

## Sustainability in the Purchase of Airline Tickets: Analysis of Digital Communication from the Perspective of Neuroscience

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**Abstract :** Tourism is one of the most important sectors worldwide since it is an important economic engine for today's society. It is also one of the sectors that most negatively affect the environment in terms of CO<sub>2</sub> emissions due to this expansion. In light of this, airlines are developing Voluntary Carbon Offset (VCO). There is important evidence focused on analyzing the features of these VCO programs and their efficacy in reducing CO<sub>2</sub> emissions, and findings are mixed without a clear consensus. Different research approaches have centered on analyzing factors and consequences of VCO programs, such as economic modelling based on panel data, survey research based on traveler responses or experimental research analyzing customer decisions in a simulated context. This study belongs to the latter group because it tries to understand how different characteristics of an online ticket purchase website affect the willingness of a traveler to choose a sustainable one. The proposed behavioral model is based on several theories, such as the nudge theory, the dual processing ELM and the cognitive dissonance theory. This randomized experiment aims at overcoming previous studies based on self-reported measures that mainly study sustainable behavioral intention rather than actual decision-making. It also complements traditional self-reported independent variables by gathering objective information from an eye-tracking device. This experiment analyzes the influence of two characteristics of the online purchase website: i) the type of information regarding flight CO<sub>2</sub> emissions (quantitative vs. qualitative) and the comparison framework related to the sustainable purchase decision (negative: alternative with more emissions than the average flight of the route vs. positive: alternative with less emissions than the average flight of the route), therefore it is a 2x2 experiment with four alternative scenarios. A pretest was run before the actual experiment to refine the experiment features and to check the manipulations. Afterward, a different sample of students answered the pre-test questionnaire aimed at recruiting the cases and measuring several pre-stimulus measures. One week later, students came to the neurolab at the University setting to be part of the experiment, made their decision regarding online purchases and answered the post-test survey. A final sample of 21 students was gathered. The committee of ethics of the institution approved the experiment. The results show that qualitative information generates more sustainable decisions (less contaminant alternative) than quantitative information. Moreover, evidence shows that subjects are more willing to choose the sustainable decision to be more ecological (comparison of the average with the less contaminant alternative) rather than to be less contaminant (comparison of the average with the more contaminant alternative). There are also interesting differences in the information processing variables from the eye tracker. Both the total time to make the choice and the specific times by area of interest (AOI) differ depending on the assigned scenario. These results allow for a better understanding of the factors that condition the decision of a traveler to be part of a VCO program and provide useful information for airline managers to promote these programs to reduce environmental impact.

**Keywords :** voluntary carbon offset, airline, online purchase, carbon emission, sustainability, randomized experiment

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