watch the following video carefully. Afterwards, you will be asked to answer some questions.

Please indicate to what extent you think the information given to you is statistical (left) or anecdotal (right)

Statistical ○ ○ ○ ○ ○ ○ ○ Anecdotal

To what extent...

	Not at all	Little	Slightly	Neutral	Moderately	Very	Extremely
...do you think the video contains factual information?	○	○	○	○	○	○	○
...would you consider the visuals to be emotional?	○	○	○	○	○	○	○
...would you consider the music to be emotional?	○	○	○	○	○	○	○

Rational video

Please watch the following video carefully. Afterwards, you will be asked to answer some questions.

Please indicate to what extent you think the information given to you is statistical (left) or anecdotal (right)

Statistical ○ ○ ○ ○ ○ ○ ○ Anecdotal

To what extent...

	Not at all	Little	Slightly	Neutral	Moderately	Very	Extremely
...do you think the video contains factual information?	○	○	○	○	○	○	○
...would you consider the visuals to be emotional?	○	○	○	○	○	○	○
...would you consider the music to be emotional?	○	○	○	○	○	○	○

Demographics

Lastly, I would like to kindly ask you to answer the following questions.

What is your sex?

- ○ Male
- ○ Female
- ○ Binary / Wish not to disclose

Please indicate answers to the following two statements

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
I consider myself a frequent flyer	○	○	○	○	○	○	○
I consider myself to be environmentally friendly	○	○	○	○	○	○	○

Appendix II: Main study

Default Question Block

Dear Participant,
Thank you for participating in the research for my bachelor thesis on sustainable flying. This study is conducted by Johannes Hinkel, from the Faculty of Behavioural Management and Social Sciences at the University of Twente. The aim of my study is to explore the potential of more sustainable flying. The survey will take approximately 10 minutes to complete. You will be presented with a few short video clips. After each clip, you will be asked to answer some questions about the video you just saw. If you want to do so, you can pause the video or skip back if you think you have missed something important. **If you participate with your mobile phone**, I recommend tilting it by 90° for an optimal video-watching experience. Your data will be treated with care and will be subject to absolute confidentiality. Moreover, all collected data will be used exclusively and anonymously for the bachelor thesis in Communication Science. If you have any further questions, please do not hesitate to contact me by e-mail: j.h.hinkel@student.utwente.nl
I want to thank you for your time and participation in advance!
Participation in this study is voluntarily and you can withdraw from the study at any given time. Please check the box below to consent your participation.

P.S.: This survey contains a completion code for SurveySwap.io

- ○ Yes, I consent.
- ○ No, I do not consent.

Environmentally friendly behavior

You will now see some questions concerning your everyday behavior. Please keep in mind that answers given are anonymous and that there are no right or wrong answers.

Please indicate to what extent you agree to the following statements.

	Strongly disagree	Disagree	More or less disagree	Undecided	More or less agree	Agree	Strongly agree
I prefer to use long lasting products (rechargeable batteries, cloth bags) for a sustainable environment instead of disposable products.	○	○	○	○	○	○	○
To prevent unnecessary use of energy, I use light and	○	○	○	○	○	○	○

electric devices only when it needs.							
I pay attention to water consumption when using the sink and toilet.	○	○	○	○	○	○	○
I consider myself to be person that behaves environmentally-friendly	○	○	○	○	○	○	○

Rational vs. Emotional personality

In the following, you will be asked to answer questions about yourself.

Please indicate to what extent you agree to the following statements.

	Strongly disagree	Disagree	More or less disagree	Undecided	More or less agree	Agree	Strongly agree
When making a decision, I like to stick to the facts rather than be swayed by people's feelings	○	○	○	○	○	○	○
Regardless of what is logical, I generally listen to my heart when making important decisions	○	○	○	○	○	○	○

Intrinsically vs. extrinsically motivated personality

Again, some more questions about yourself. Please indicate answers.

	Strongly disagree	Disagree	More or less disagree	Undecided	More or less agree	Agree	Strongly agree
I can remain calm when facing difficulties because I can rely on my coping abilities	○	○	○	○	○	○	○
I am confident that I could deal efficiently with unexpected events	○	○	○	○	○	○	○
If I am in trouble, I can usually think of a solution	○	○	○	○	○	○	○

Video Journey

Please watch the following video carefully. It is recommended to watch it on full screen. Please make sure that your audio is turned on. Please watch the video all the way to the end.

Realisticness

To what extent do you perceive this scenario to be realistic?

Not at all realistic ○ ○ ○ ○ ○ ○ ○ Extremely realistic

Ranking of airlines

Please rank the three airlines presented in the video in order of your personal preference. The airline you like most should be placed on Rank 1 (via drag and drop).

Lufthansa

KLM

British Airways

Clarification

Please be aware that the choice you made for ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} is important for the rest of this study. Please treat all information provided to you in the following as if it was being provided by ${q://QID10/ChoiceGroup/ChoiceWithLowestValue}.

Stimuli

Please watch the following video carefully. It is recommended to watch it on full-screen.

Credibility

In the following, you will be asked some questions about the way you perceived the information provided to you by ${q://QID10/ChoiceGroup/ChoiceWithLowestValue}.

Based on the video you just saw, please indicate answers to the following statements.

	Strongly disagree	Disagree	More or less disagree	Undecided	More or less agree	Agree	Strongly agree
I trust ${q://QID10/ChoiceGroup/ChoiceWithLowestValue}.	○	○	○	○	○	○	○
${q://QID10/ChoiceGroup/ChoiceWithLowestValue} makes truthful claims.	○	○	○	○	○	○	○
${q://QID10/ChoiceGroup/ChoiceWithLowestValue} is honest.	○	○	○	○	○	○	○
I do not believe what ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} tells me.	○	○	○	○	○	○	○

Trustworthiness

In the following, a few more questions about your opinions towards ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} will be asked. Please rate these statements.

Based on the video you just saw, please say if you feel like ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} is:

Very undependable	○ ○ ○ ○ ○ ○ ○ ○	Very dependable
Very incompetent	○ ○ ○ ○ ○ ○ ○ ○	Very competent
Of very low integrity	○ ○ ○ ○ ○ ○ ○ ○	Of very high integrity
Very unresponsive to customers	○ ○ ○ ○ ○ ○ ○ ○	Very responsive to customers

Attitude

In the following, a few questions will be asked to you addressing ${q://QID10/ChoiceGroup/ChoiceWithLowestValue}

Please indicate your opinion based on the video you just saw. My overall impression of the ${q://QID10/ChoiceGroup/ChoiceWithLowestValue}-company is...

Bad	○ ○ ○ ○ ○ ○ ○	Good
Disliked	○ ○ ○ ○ ○ ○ ○	Liked
Satisfactory	○ ○ ○ ○ ○ ○ ○	Unsatisfactory
Negative	○ ○ ○ ○ ○ ○ ○	Positive
Favourable	○ ○ ○ ○ ○ ○ ○	Unfavourable

Willingness to pay (more)

Based on the video you just saw, please answer the following question.

	Not at all	Probably not	Undecided	Probably yes	Definitely
Would you be willing to pay an extra fee on your ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} ticket for the use of Sustainable Aviation Fuel (SAF)?	○	○	○	○	○

If ${q://QID10/ChoiceGroup/ChoiceWithLowestValue} would require you to pay an extra fee for using SAF, which percentage of your ticket price would you think is acceptable?

Manipulation check

We are now moving towards the end of the survey. Please answer the following statements.

I perceive the **information presented** in the scenario as...

Factual ○ ○ ○ ○ ○ ○ ○ Emotional

I perceive the **eco-label** presented in the video to originate from...

The airline industry ○ ○ ○ ○ ○ ○ ○ A democratic institution

Demographics

These are the last questions left to be answered before the end of this survey. Please indicate answers.

Please indicate your gender

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

Please indicate your age

Please indicate your profession

- ○ I am a student
- ○ Full-time employee
- ○ Part-time employee
- ○ I am self-employed
- ○ I am unemployed
- ○ I am retired
- ○ Other

Please indicate the country you currently live in

- ○ Netherlands
- ○ Germany
- ○ Other in Europe
- ○ Other outside of Europe

Appendix III: Video htmls

Usage	Description	Link
Pre-test	Customer journey 1st version	https://youtu.be/AH9hzIMkEr8
	EU-label introduction	https://youtu.be/b4KzkAjKR2g
	Industry-label introduction	https://youtu.be/OIp9vVayOyw
	Factual video	https://youtu.be/FNPGvV5glyg
	Emotional video	https://youtu.be/yc2ZdRYEYmw
Main study	Customer journey final version	https://youtu.be/L-L-UoMEH9I
	Stimuli 1 (EU, emotional)	https://youtu.be/RskUSQYdmtg
	Stimuli 2 (EU, factual)	https://youtu.be/5zpTuDQtCE4
	Stimuli 3 (Industry, emotional)	https://youtu.be/V_C5Syi2XkQ
	Stimuli 4 (Industry, factual)	https://youtu.be/YhMtJkKhALo

Appendix IV: Relevant studies on willingness to pay

Author	N	Environmental awareness	Travel frequency	Age	Income	Gender (=male)
Araghi et al. (2016)	261		+		+	
Cheung et al. (2015)	527	+			+	
Choi (2015)	349	+			+	
Fatihah and Rahim (2015)	250			+	+	
Jou & Chen (2015)	477	+	+			
Blasch & Farsi (2012, 2014)	1010	+	-	-	+	
Brouwer et al. (2008)	400	+	+		+	
Choi & Ritchie (2014)	349		+			-
Lu & Shon (2012)	1339	+		-	+	
MacKerron et al. (2009)	321					-
Schwirplies et al. (2017)	1005	+		-	+	
Sonnenschein & Smedby (2018)	500	+	-			-

Note: for the empty cells, estimates were either not available or insignificant.

Symbols +/- indicate a positive or negative relationship of WTP and the characteristic