

The travel dream experience in pandemic times

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3

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10

11 **Abstract**

12 This study was developed to understand how tourists feel after dreamed travel experiences
13 ended up cancelled. The orchestra model that considers experiences as an intermingled
14 process was applied to analyse the negative feelings experienced by tourists during these
15 pandemic times. Through web scraping, over 40 thousand comments from 600 threads
16 discussing the pandemic impact on tourists’ inability to concretize their dreams were
17 extracted from the TripAdvisor forum. Those comments were subjected to data mining
18 techniques, including the generation of topic modelling and analysis of sentiment scores
19 across continents vis-à-vis reported cases and fatalities. Results suggested that despite the
20 disillusion for not being able to travel, tourists were understanding and mostly concerned with
21 the health of their peers.

22

23 **Keywords:** coronavirus; travel dreams; pre-travel experience; orchestra model; data mining.

24

25

26 **Introduction**

27 Tourist behaviour is a complex interaction of many influencing elements represented in the
28 orchestra model, from which the holidays' experiences is only one fraction of the overall
29 tourism experience (Pearce & Wu, 2016) that is made of three main stages: the pre-trip, the
30 trip and the post trip (Correia, 2002). This research focused on the pre-trip experience stage
31 where dreams and expectations are formed (Pearce, 2013), namely expectations that tourists
32 are willing to confirm during the trip to remember later (Correia, 2002). The confirmation of
33 tourists' expectations shapes their behavioural intentions influenced by their feelings,
34 emotions, and attitudes before and during their holidays (Sparks, 2007). The pandemic
35 reduced the tourism experience to the pre-trip stage, since most of the travels scheduled
36 simply did not happen, due to the imposed travel restrictions.

37 The impacts of this crisis from economic and social perspectives (Gössling et al., 2020) and
38 emotional clues from airline cancellations leading to worry and angry emotions (Jiang et al.,
39 2020) were brought to the discussion. In this vein, Kock et al. (2020) added to the
40 understanding of the relationship between the pandemic and tourists' psyche, by suggesting
41 that ethnocentrism, xenophobia and crowdedness influence perceptions of contagion, whereas
42 behavioural patterns of travellers, travel insurance and loyalty mitigate the perception of
43 contagion and consequently the risk of travelling. It is also known that the way destinations
44 and tourists deal with cancellations shape future behavioural intentions (Chew & Jahari,
45 2014).

46 Moreover, Ryan (2000) argued that rewarding and positive experiences are critical to tourism
47 development, and there are very few studies about elicit emotions when the service fails
48 (Nawijn & Biran, 2019). Accordingly, Larsen (2007) also argued that the assessment of
49 tourists' experiences relates to what they remember and how they feel. In this case, whereby
50 the experience stopped at the pre-trip, thorough research is needed to understand how tourists

51 deal with a tourism experience that ends at the dreaming (pre-trip) stage. This research
52 focused on the pre-trip stage assumed that dreaming and packaging for holidays was also an
53 experience and this experience was hindered if at the end tourists were not able to travel and
54 faced uncertainty about what to do, being this the underlining rationale for this research.
55 Grounded in the orchestra model, the conceptual model of this research was developed based
56 on the assumption that experience was to be measured in a composite and integrated way
57 where emotions changed in different settings and over time (Pearce, 2013). This articulated
58 way to measure experience resembles an orchestra where all the musicians play to a certain
59 end. The model was previously applied to study on-site experiences of Chinese Millennials
60 (Pearce, 2013) to measure paranormal tourism experiences (Pharino et al., 2018), and even to
61 understand hospitality education (Pearce & Zare, 2017).

62 In understanding this pre-trip stage as an experience, this paper aimed to understand how
63 tourists reacted to cancellations or postponement of their holidays, considering the five
64 components of the orchestra model proposed by Pearce (2011, 2013): sensory, affective,
65 cognitive, behaviours and relationships. Since an optimistic perspective was adopted, the
66 context of the cancelled tourism experiences was added in order to contribute to building
67 knowledge on how tourism managers may respond to tourists in order to mitigate the
68 evaluation they do of their impossibility to enter the trip stage of their holidays, whereby their
69 perceptions act as moderators for revamping tourism in those places. This facet is a field
70 where a research gap was clearly identified (Ma et al., 2013). This research uses the
71 comments left by tourists worldwide in TripAdvisor's forum, posts that truly exhibit evidence
72 of feelings, emotions, cognition, and attitudes tourists verbalized about their planned tourism
73 experiences. Additionally, this research brings some insightfully evidences of how tourists
74 reacted to unexpected and unprecedented events being those results important to the
75 development of scientific literature on the stage of dreaming and planning holidays.

76 **Literature review**

77 Tourist behaviour is mostly related to living experiences, and this makes all the difference
78 because as Pine et al. (1999:3) advocated “experiences are as distinct from services, as
79 services are from goods”. An experience implies emotions and feelings, which are not of great
80 importance in goods, and that has attracted little attention from researchers of consumer
81 behaviour literature so far, but it is a rather critical factor in the tourism field. Before
82 travelling, people put great effort into collecting information about the tourist destination and
83 daydream for weeks, months, even years, with their holidays and their travel experiences.
84 Tourists plan in advance their travels and fantasise about their experiences just before leaving
85 home and during travelling because tourists interact with the destination in a mutual influence
86 process which demands great involvement of the participant (Pearce, 2005). This interaction
87 mechanism led to the adoption of the orchestra model.

88 The orchestra model considers several traits of tourist responses to the external stimulus of a
89 tourist experience. The main idea of this model comprising five components (sensorial,
90 affective, cognitive, behavioural, and relationship traits) is that all these components
91 contribute simultaneously to tourists' responses (Pearce, 2011). The analogy with an orchestra
92 comes to illustrate that all these five components moderate the assessment of tourists’
93 experiences, where all the five components intervene in a very harmonic way. Even knowing
94 that the cancellation or postponement of tourists’ travels consist in a non-event, for the
95 purpose of this research we considered all the five dimensions of this model, as we assumed
96 that tourism experiences start long before the on-site experience and last long after the on-site
97 experience is over (Pearce, 2005), being the pre-trip also an experience.

98 **Sensory components**

99 An individual perception is built from sensory experiences acquired through the five senses
100 (i.e., vision, sound, scent, taste, and touch) (Oliveira et al., 2019), and tourist experiences need

101 to be assessed by their senses. The literature has been fruitful regarding sensory experience in
102 tourism, with empirical studies covering a wide range of environments and contexts (e.g.,
103 Agapito et al., 2014). Indeed, sensory marketing has been given increased attention in the last
104 few years (e.g., Loureiro et al., 2013; Ali & Ahmed, 2019) since it is seen as marketing
105 engaging consumers' senses and affecting their perception, judgment, and behaviour (Krishna,
106 2012).

107 **Affective components**

108 Affective components mostly rely on emotions. The endeavour to find emotion categories
109 was kept throughout decades, with the first contribution being given by Russel (1980) who
110 proposed a circumplex model of affects. Later, Gray et al. (2001) showed that emotions,
111 moods, and temperaments played an important role in all the events of our lives. The
112 dimensional approach considers positive or negative valence as well as the intensity of
113 emotions (Bagozzi & Pieters, 1998; Guerreiro et al., 2015) whereas the categorical approach
114 describes emotions mostly based on the emotions wheel put forward by Plutchik (2001). More
115 recently, Nawijn & Biran (2019) emphasized the importance of the negative emotions in
116 tourism. Jiang et al. (2020) demonstrated that worry and anger moderated an unpleasant
117 experience of flight cancellations as it happened during the pandemic.

118 In this unprecedented time, it is assumed that the current context makes people more
119 understanding (Knollenberg et al., 2021). Therefore, positive and negative emotions are
120 expected to be found.

121 **Cognitive elements**

122 Cognition relates to knowledge and beliefs, comprising perceptions, thinking propositions,
123 choice values, learning procedures, satisfaction and tourist personality (Su & Hsu, 2013; Wu
124 et al., 2014; Pina et al., 2019). Cognitive elements are frequently investigated together with
125 affective components to understand each contribution to the formation of tourist destination

126 image and preferences (e.g., Lin et al., 2007). Kock et al. (2016) presented a model that
127 correlates imagery with affect and destination image to explain tourists' behavioural
128 intentions. In this particular case, cognitions relate with the beliefs and perceptions tourists
129 formed about a destination based on the information they have previously collected about it.

130 **Behavioural components**

131 Behaviour relates to movement of tourists in space and time. In general, behavioural
132 components explore what tourists do and how they interact with the situations offered at the
133 destination (Poria et al., 2003).

134 Behaviour can be investigated as a consequence of tourist experience in a dynamic
135 psychological process mediated by perceived value and satisfaction (Lin & Kuo, 2016), being
136 influenced by creative tourists' experiences and associated memories which have shown good
137 predictive power (Ali et al., 2016). Regarding the latter, antecedent factors of memorable
138 tourism experience and their relationship to tourists' behavioural intentions have also been
139 researched, specifically factors such as hedonism, local culture, involvement and knowledge
140 (Coudounaris & Sthapit, 2017).

141 **Relationships**

142 Relations to be considered include the relationship among tourist companions, tourist
143 providers, tourists with other tourists, and tourists interacting with local people. It is well
144 known that if something goes wrong with friends or family during a tourism experience,
145 tourists' perceptions will not be the same (Schmitt, 1999). Also, if the empathy a guest feels
146 towards the host is not positive, his/her experience is perceived differently (Yüksel, & Yüksel,
147 2007).

148 The relationship between tourists and destination residents is also a fascinating one. Indeed,
149 resident-tourist social interactions can be assessed to expand tourism value co-creation since
150 both residents' life satisfaction as well as perceived economic and social-cultural benefits and

151 costs brought to destinations by tourism development were found to impact on value co-
152 creation with tourists (Lin et al., 2017). Moreover, hosts, residents and guests interactions
153 were also revealed in recent research which measured the extent of human presence in travel
154 photos shared in social media platforms by travellers (Nikjoo & Bakhshi, 2019). Interestingly,
155 only one-third of photos portraying human presence included residents, and solely ten per
156 cent of all photos showed tourists and hosts beside each other.

157 **Applications of the orchestra model**

158 This model was applied in different settings and contexts, such as within Chinese visiting Italy
159 (Pearce et al. 2013; Pearce & Wu, 2016; Wu & Pearce, 2016), within paranormal experiences
160 (Pharino et al. 2018), to name a few.

161 Those applications revealed that the five components mingled those experiences. For example,
162 the most important component of the model within chinese tourists visiting Italy were
163 behavioural and cognitions (Pearce et al. 2013; Pearce & Wu, 2016; Wu & Pearce, 2016).
164 Whereas Paranormal experiences in Indonesia were mostly driven by affective sensations and
165 emotions, behavioural and cognitive components were not so important as they did not totally
166 understand the unusual experience (Pharino et al. 2018). Relationships, in particular the travel
167 party, were important in both settings.

168 These applications of the orchestra model suggest that emotions, sensory, behaviours,
169 cognitions and relationships all mattered to explain those experiences with slight differences.

170 This means that the orchestra model already used in other studies provides the most complete
171 framework to understand a tourism experience that is not tangibilized with the on-site
172 experience. Figure 1 illustrates the orchestra model adapted to our context.

173 **Please insert figure 1 around here**

174

175 **Methodology**

176

177 The undertaken procedure adopted secondary data collected from social media. Some of the
178 advantages of such information source include the large volume of usually available data, and
179 the fact that it does not require the active participation of individuals. TripAdvisor is one of
180 the most recognized and appreciated online review platforms within the tourism and
181 hospitality industries (Oriade & Robinson, 2019). However, online reviews are typically
182 written about past experiences, whereas this study focuses on travellers who were not allowed
183 to travel due to the pandemic crisis. Besides online reviews, TripAdvisor also makes a forum
184 available to its users for the discussion of topics considered relevant by travellers.
185 Specifically, the TripAdvisor forum has different topics according to the desired destination,
186 enabling to use the corresponding discussions as proxies of travellers' perceptions about each
187 destination. Recently, few researchers have already paved the way in using the TripAdvisor
188 forum (e.g., Oriade & Robinson, 2019). Given the worldwide impact of the coronavirus
189 pandemic in travelling activities, a large number of concerned travellers have already
190 discussed the situation on TripAdvisor's forum. Thus, TripAdvisor was chosen as the data
191 source for gathering concerned tourists' opinions. The large number of comments required an
192 automated process to retrieve them efficiently.

193 Web scraping consists in mimicking a user's behaviour in crawling over web pages through a
194 computer program and gathering all the needed data (Johnson et al., 2012). It has recently
195 been adopted by several researchers within the tourism and hospitality domains, who stress
196 the advantage of collecting a large dataset in a short period of time (Moro et al., 2019). We
197 chose the "rvest" package from the R statistical tool because it is open source and has high
198 flexibility to retrieve web page elements provided by the R scripting language. The search
199 page of the forum was queried for coronavirus related words (i.e., "corona virus",
200 "coronavirus", "covid"). This procedure enabled the retrieval of a total of 600 threads which
201 were starting specifically to discuss the subject, containing comments published between

202 January 20 and May 6, 2020. Since the comments were extracted from a travel-related forum,
203 published after the COVID-19 outbreak emerged, and contained an identifiable COVID-
204 related word, we deemed those comments as relevant for our analysis. Further, for each of the
205 600 threads, the process went through all the pages of the comments within each thread and
206 collected all comments. The result consisted in a dataset with a total of 40,143 comments.
207 Based on the comments, we needed to make sense of the users' lexica. Thus, the next step
208 consisted in extracting all relevant words within the scope of the six components adapted
209 from Pearce's orchestra model. First, part-of-speech tagging was performed using the
210 "openNLP" R package, which enables the classification of each word within a sentence
211 according to its function. Words that were meaningless when isolated by themselves were
212 discarded, such as pronouns and adverbs, and only nouns (which represented
213 elements/concepts), verbs (actions/intentions), and adjectives (emotions) were retained. Then,
214 lemmatization was applied via the "textstem" R package, which consists in reducing words to
215 a common meaningful root (e.g., "travelling" to "travel"). Finally, all the 37,643 words from
216 the set were transformed to lower case in order to enable direct comparison with the
217 comments.

218 In the second step, the goal was to obtain a pruned set of the most frequent words used in the
219 written comments (using the "tm" R package). Thus, lemmatization was applied to all words
220 within comments, and the text was transformed to lower case for a direct matching with the
221 set of 37,643 words. Additionally, given the size of the initial document-term matrix (37,643
222 words \times 40,143 comments), term sparsity reduction was performed, i.e., by removing all
223 words that occurred infrequently within the set of comments. Such step enabled to obtain a
224 frequency table with all words occurring 20 or more times (20+) in all comments.

225 Next, all the 3,152 words satisfying the 20+ criterium were classified according to one of the
226 six components, five from the Pearce model (i.e., sensory, affective, cognitive, behavioural,

227 and relationship), and context that derives from the actual situation, as previously clarified, or
228 none, if the word was not related to any of the components. Finally, the topics were computed
229 through topic modelling (Aggarwal & Gour, 2020). Thus, first, the dictionary composed of
230 the 3,152 previously identified relevant words and their corresponding dimensions were
231 applied, by replacing all words occurring in the comments by the corresponding dimension. A
232 total of 971 comments not matching any dimension were discarded (40,143–39,172). Finally,
233 the topic model was computed using the Latent Dirichlet Allocation (LDA) algorithm, which
234 has been successfully applied in textual data collected from social media in tourism contexts
235 (e.g., Guo et al., 2017). The “topicmodels” R package was adopted for computing the topics.
236 The LDA algorithm aims at computing the distance of each comment to each considered term
237 (β distribution), and to each topic (α distribution). Since the number of topics is an input to
238 LDA, a set of iterations was performed to tune such parameter using the “ldatuning” package
239 from R, which led to a tuned number of six topics. Following the approach by Calheiros et al.
240 (2017), we considered the comment which was associated with the topic it matched best. For
241 the terms (or dimensions, in our case), we considered all of them since the goal of the study
242 was to analyse how the different conceptual dimensions were aggregated per topic. Thus, the
243 β distribution enabled to validate how closely related was each dimension to a given topic.

244

245 **Results**

246

247 First, we began by characterising the pruned set of 39,172 comments. Threads were attributed
248 to forum topics on the TripAdvisor forum, which were directly related to travel destinations.
249 The total of 600 threads was linked to destinations in 84 different countries in the six
250 continents. Also, a total of 1,778 comments were within threads not linked to any particular
251 place; instead, those were related to broad subjects such as “air travel”, “timeshare vacation

252 rentals”, and “senior travel”, among others. We computed the sentiment score for every
253 comment using the “sentimentr” R package, and also the comments’ word length. Table 1
254 shows the distribution of comments per continent, and statistics regarding word length and
255 sentiment score. The large standard deviation values for both metrics denoted a heterogeneity
256 among the comments for all continents.

257 **Please insert table 1**

258 To better understand the evolution of the pandemic from the eyes of potential travellers, the
259 sentiment score per day was plotted together with the reported numbers of daily new cases
260 and new fatalities (ECDC, 2020). Figure 2 shows the evolution per continent (except for
261 Antarctica, which is not permanently habited and had not recorded any positive COVID-19
262 case). As expected, as the numbers of daily positive cases and fatalities increased, the
263 sentiment score tended to lower within the next few days, while the opposite effect was also
264 observed.

265 **Sentiment Scores by Continent**

266 **Please insert figure 2**

267 In **Africa** (Figure 2) it seems that sentiment score volatility started long before the beginning
268 of new cases in this continent and was kept very pronounced along the following months.

269 Since the first confirmed case in Africa took place on February 25, 2020, that volatility of the
270 sentiment score is likely to have been caused by news coming from Asia and Europe.

271 In the **Americas** (Figure 2), uncertainty started long before the beginning of the appearance of
272 cases, probably influenced by the news that came from Asia. When the cases started to grow,
273 sentiment scores were more stable, perhaps due to downplaying effect exerted by
274 governments.

275 In **Asia** (Figure 2) sentiment scores were volatile in February, and in April and May fear
276 started to grow again as the number of cases increased worldwide. Asia was the first epicentre

277 of the COVID-19 crisis as the disease spread from the city of Wuhan to the whole of China
278 and some neighbouring countries, such as South Korea. Having failed to contain the crisis at a
279 regional level, both local and world health authorities witnessed the disease spreading
280 globally, with the World Health Organization (WHO) declaring the situation as a global
281 pandemic on March 11, 2020.

282 The sentiment score in **Europe** (Figure 2) followed the tendency of the other continents with
283 considerable variations in February and April as the cases started to increase.

284 Finally, in **Oceania** (Figure 2), despite the fact that fatalities were stable along the three
285 months, the sentiment scores varied according to the number of cases registered, suggesting
286 that fear was very present.

287 As of October 2020, the highest number of cumulative cases had taken place in the Americas
288 (48.5%) followed by Asia (31.4%) and then Europe (15.8%). However, in terms of deaths, the
289 Americas (55.1%) had more than half worldwide, followed by Europe (21.8%) and Asia
290 (19.5%). On average it seems that this pandemic situation was perceived long before the cases
291 started to increase mostly because of the news. Uncertainty and volatility paved population
292 feelings.

293

294 **Topic Modelling**

295 Topic modelling was applied to the whole set of comments and then applied to each of the
296 continents, in order to understand which topics and components were crosscutting the
297 perceptions of non-experience in each of the continents. This analysis offers a homogenized
298 understanding as well as a heterogenized one. Figure 3 shows the homogenized tourist
299 perceptions of non-experience across the globe. The depicted topics suggested that tourists'
300 perceptions of non-experience could be grouped in six topics.

301 **Please insert figure 3 around here**

302 **Topic 1** relates to relationships and affective components. Relevant comments to illustrate
303 are: *“Honestly, that latest update is what makes me nervous about keeping my trip on the 20th*
304 *as this travel could potentiate symptoms of COVID-19 in my family”*. *“This thread has*
305 *become tediously pointless. If they decide to refund or allow changes then that will be a nice*
306 *thing for them to do...”*. The comments show that affective (nervous, tedious) and
307 relationships (family, relation with the hosts) components were mixed, tourists assumed that it
308 was impossible to travel, mostly because they wanted to protect others but they were
309 expecting that some action from the tour operators, basically to refund or postponed, even if
310 they recognized this was an exceptional situation.

311 Tourists’ posts grouped in **Topic 2** focused on the contextual setting emphasizing to where
312 and when they were planning to travel. The following are illustrative comments: *“I’m flying*
313 *over next Saturday 15th I have all my fingers and toes crossed that everything will be ok”*; *“I*
314 *am still looking forward to arriving on Saturday in Aruba!!! If I end up staying because of all*
315 *this I can’t think of a better place to be stuck!”*. Some of the comments aside from the hope of
316 being able to travel soon related to the evolution of the pandemic, the need for quarantine and
317 the outbreak and lockdown demanded by the situation. These results suggest that tourists were
318 still willing to travel but somewhat accommodated with the situation.

319 **Topic 3** combines context with behavioural attitudes. Behavioural attitudes can be split in two
320 main streams: cancel or postpone their holidays, being these behaviours mostly influenced by
321 the place to where they were planning to travel. An illustrative comment under this topic is:
322 *“We cancelled our reservations for our mid-April trip this morning. Beyond the risk of air*
323 *travel, you have people pouring into Aruba from all over the world. Aruba will be there in*
324 *2021 and beyond. Why take this risk?”*

325 *“I don't consider myself a paranoid person at all and to be honest I've been known to push*
326 *myself to limits on occasion, but I have a trip planned in early April and I'm going to*
327 *postpone”*. These results suggest that the place to where they were travelling moderates their
328 behaviour of postponed or cancelled to deal with the fear and uncertainty they were facing.

329 **Topic 4** combines cognitive components with relationships, suggesting that the safety of their
330 travel companions was of utmost importance. The words listed in this topic show that tourists
331 used all the social networks they could handle to be informed about the evolution of the
332 pandemic, but they were still waiting for informative prospects from the destinations. The
333 following comments underscore those findings: *“We are following the posts in Facebook and*
334 *Instagram to an informed decision.”*; *“We cannot travel with a young child due to the virus*
335 *situation. Have you been advised, officially, not to travel?”*

336 **Topic 5** groups affective and sensorial components suggesting that what tourists felt was very
337 important to understand their non-experience. The comments on this topic suggest dichotomic
338 feelings: on the one hand, tourists were panicking, anxious and scared; on the other hand, they
339 felt blessed for not being symptomatic, happy and wishful of being able to travel in the near
340 future. Faith and relief as well as freedom and confidence were also some of the words most
341 used by tourists to characterize this situation.

342 These comments emphasize this dichotomy of feelings: *“I have faith in the government here*
343 *to do some effective to protect against the virus”*; *“I am feeling a bit uncertain– I am getting*
344 *into a panic mode.”*

345 **Topic 6** combines behavioural with affective components to a lesser extent, suggesting that in
346 this group tourist perceptions related mostly with the care the destinations provided them
347 during this pandemic. Illustrative comments are: *“Closure ... of an event ... should mean that*
348 *refunds will follow at the company's earliest possible date... But may not. We are living in*
349 *extraordinary times.”*

350 **Topics by Continent**

351 Topic modelling was also performed on each of the continents under analysis (Tables 2). For
352 each topic, the β distribution value is shown per component, with a lower β denoting a
353 stronger relation of the component to the topic.

354 **Please insert table 2**

355 In **Africa**, the most important topics were topics 1, 2, and 3 with 25%, 18% and 17% of the
356 posts. Topic 1 grouped posts that mixed the importance of the cognitive ($\beta = 0.5$) and
357 relationship ($\beta = 0.93$) components, whereas topic 2 grouped mostly posts associated with the
358 affective ($\beta = 0.06$) component. One example emerging from topic 2 is a post denoting that
359 the non-experience has “... *gone from a dream into a nightmare*”, which reveals the
360 uncertainty within the affective component associated to COVID-19. In turn, topic 3 grouped
361 behavioural ($\beta = 0.01$) related posts. The non-experience in Africa seemed to be very
362 pondered in some extent with a great emphasis on affective, behavioural and cognitive
363 components.

364 In the **Americas**, topics 1, 2 and 4 absorbed the highest number of posts, 25%, 20%, and
365 16%, respectively. Topic 1 is entirely related to the COVID-19 context (perfect β of 0). Topic
366 2 grouped affective posts ($\beta = 0.29$) while topic 3 aggregates the behavioural ($\beta=0.85$) and
367 affective ($\beta=0.98$) components, suggesting the affective component triggered by the non-
368 experience is leading to affective expressions towards the situation. For example (from topic
369 2), one user stated that “*The spread of the virus is bad news... need to ask for refund...*”. This
370 is a situation that shows the negative feelings towards the pandemic was leading to
371 subsequent actions from non-travellers, such as asking for a refund.

372 In **Asia**, topics 1, 2 and 3 absorbed the highest number of posts, 24%, 19% and 18%,
373 respectively. Topics 2 and 3 are both mostly associated with the pandemic context ($\beta=0.33$
374 and 0.0, respectively), although topic 2 also emphasizes the relationship component ($\beta=1.27$).

375 This relevance of the context component is related to the coronavirus first spread more steeply
376 in Asia (specifically, in China). The following post, where a traveller is concerned with Visa
377 free transit, is an example of topic 2: “*Does anyone know how the corona virus is affecting*
378 *the 24 hours visa free transit in PEK airport?*”. The remaining topics address the components
379 of cognition ($\beta=0.21$ for topic 1), affective ($\beta=0.27$ for topic 4), and behavioural (for both
380 topics 5 and 6). These results suggested that tourists planning to travel to Asia perceived their
381 non-experience more as individual instruments than as an orchestra.

382 In **Europe**, topics 1, 2, 3, and 4 contained most of the posts with 21%, 18%, 17%, and 16%,
383 respectively. Topic 1 shows evidence of an orchestra where most components play a
384 significant role, with β s from 1.00 to 1.85 for relationship, affective, sensory, and behavioural
385 components. Some examples of posts associated with topic 1 include Italy as a destination,
386 where the disease caused havoc in the first place, such as the following: “*Because no one can*
387 *come in and this is a dramatic thing for the person dying. They die alone*”. As for the key
388 context component, it clearly emerges in topics 3 and 6. This is a similar result to Asia,
389 providing evidence that there was a significant fraction of posts that were solely related to
390 concerns regarding the pandemic, not focusing on the non-experience in itself.

391 **Oceania**, given as a worldwide reference in beating coronavirus, presented three topics that
392 comprised most of the posts, topics 1,3, and 2 with a quota of 22%, 19%, and 17%,
393 respectively. While the context component is also salient in two topics (3, with $\beta=0.00$, and 5,
394 with $\beta=0.66$), topic 5 suggests that such context is leading to specific actions, such as
395 cancellations and refund requests. This is a result aligned with the one obtained for America.
396 The posts gathered in these topics (e.g., “*A bit of Deja vu? You said it!*” for topic 3) provide
397 evidence that the relevance of context was leveraged because the disease spread first in Asia,
398 and then in Europe (in both the context component was clearly salient in two topics), while in
399 America the outbreak occurred later, giving time for prospective (non-)travellers to take

400 actions (behavioural component), the same occurring in Oceania which was more successful
401 in slowing the disease spreading.

402

403 **Conclusions and implications**

404

405 The Covid-19 pandemic has severely impacted tourism activity in our planet. This manuscript
406 reported the results of a study focused on understanding the impact of coronavirus on non-
407 tourism experience using the orchestra model, a model designed to assess experiences putting
408 together attitudes, emotions, cognitions, relationships and contexts. This model was chosen to
409 allow this set of components, and because the preparation of the travel is also an experience
410 that needs to be explain. Comments shared by tourists on the TripAdvisor forum discussing
411 the pandemic situation impacting their travel were analysed using data mining techniques.

412 Through web scraping, more than 40 thousand comments in 600 threads were extracted using
413 “corona virus” OR “coronavirus” OR “covid” in the search query. This plan was followed by
414 a word selection procedure involving a total of seven steps leading to the setup of a frequency
415 table including over 3 thousand words which occurred twenty or more times in all comments.
416 Next, topic modelling was performed to classify those words according to one of six
417 components, five from the orchestra model (sensory, affective, cognitive, behavioural, and
418 relationship) and context.

419 The comments were linked to each continent with most of them referring to the Americas,
420 Europe, and Asia, respectively. Sentiment scores were computed and plotted together with the
421 number of the cases as well as deaths taking place on a daily basis for each of the continents.
422 This exercise allowed the observation of a decrease in sentiment scores whenever reported
423 numbers of new cases and fatalities were increasing and vice versa. However, timewise
424 sentiment scores showed some misalignment between continents. For instance, Africa started

425 to present sentiment score volatility way before the first cases reported in this continent since
426 it witnessed the epicenter taking place in Asia and moving to Europe before it was struck by
427 it. The Americas also showed a pattern closer to Africa. Asia was the continent where
428 sentiments started with the onset of the virus epidemic, later turned to pandemic across the
429 globe.

430 Six topics were unveiled by applying topic modelling to the entire set of comments as well as
431 applied to each of the continents and components with the aim of understanding perceptions
432 of tourist non-experience. Whereas topic 2 only singled out context, topics 4 and 6 focused on
433 two components with the former strongly emphasizing cognition and the latter behaviour
434 elements. Both topics 3 and 5 addressed three components but whereas the first focal point
435 was context and behaviour, the second was based on affection and somewhat in sensory
436 elements as well. Finally, topic 1 spread throughout four of the six components with the clear
437 top three being relationship, affective and behavioural.

438 From a geographical perspective, Africa showed topics 1, 2, and 3 predominating (60 per
439 cent) with affective and sensory components being underlined. This pattern of dominant
440 topics was interestingly similar to Asia (61 per cent). In the Americas, 61 per cent of the post
441 were related to topics 1, 2 and 4 whereas in Europe four different topics (1, 2, 3 and 4) played
442 a primary role (72 per cent). Last, Oceania had three chief topics (1, 2, and 3) accounting for
443 58 per cent of the posts.

444 Considering the orchestra model as our research framework (Figure 1), it is appropriate to
445 look at some key findings regarding each experience element as well as what are their
446 relationships among the five elements. Thus, in summarizing our finding and reflect on our
447 contribution to the orchestra model of tourist experience, we analysed the position of each
448 component in the topics generated for the five continents (Tables 2 to 6). First, two

449 components are given significant more prominence overall, specifically the behavioural and
450 affective dimensions (average of 2.6 and 2.7 positions, respectively), followed by the
451 cognitive (3.6) and relationship (3.7) ones, and lastly by the sensory dimension (4.7). Second,
452 when addressing each of the continents, Asia clearly leads in the cognitive component (3.0)
453 versus the worst performer, Europe (4.2), whereas the latter region emphasizes more the
454 sensory element (4.0 vis-à-vis 5.3 for the Americas) which in turn stresses the affective
455 element.

456 There are several contributions of this research. First, at the theoretical level this research
457 brought to the analysis a very important stage of tourist experience: the dreaming and
458 planning stage, where tourists experience the highest levels of uncertainty due the number of
459 decisions they have to make. Second, the mixed effect orchestra model are of utmost
460 importance as any decision would be taken out of an intermingled of factors. Methodological
461 speaking, topic modelling and data mining are the future of tourism research. Surveys and
462 questionnaires have a number of limitations that these techniques do not have. Furthermore,
463 the TripAdvisor forum shows a great increase of stories shared during this pandemic which
464 suggests that tourists were willing to share their cancellations and uncertainty fears, stories
465 that they were willing to verbalize as they did, with some of the collected sentences actually
466 showing the richness of the analysis done along this research. Additionally, at the empirical
467 level, this study shows to the industry that there is a consensual understanding that
468 reimbursements for all the situations are unfeasible which is important and brings some solace
469 to the industry. Postponements, updated information and some care with the tourists are
470 avenues to reinforce the engagement of the tourists with the place and to ensure their return.
471 Furthermore, the declarations of the tourists suggest how they need to proceed, and this is
472 clearly a matter of updated information. Empirically speaking, tourism businesses and
473 destination marketing organizations could benefit from this research in guiding them when

474 setting up marketing communication strategies and in conveying messages tailored to the
475 identified results. Future research could delve into specific findings on a country level basis to
476 map out derived knowledge from generating markets and tourist destinations.

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