The Attraction of the Cosmos: How information inducing happiness and impression affects attitudes toward space tourism

Tam-Tri Le [1], Ruining Jin [2,*], Minh-Hoang Nguyen [1,3], Quan-Hoang Vuong [1]

[1] Centre for Interdisciplinary Social Research, Phenikaa University, Hanoi 100803, Vietnam

[2] Civil, Commercial and Economic Law School, China University of Political Science and Law, Beijing 100088, China

[3] A.I. for Social Data Lab (AISDL), Vuong & Associates, Hanoi 100000, Vietnam

* Corresponding: cu224004@cupl.edu.cn

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Abstract

Space tourism is an emerging field where few people have direct experience. However, considering the potential in the near future, it is beneficial to better understand how related information influences people's attitudes about this new form of tourism. Employing information-processing-based Bayesian Mindsponge Framework (BMF) analytics on a dataset of 361 respondents consuming content related to space tourism on Chinese social media, we found that induced happiness and impression are positively associated with willingness to try space tourism. Information authenticity positively moderates these two associations. Our findings emphasize three aspects of information during the processes of reception and filtering: meaning, intensity, and trust. Since promotional materials for space tourism rely heavily on mental simulations rather than objective feedback, creative uses of digital technology are advantageous. However, precautions must be taken to prevent exploitation, such as false advertising, exaggeration, and emotional manipulation.

Keywords: space tourism; social media; information authenticity; attitudes; Bayesian Mindsponge Framework

> "How does this steel bird fly so fast that no other birds can catch up?"
>
> In "The Philosopher Bird"; *The Kingfisher Story Collection* (2022)

1. Introduction

From the very early days of existence on this planet, our species has always wanted to reach for the stars. Thanks to advanced spaceship technologies, this is no longer a dream in the modern era. However, this reality is only reserved for a privileged few. Jeff Bezos – the founder of the multinational e-commerce giant Amazon – was rather well-known for his expensive short trip to space, kickstarting widespread talks about the potential of this type of exotic tourism. Space tourism is still very new and in its incubation period. Fortunately, this does not hinder the exploration of space through mental simulations or, casually speaking – fantasizing. With the help of technology, promotional content of space tourism can bring (recorded or virtually generated) mysterious space trips directly to personal digital devices. And thus, regardless of the current physical and financial barriers, the attraction of the great unknown beyond the sky can start right now from the imagination within the mind.

Space tourism is a specialized sector of the aviation industry that aims to provide tourists with the opportunity to become astronauts and experience space flight for pleasure, business, or recreational purposes (CiVelek & Türkay, 2019; Graham & Dobruszkes, 2019). There are five main components of space tourism, including stratospheric flights, suborbital flights (Carandente V, 2013; Chang, 2020), low-orbit space flights (Klemm & Markkanen, 2011), virtual flights (Ceuterick & Johnson, 2019; Damjanov & Crouch, 2019; Prideaux & Singer, 2005), as well as observation of spacecraft launches on spaceports (Pásková et al., 2021). However, except for virtual flights and observation, most of the components of space tourism could be very costly; therefore, space tourism in its current form is available to only a few highly wealthy people (Graham & Dobruszkes, 2019). Among these people, some famous space tourists have expanded the awareness of space tourism in public, including billionaires such as the founder of Amazon, Jeff Bezos, and English business mogul Richard Brason (Kamin, 2022).

Thanks to the advancement of technology in aerospace, although outer space tourism remains a privilege to the industrial elites, space tourism at, its broader definition has become relatively more affordable and less risky (Pásková et al., 2021). For example, in a case study, it has been corroborated that space tourists can use supersonic fighter jet flights to reach the stratosphere and enjoy the view of the curvature of the earth, and experience the feeling of weightlessness on modified aircraft that perform aerobatic maneuvers known as parabolas via services offered by companies such as MiGFlug and the Zero Gravity Corporation in Russia and the United States, respectively (Henderson & Tsui, 2019). The services also include guided tours of space training centers, medical checkups, and merchandise with prices ranging from about US$13,500 to US$19,000 for the supersonic fighter jet flights and about US$195 (non-flight version) to US$4,950 for the weightless experiences (Henderson & Tsui, 2019).

In the next few decades, the market income for commercial space tourism is expected to increase exponentially, and space tourism technology will afford tourists to go beyond sub-orbital flight to include orbital and extraterrestrial travel (Yazici & TiWari, 2021). Then, like many industries that entail extensive advertising and promotion to stimulate consumers' interest, the space tourism industry would also need its agencies to make promotion marketing strategies accordingly. While space tourism is a relatively new branch, it is still part of the tourism industry. Consumer psychology in tourism can be applied when analyzing potential space tourists' psychological pathways during their decision-making. On the one hand, humans tend to rely on prior experiences as references for related decision-making, but on the other hand, curiosity to seek novel experiences drives tourists to visit new places (WE forum, 2019). Therefore, first-time tourists are usually inexperienced but eager to acquire some prior knowledge about the upcoming tour they want to try. In the modern digital infosphere, tourists are increasingly relying on online sources where they can learn from available knowledge and indirect experience to plan and manage their future trips. Social media platforms are great information channels for such knowledge management systems in the tourism industry, providing tourists with access to critical knowledge (Di Virgilio, 2018). This knowledge management process includes knowledge creation, sharing, and preservation processes. Specifically, there are several "Need Generators" in the system. Social media platforms act as information exchange environments for potential tourists. Certain content works as "supporters" that reinforce consumers' need to travel. Social media influencers play the role of trusted sources to offer their own prior experience as "guiders" that have a direct impact on consumers' decision-making. Social media content also works as "approvers" that consumers use to cross-check their travel destination and services and confirm or comparing their personal perceptions (Liu et al., 2020).

Modern technology also has a far-reaching impact on tourists' information acquisition and marketing strategies. The integration of technologies such as Computer-Generated Imagery (CGI), Interactive Videos (IR), Virtual Reality (VR), and Augmented Reality (AR) has the potential to provide new and innovative ways for tourists to experience many simulated elements. CGI can be used to create virtual tours of destinations, allowing tourists to visually assess a location before they visit. This can help build excitement and anticipation for the trip (Yuan et al., 2019). IR can provide tourists with an immersive sensory experience of the tour, allowing them to explore locations in a more engaging way (Ortega-Fraile et al., 2018). VR can provide tourists with an even more highly immersive sensory experience, allowing them to explore the location more realistically, also bypassing physical burdens (e.g., terrain obstacles) in certain locations (Lagarense et al., 2018). AR can provide tourists with additional information along the tour, such as history, culture, and natural features. This can help to enhance tourists' knowledge and provide a more educational experience (Misra, 2023). Many of these digital technologies can be integrated into producing social media content aiming to promote space tourism. Due to the special nature of this type of tour, simulated presentation using such technologies is heavily relied upon for knowledge diffusion.

Considering the lack of real experience in space tourism, promotional materials are largely based on content that involves mental simulations. When dealing with knowledge management matters, especially novel issues with limited prior concrete evidence, the psychological research approach of information processing is advantageous (Q.-H. Vuong, Le, La, Nguyen, et al., 2022). Thus, in this study, we employ information-processing-based Bayesian Mindsponge Framework analytics (Q.-H. Vuong et al., 2022). Regarding information reception and filtering, including simulated feedback, there are three aspects worth examining: the subjective meaning of the attached value in terms of induced emotional responses, the intensity of the subjective influence caused by the introduction of the information, and the trust mechanism employed on the information channels during the reception and filtering processes (M.-H. Nguyen et al., 2023). More detailed rationales for the conceptualization are presented in the Methodology section. The current study has three research questions (RQs), as follows.

RQ1: How does the induced happiness from social media content related to space tourism influence people's attitudes toward trying space tourism?

RQ2: How does the impressiveness of social media content related to space tourism influence people's attitudes toward trying space tourism?

RQ3: How does the authenticity of social media content related to space tourism moderate the above two possible associations?

2. Methodology

2.1. Theoretical foundation

The information processing approach is advantageous when examining how new information is received and filtered. This is the fundamental process underlying how people develop certain attitudes upon acquiring information from social media on space tourism. To conceptualize the possible information processes, we employ the mindsponge theory for this purpose. The mindsponge mechanism was originally conceived in the context of acculturation to explain the information-filtering process that occurs when a person enters a new environment (Q. H. Vuong & Napier, 2015). Mindsponge was expanded into a more systematic theory of information processing in biological systems, especially the human mind (Q.-H. Vuong, 2023). Under the mindsponge framework, the mind is considered an information collection-cum-processor. The mindsponge theory complements other major psychosocial theories well and aids in examining the information processes underlying stated principles and discovered patterns. For instance, the mindsponge theory can support and expand the applications of the Theory of Planned Behavior (Ajzen, 1991) to a broader spectrum of phenomena with more comprehensive explanations based on information processing. Specifically, the mindsponge theory is an effective basis for formulating analytical models that can be applied practically in empirical testing (M.-H. Nguyen et al., 2022; Q.-H. Vuong et al., 2022).

According to the mindsponge theory, mental products such as ideation, attitudes, perceptions, and behavior-corresponding intentions result from information acquisition and filtering processes. These processes are subjectively rational in the sense that the mind attempts to maximize the perceived value of the evaluated information regardless of the objective values it represents in mental simulation, using all available references such as knowledge, emotions, instincts, primary sensory input, personal beliefs, social norms, etc. (M.-H. Nguyen et al., 2023; Q.-H. Vuong, 2023; Q.-H. Vuong, Le et al., 2023). Once accepted into the mindset, the information becomes a trusted value in one's mind and is expressed in subsequent related mental products. Due to the filtering process's energy- and time-intensive nature, the mind can employ trust as a gatekeeper of prioritized information channels to accelerate reception and interpretation (Le et al., 2022). Trust or distrust (negative trust value) can be attached to sources of information to provide a “priority pass” or a prompt rejection, which helps increase the efficiency of information filtering by limiting the number of default rigorous evaluation processes (Q.-H. Vuong, Le, La, & Nguyen, 2022). Considering the vast amount of information in one’s external environment, the trust mechanism is regularly employed in everyday life (no one can be meticulous about everything).

During the reception and filtering processes, we consider two major dimensions of the information’s attached value: meaning and intensity (M.-H. Nguyen et al., 2023; Q.-H. Vuong, 2023). Duality-based processing involves the assessment of positive/negative and weak/strong impacts, usually concerning the “self” as a mental construct serving as the core node in comparing and connecting values. Ideation favoring a certain simulated action requires a positive net perceived value of that action in the mind. This net value is influenced by the two aforementioned dimensions of attached values. In the scope of this study, an attitude favoring trying space tourism requires a positive net perceived value of such behavior, which in turn is influenced by the direction of meaning it induces in oneself and the intensity of perceived impacts. These dimensions are represented by the degree of induced happiness (positive attached meaning) and impressiveness (high intensity) of the space-tourism-related information being absorbed by a person. The acceptance rate, or the "volume" of information reaching the mindset, depends on the degree of resistance during filtering. Besides individual-specific processing capabilities and preferences, the trust mechanism largely determines this acceptance rate. Here, suppose the information source is perceived to be authentic and trustworthy. In that case, it serves as a positive trust value that lessens resistance during filtering and thus increases the overall impact of such information on one's mind.

2.2. Materials

The current research employed a dataset of people consuming social media content related to space tourism (Peng et al., 2023). The dataset was collected from the Chinese social media platform Wenjuanxing. The data collection process involved recruiting 361 respondents through snowball and convenient sampling. The respondents were asked to provide information about their social media use, interest in space tourism, and attitudes toward space tourism. The questionnaire constructs' reliability and validity have been validated based on extant research (Zaman et al., 2022). The variables were measured on a 5-point Likert scale. The dimensions of social media constructs contain questions divided into three categories: 1) entertaining characteristics, 2) authenticity characteristics, and 3) usefulness characteristics of social media content related to space tourism. The flow experience has three measured aspects: happiness, concentration, and impressiveness. Cronbach's alpha values ranged from 0.786 to 0.940.

During the data collection, all authors adhered to research ethics. Data collection was approved by The City University of Macau's Human Research Ethics Committee for Non-Clinical Faculties. Informed consent was requested at the time of the original data collection through the survey platform Wenjuanxing, whose data redistribution rules comply with the ethical criteria, and the data was sufficiently anonymized so that respondents could not be recognized. The questionnaire and raw data can be retrieved at https://data.mendeley.com/datasets/92bdw68ctw/4.

Table 1. Variable description

Variable	Meaning	Type of variable	Value

Attitude	The willingness to try space tourism	Ordinal	Ranging from 1 (very weak) to 5 (very strong)
Happiness	The level of happiness that space tourism information on social media can induce	Numeric	Ranging from 1 (very low) to 5 (very high)
Impressiveness	The level of immersive experience that people engaged in when browsing space tourism-related content	Numeric	Ranging from 1 (very low) to 5 (very high)
Authenticity	The perceived authenticity of information sources on social media	Numeric	Ranging from 1 (very low) to 5 (very high)

The outcome variable *Attitude* represents the degree of respondents wanting to try space tourism. The variable was generated by averaging values of answers from three questions (Q11 group in the questionnaire). The answers were measured on a 5-point Likert scale ranging from 1 to 5, with "1" being "very weak" and "5" being "very strong".

The variable *Happiness* represents the level of people's happiness that space tourism information on social media can induce. The variable was generated by averaging values of answers from four questions (Q8 group in the questionnaire). The answers were measured on a 5-point Likert scale ranging from 1 to 5, with "1" being "very low" and "5" being "very high".

The variable *Impressiveness* represents the level of immersive experience people engage in when browsing space tourism content. The variable was generated by averaging values of answers from four questions (Q10 group in the questionnaire). The questions are about how real a person perceives the scenes, sensations, interactions, and feelings, including the visual presentation of space and spaceship, the presented sensation of weightlessness, imagined feelings of touching and floating, etc. The answers were measured on a 5-point Likert scale ranging from 1 to 5, with "1" being "very low" and "5" being "very high".

The variable *Authenticity* represents the perceived trustworthiness and authenticity of information sources on social media related to space tourism. The variable was generated by averaging values of answers from four questions (Q6 group in the questionnaire). The questions include keywords such as realness, accuracy, reliability, and trustworthiness. The answers were measured on a 5-point Likert scale ranging from 1 to 5, with "1" being "very low" and "5" being "very high".

2.3. Model construction

Based on the information-processing-based conceptualization above, we formulate Model 1 to examine the possible influence of *Happiness* on *Attitude* and the possible moderating effect of *Authenticity* on the aforementioned relationship. Model 1 is as follows.

$$Attitude \sim \mathrm{N}(\mu, \sigma) \tag{1.1}$$

$$\mu_i = \beta_0 + \beta_{Happiness} * Happiness_i + \beta_{Authenticity*Happiness} * Authenticity_i * Happiness_i \tag{1.2}$$

$$\beta \sim \mathrm{N}(M, S) \tag{1.3}$$

Regarding the outcome variable *Attitude*, the probability around μ is in the form of a normal distribution with standard deviation σ. Respondent i's willingness to try space tourism is indicated by μ_i. When exposed to information content on space tourism, respondent i has the happiness degree of $Happiness_i$ and the authenticity perception of the content of $Authenticity_i$. Model 1 has an intercept β_0 and coefficients $\beta_{Happiness}$ and $\beta_{Authenticity*Happiness}$. Regarding the coefficients, the probability around M is in the form of a normal distribution with standard deviation S.

The model's logical network Is shown In Figure 1.

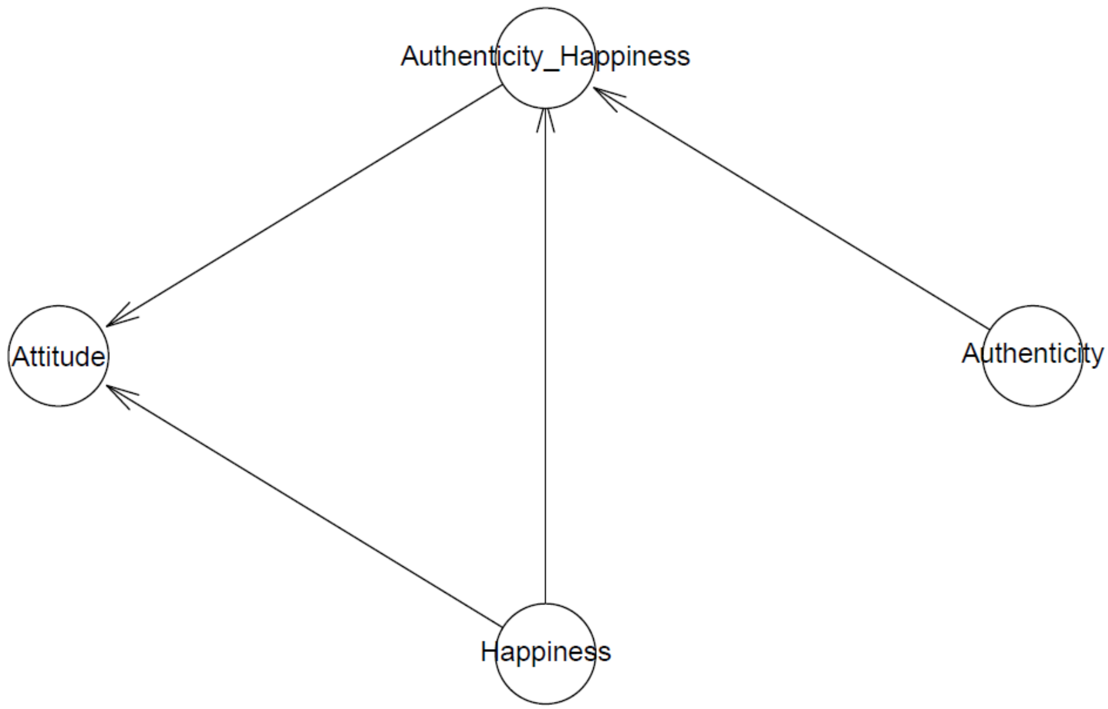

Figure 1. Model 1' logical network

We formulate Model 2 to examine the possible influence of *Impressiveness* on *Attitude* and the possible moderating effect of *Authenticity* on the aforementioned relationship. Model 2 is as follows.

$$Attitude \sim \mathrm{N}(\mu, \sigma) \quad (2.1)$$

$$\mu_i = \beta_0 + \beta_{Impressiveness} * Impressiveness_{\,i} + \beta_{Authenticity*Impressiveness} * Authenticity_i * Impressiveness_{\,i} \quad (2.2)$$

$$\beta \sim \mathrm{N}(M, S) \quad (2.3)$$

When exposed to information content on space tourism, respondent i has the impressiveness degree of $Impressiveness_{\,i}$. Model 2 has an intercept β_0 and coefficients $\beta_{Impressiveness}$ and $\beta_{Authenticity*Impressiveness}$. The model's logical network is shown in Figure 2.

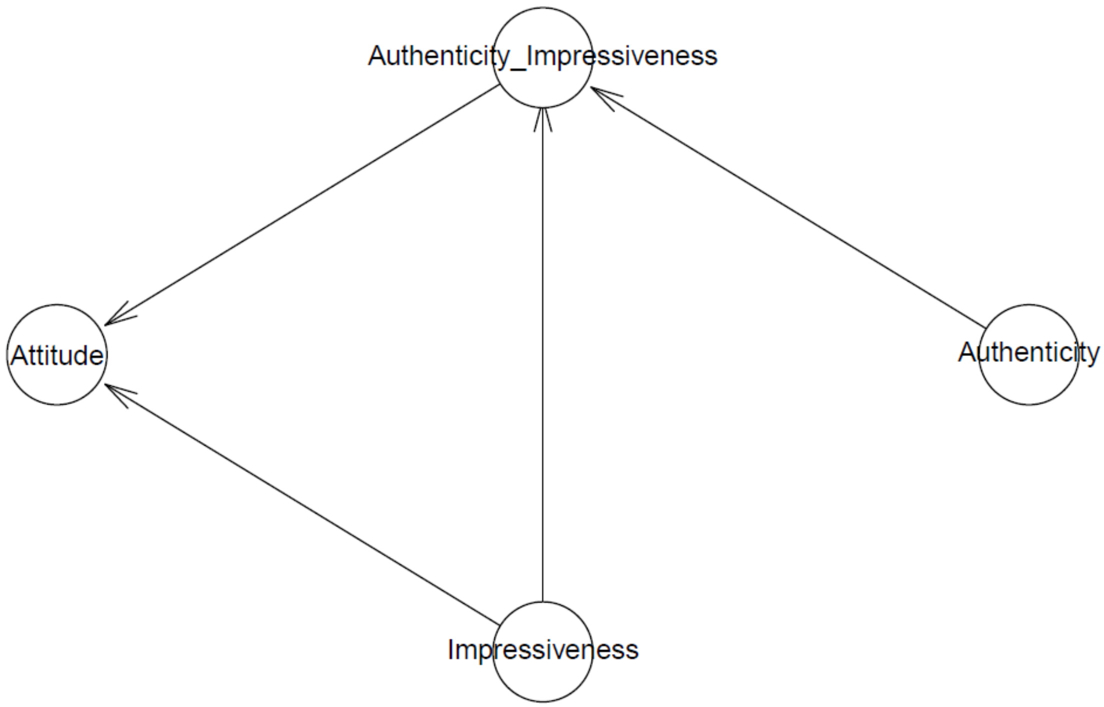

Figure 2. Model 2' logical network

2.4. Analysis procedure

We conduct Bayesian analysis with aided Markov Chain Monte Carlo (MCMC) algorithms following BMF analytics protocols (M.-H. Nguyen et al., 2022; Q.-H. Vuong, La, et al., 2022). MCMC algorithms help increase the accuracy of Bayesian analysis when working with a small sample by iteratively generating large samples of serially correlated parameters (V. H. Nguyen et al., 2005; Van Huu & Hoang, 2007). Because Bayesian inference treats all properties, including unknown parameters, as probabilities, the predictive power of using a parsimonious model increases (Csilléry et al., 2010; Dunson, 2001; Gill, 2014). For result interpretation in Bayesian analysis, examining the credible range with the highest occurrence probability of parameters helps increase prediction accuracy without compromising statistical integrity.

To check whether simulated data in MCMC processes fit the real data, we use Pareto-smoothed importance sampling leave-one-out (PSIS-LOO) diagnostics (Vehtari et al., 2017; Vehtari & Gabry, 2019). To check whether the Markov property is held (iterative samples in a Markov chain are independent), we use statistical indicators of the Gelman-Rubin shrink factor (*Rhat*) and the effective sample size (*n_eff*). The *n_eff* value indicates the number of non-autocorrelated iterative samples during the stochastic simulation process, which should be above 1000 for reliable inference (McElreath, 2020). The shrink factor shows the convergence of iterative simulations, which should be the value of 1 for a well-convergent model (Brooks & Gelman, 1998). Convergence is also visually checked using trace plots, Gelman-Rubin-Brooks plots, and autocorrelation plots.

The analysis is conducted on R using the **bayesvl** package (La & Vuong, 2019). Due to the exploratory properties of the information-processing-based model conceptualization, uninformative prior values are used to reduce subjective influences in the prediction. The MCMC setup is as follows: 5000 iterations with 2000 warm-up iterations and 4 chains. Considering the aspects of data transparency and data cost (Q.-H. Vuong, 2018, 2020), all data and code snippets of this study were deposited onto an Open Science Framework server (https://osf.io/hr4ab/).

3. Results

The latest model fitting run was on July 6, 2023, R version 4.2.1, Windows 11. The total elapsed time was 69.1 seconds for Model 1 and 58.4 seconds for Model 2.

3.1. Model 1

PSIS-LOO diagnostics for Model 1 (see Figure 3) shows that all *k* values are below the threshold of 0.5, which indicates that the simulated data fit well with real data.

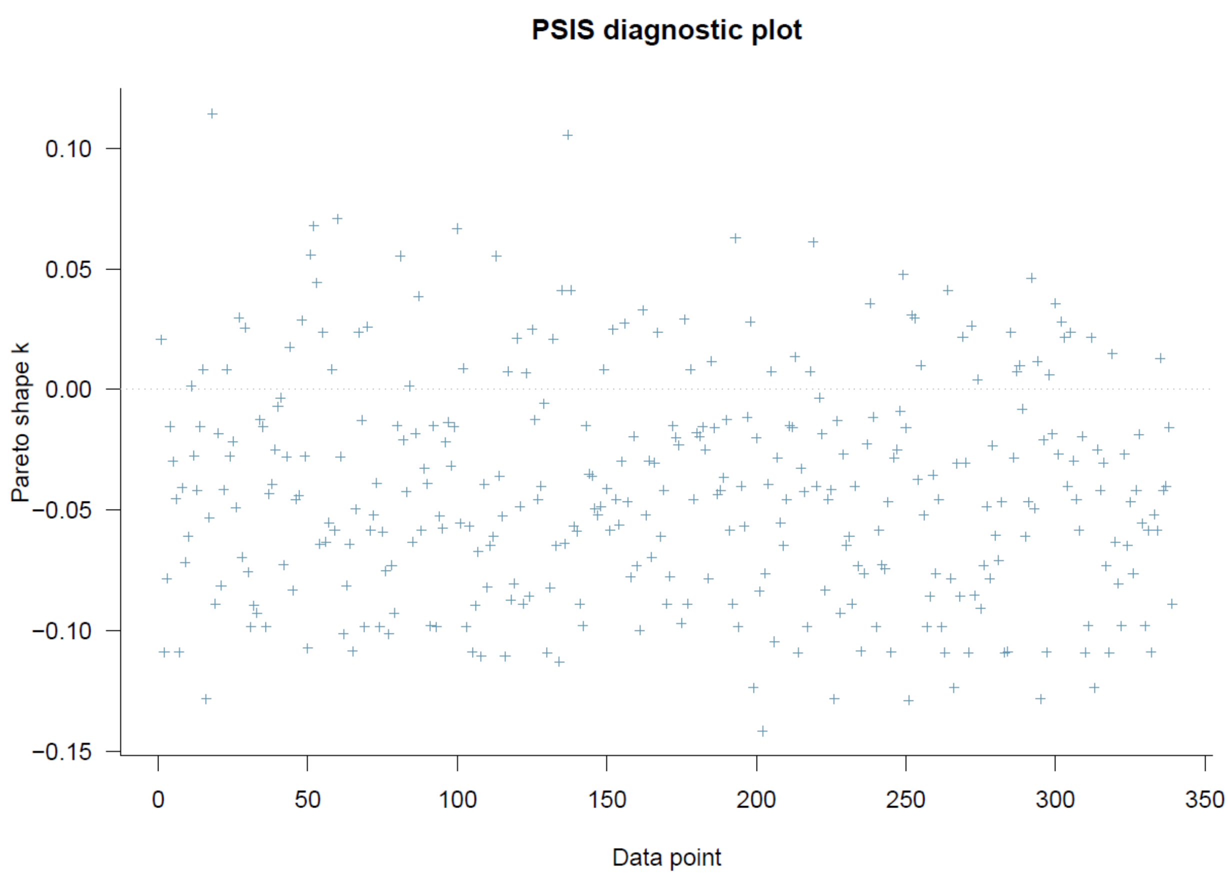

Figure 3. PSIS-LOO diagnostic plot for model 1

Table 2 shows the estimated posteriors of Model 1's parameters. All *n_eff* values are above 1000, and all *Rhat* values equal 1, meaning the model is well-convergent.

Table 2. Model 1's estimated posteriors

Parameters	Mean	SD	n_eff	Rhat
Constant	1.09	0.14	4383	1
Happiness	0.54	0.09	3604	1
*Authenticity*Happiness*	0.06	0.02	3919	1

The Markov chains' convergence is also checked visually through the trace plots (Figure 4), which show that the chains fluctuate around central equilibriums after the warm-up period (after the 2000th iteration). The Gelman-Rubin-Brooks plots for Model 1 (Appendix, Figure A1) show that *Rhat* values drop to 1 during the warm-up period. The autocorrelation plots for Model 1 (Appendix, Figure A2) show that autocorrelation is quickly eliminated after a finite number of lags.

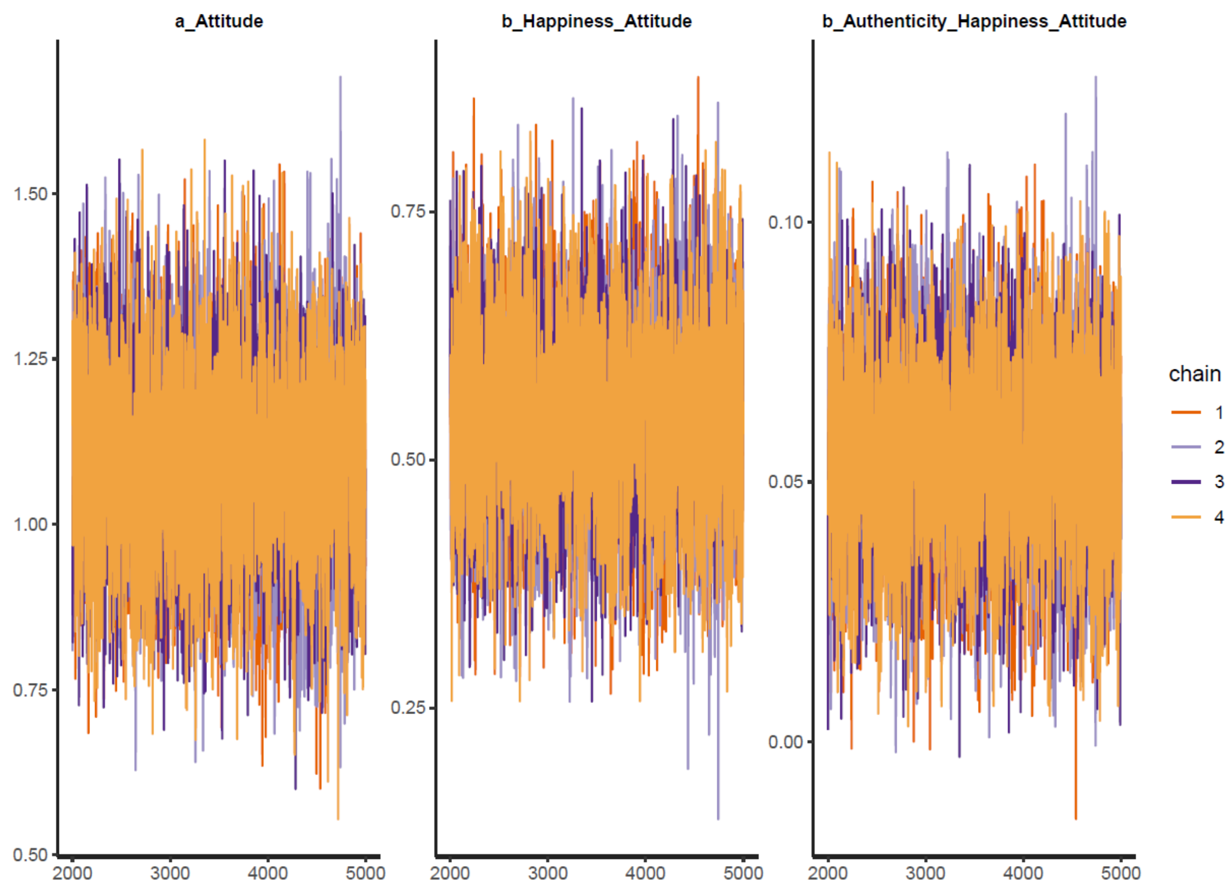

Figure 4. Trace plots for model 1

Analysis results (see Table 2) show that *Happiness* is positively associated with *Attitude* ($M_{Happiness} = 0.54$ and $SD_{Happiness} = 0.09$). *Authenticity* moderates the above association positively ($M_{Authenticity\_Happiness} = 0.06$ and $SD_{Authenticity\_Happiness} = 0.02$). Both effects are clear, which can be seen through the posterior distribution with Highest Posterior Density Intervals (HPDIs) at 90%, as presented in Figure 5.

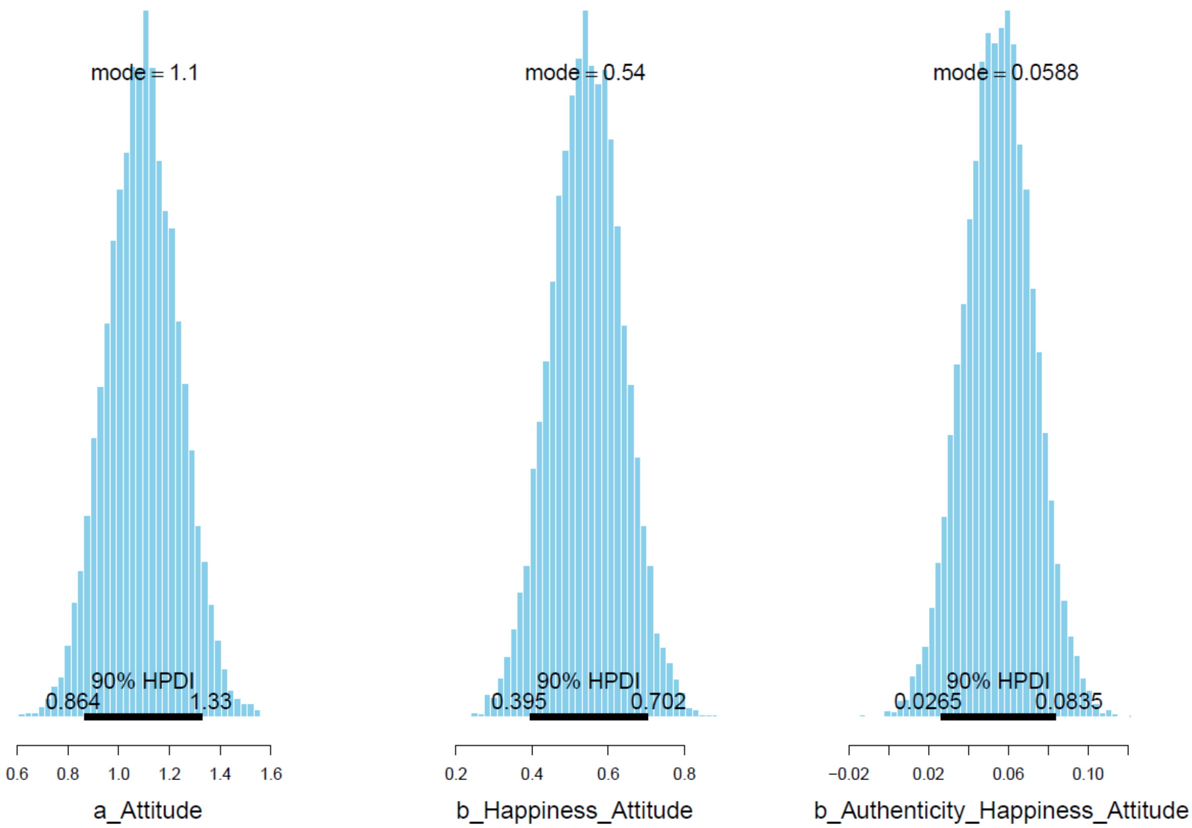

Figure 5. Distributions of posterior coefficients with HPDI at 90% for Model 1

3.2. Model 2

PSIS-LOO diagnostics for Model 2 (see Figure 6) show that all k values are below the threshold of 0.5.

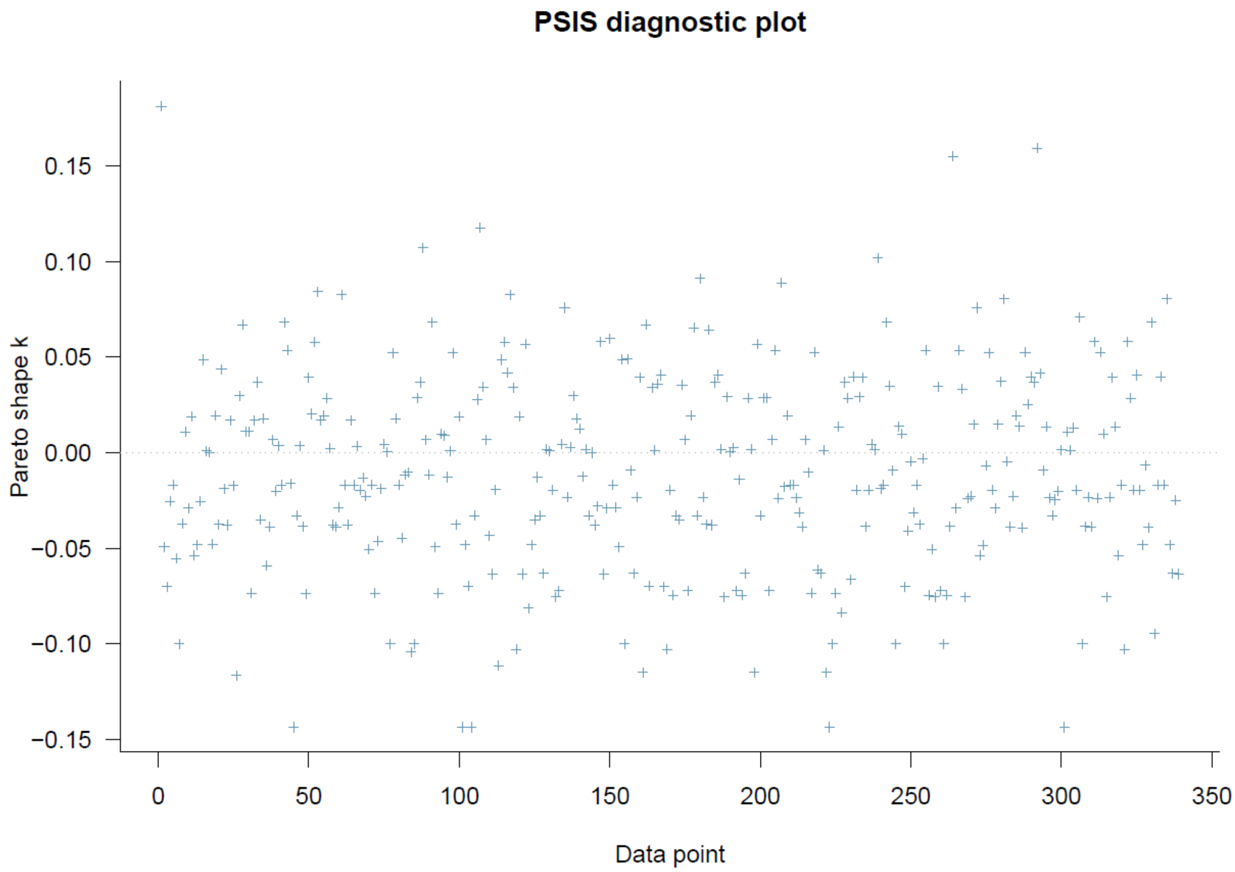

Figure 6. PSIS-LOO diagnostic plot for model 2

Table 3 shows the estimated posteriors of Model 2's parameters. All *n_eff* values are above 1000, and all *Rhat* values equal 1.

Table 3. Model 2's estimated posteriors

Parameters	Mean	SD	n_eff	Rhat
Constant	0.56	0.16	3768	1
Impressiveness	0.70	0.09	3226	1
*Authenticity*Impressiveness*	0.03	0.02	3528	1

The trace plots, Gelman-Rubin-Brooks plots, and autocorrelation plots for Model 2 all indicate good convergence of the Markov chains (see Figures 7, A3, and A4, respectively).

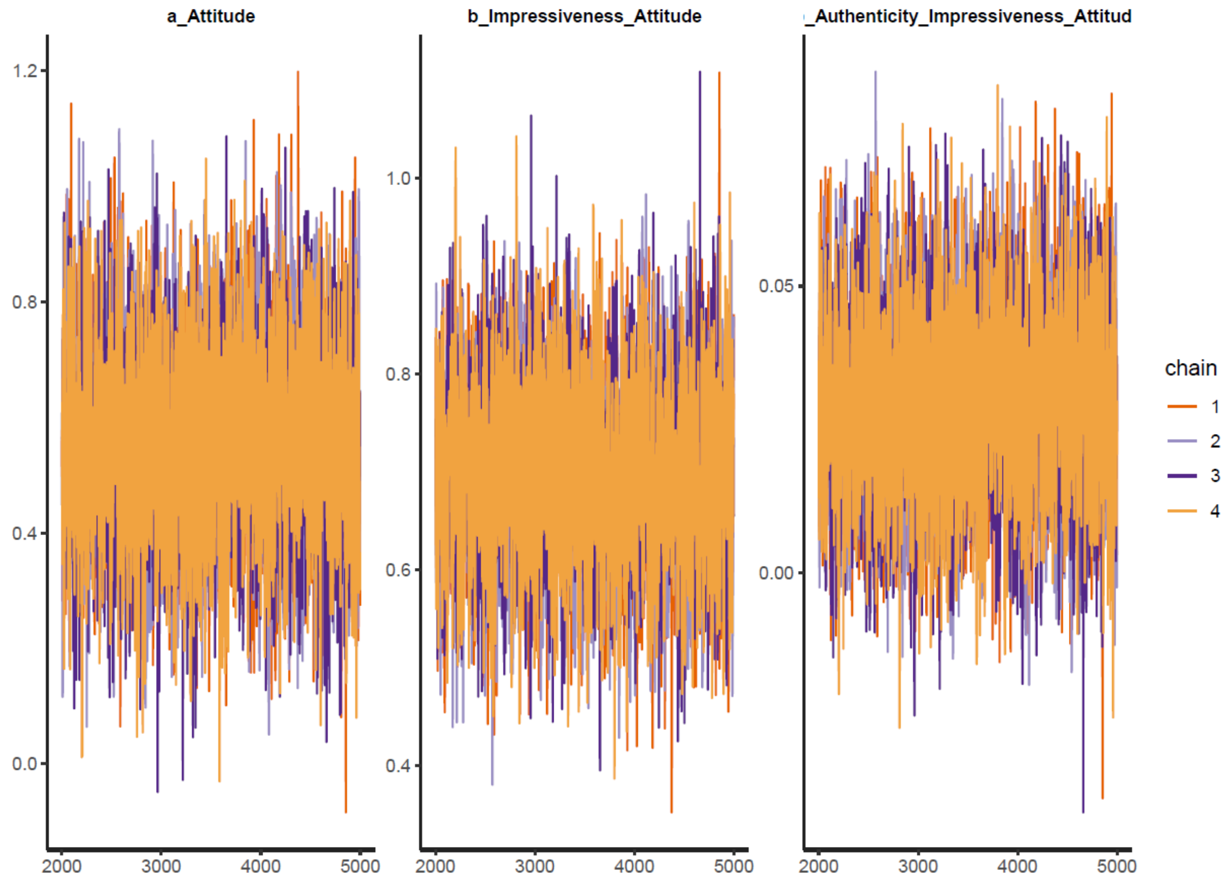

Figure 7. Trace plots for model 2

Analysis results (see Table 3) show that *Impressiveness* is also positively associated with *Attitude* ($M_{Impressiveness} = 0.70$ and $SD_{Impressiveness} = 0.09$). *Authenticity* moderates the above association positively ($M_{Authenticity\_Impressiveness} = 0.03$ and $SD_{Authenticity\_Impressiveness} = 0.02$). Both effects are reliable, as shown in the posterior distribution with HPDI at 90% (Figure 8).

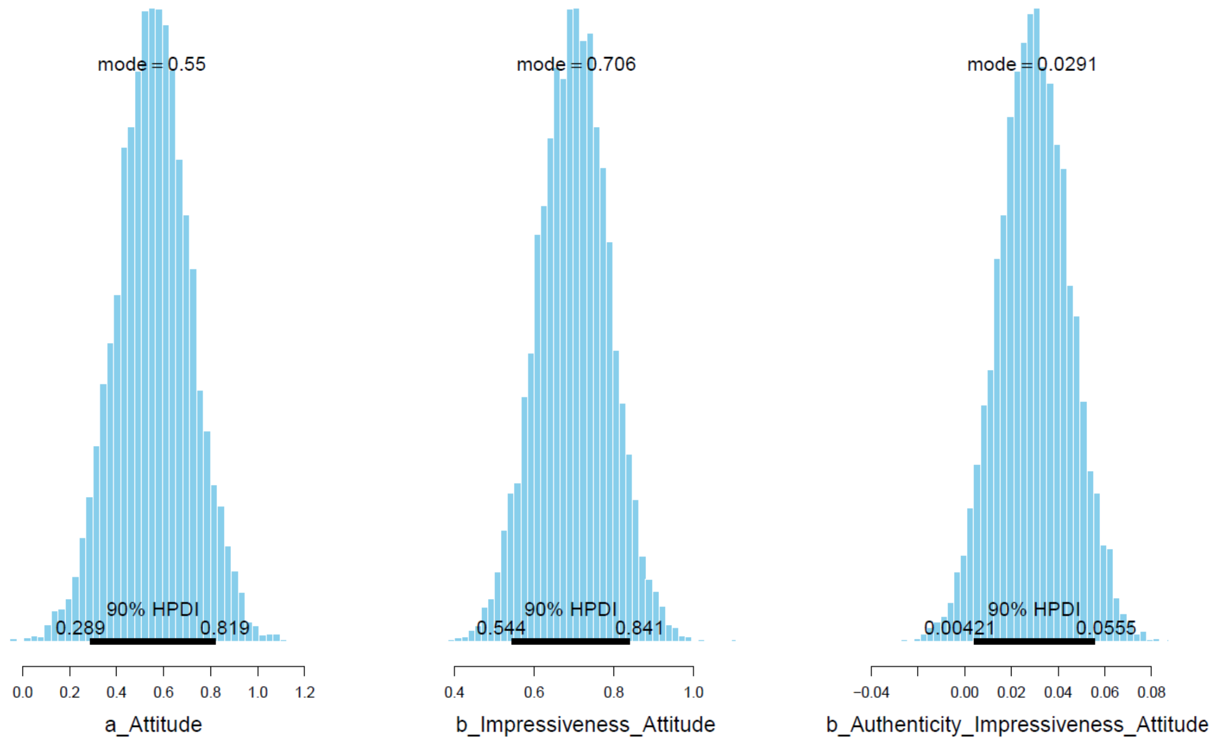

Figure 8. Distributions of posterior coefficients with HPDI at 90% for Model 2

4. Discussion

Employing BMF analytics on a dataset of 361 respondents consuming social media content related to space tourism, we found that both induced happiness and content impressiveness are positively associated with people's willingness to try space tourism. The authenticity of such content positively moderates both of the above associations. In other words, people are more likely to desire space tourism if they consume related information that makes them happy or is impressive. If they trust the sources of this information, the effects are further strengthened.

While our study examines people's attitudes using a new information processing approach, the findings align with and expand upon the implications of other studies in traditional tourism. The significant effects of predictors found in our studies suggest that social media are effective platforms for diffusing content of introducing and reinforcing desires for space tourism, similar to other types of tourism (Di Virgilio, 2018; Liu et al., 2020). This is indeed important for an emerging field like space tourism, where only very few people have direct experiences, making the acquisition of related information in advance more crucial (Graham & Dobruszkes, 2019; Klemm & Markkanen, 2011; Pásková et al., 2021). Additionally, our findings suggest that the trustworthiness of information sources has a significant positive moderating effect on people's decision-making process, which concurs with former research on the prioritization role of trust in online information-seeking activities (Q.-H. Vuong, Le, La,

& Nguyen, 2022). Induced happiness and perceived impressiveness both help increase the net value of space tourism perceptions. The authenticity of consumed content further increases the information flow carrying such values into one's mindset. In brief, the signal should be perceived as good, strong, and trusted to have a better impact.

Space tourism has not "taken flight" at the moment, but its potential is clearer as technology advances. Considering the trajectory of this emerging field's development, it is beneficial for companies and tourism agencies to make preparations at the moment (Pásková et al., 2021; Yazici & TiWari, 2021). Such preparation include increasing the understanding of psychology-based marketing, knowing how to create effective promotional materials, using media platforms to difuse information, and building lasting trust in potential tourists. Attitudes and intentions can turn into behaviors when additional materialistic and psychological conditions are met (Ajzen, 1991; Q.-H. Vuong, La et al., 2022), which means that creating anticipation within the infosphere of the public will form a larger foundation for actual space tourists in the near future when technologies improve, and prices go down.

This study offers some implications for space tourism marketing as well as knowledge management in the new digital era. Because a large portion of promotional content related to space tourism is virtually generated and not direct personal experiences, consumers of such content cannot verify using objective feedback. In other words, a person cannot simply go to space or reflect upon one's past to cross-check if the provided information on the media is genuine. On the one hand, this unknown territory opens up various boundaries for tourism agencies to create the most creative promotional materials using the most creative methods with modern generative digital technologies (Damjanov & Crouch, 2019). On the other hand, deliberate falsifications are likely more effective, including emotional manipulation (e.g., emphasizing enjoyment while ignoring objective dangers and risks) and exaggeration (e.g., using unrealistically convenient and overly beautified virtual environments for false advertisement).

Regarding recent cutting-edge technologies, artificial intelligence (AI) can be used to simulate guides and tourists in virtual environments to provide a higher degree of immersion and interactability. Humanoid AI agents can effectively convey expected emotional impacts to human viewers or interactants. Still, precautions need to be taken to prevent emotional manipulations done by profit-driven companies (Q.-H. Vuong, La et al., 2023).

The trust mechanism can be used for positive purposes, but it can also be exploited to manipulate the belief system of individuals or the collective. This is particularly concerning when done systematically by large organizations or groups of authority. Creating false expectations and beliefs with distorted facts and subliminal messages can be done for financial or political reasons, especially when giant corporations, as well as politicians, are racing for space supremacy. Because space tourism is such a novel concept and practice in current society, laws and regulations should catch up to prevent early schemes of exploitation. Legal restrictions in advertising activities should be properly adapted and applied to space-tourism-related promotional materials sooner rather than later. Despite the possible risks, this branch of the tourism industry is a fresh wind, not only in terms of business potential but also an interesting and entertaining application of the curiosity and creativity of humanity (Chang, 2020; Klemm & Markkanen, 2011; Pásková et al., 2021; Yazici & TiWari, 2021). After all, human imagination has almost no soft boundaries. The attraction of the cosmos, in the mind of an inexperienced soon-to-be space tourist, can be anywhere ranging from a boring month-long trip in the completely dark void to trading and fist-fighting with funny aliens at a fancy galactic crossroad station.

The present study has some limitations. Firstly, the data only include respondents from a Chinese social media platform, which may not be representative of people from other regions with different cultural values and norms. However, the information processes on the matter should share similar patterns and can be updated in further studies. The Bayesian approach can be advantageous here due to its inherent updating properties. Secondly, the original dataset is relatively small in size. Despite this limitation, the MCMC-aided Bayesian analysis can increase the prediction accuracy. Again, future replicative analyses using different or expanded data can be made to check and update the findings. Thirdly, while overall patterns can be examined with statistical methods, the finer details in an information process can be very individual-specific and context-specific, especially for complex cognitive matters. Further studies using qualitative methods may provide a more in-depth understanding of the psychological pathways discussed in this study.

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Appendix

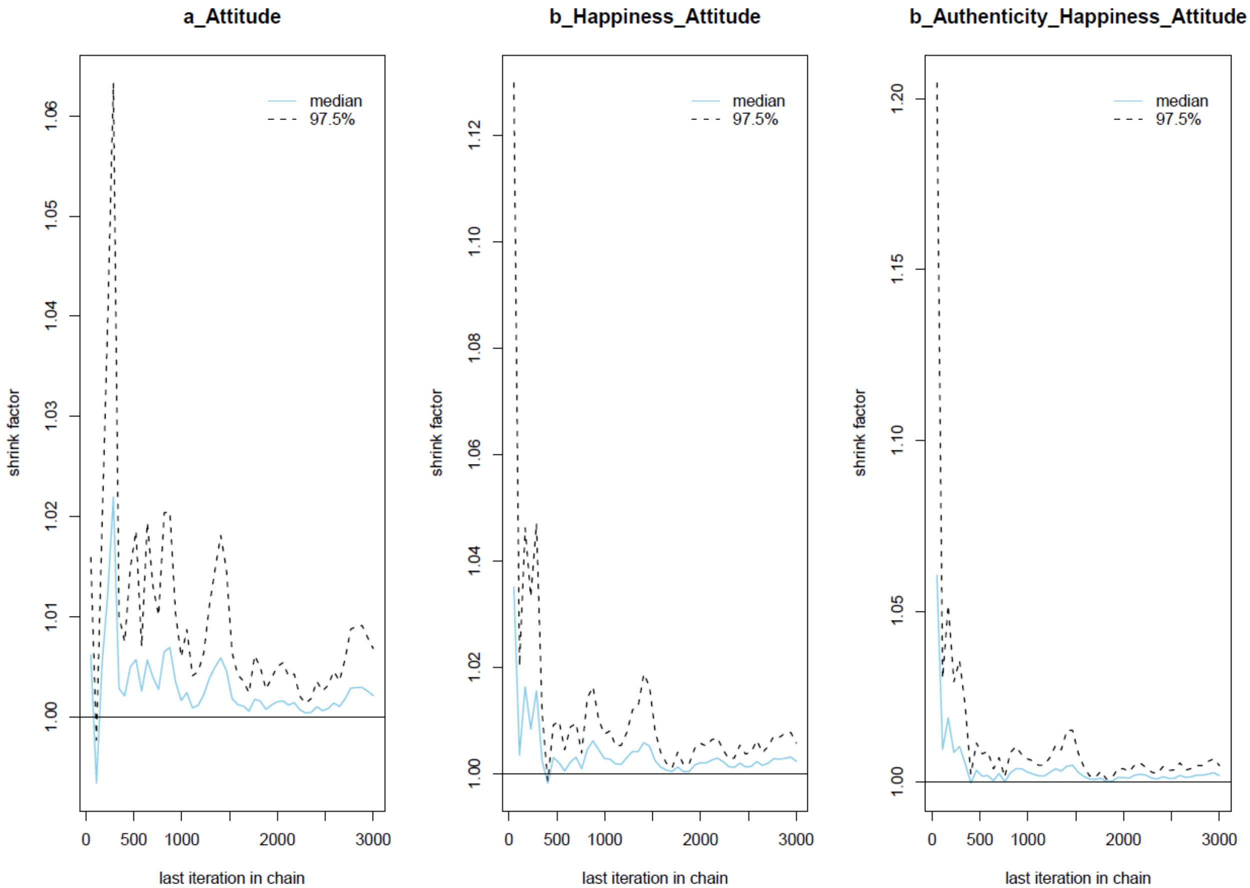

Figure A1. Gelman-Rubin-Brooks plots for model 1

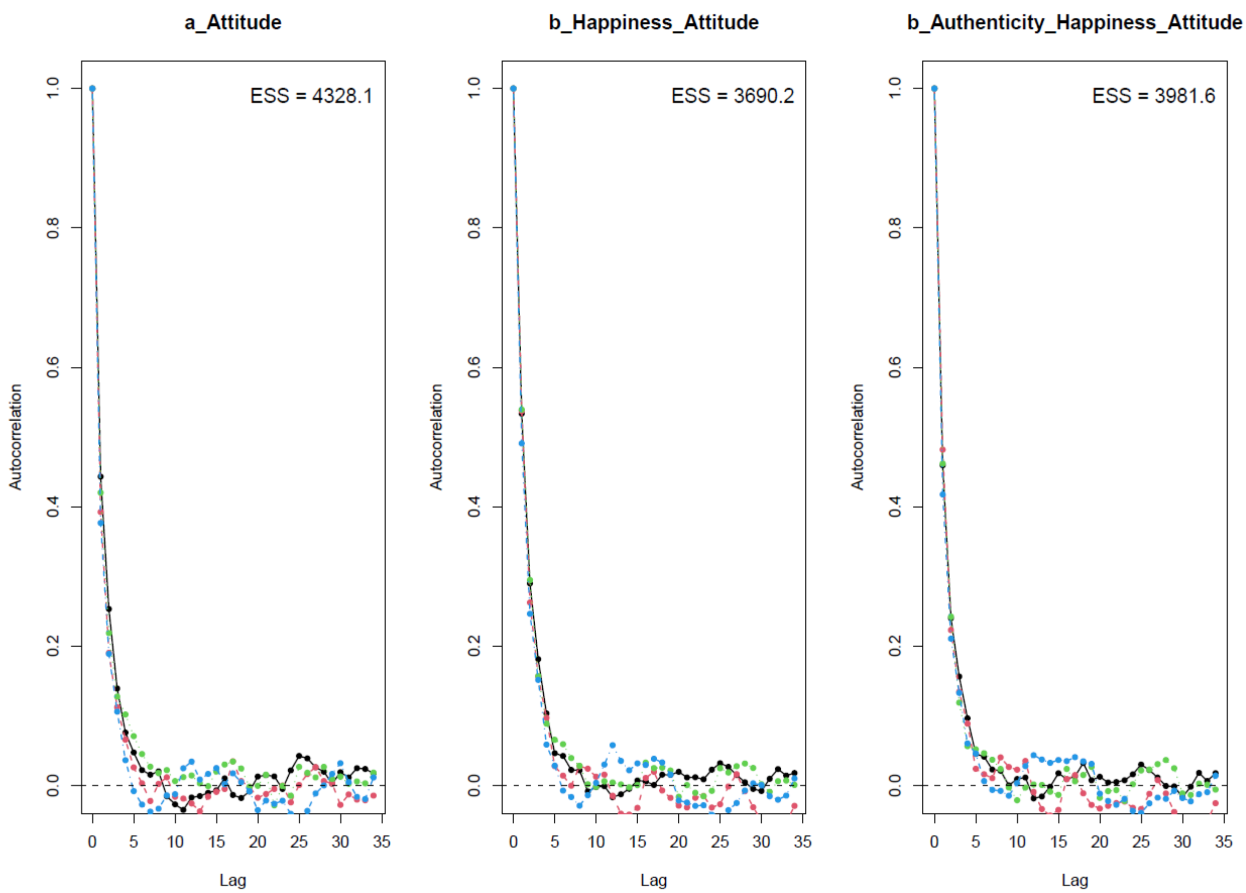

Figure A2. Autocorrelation plots for model 1

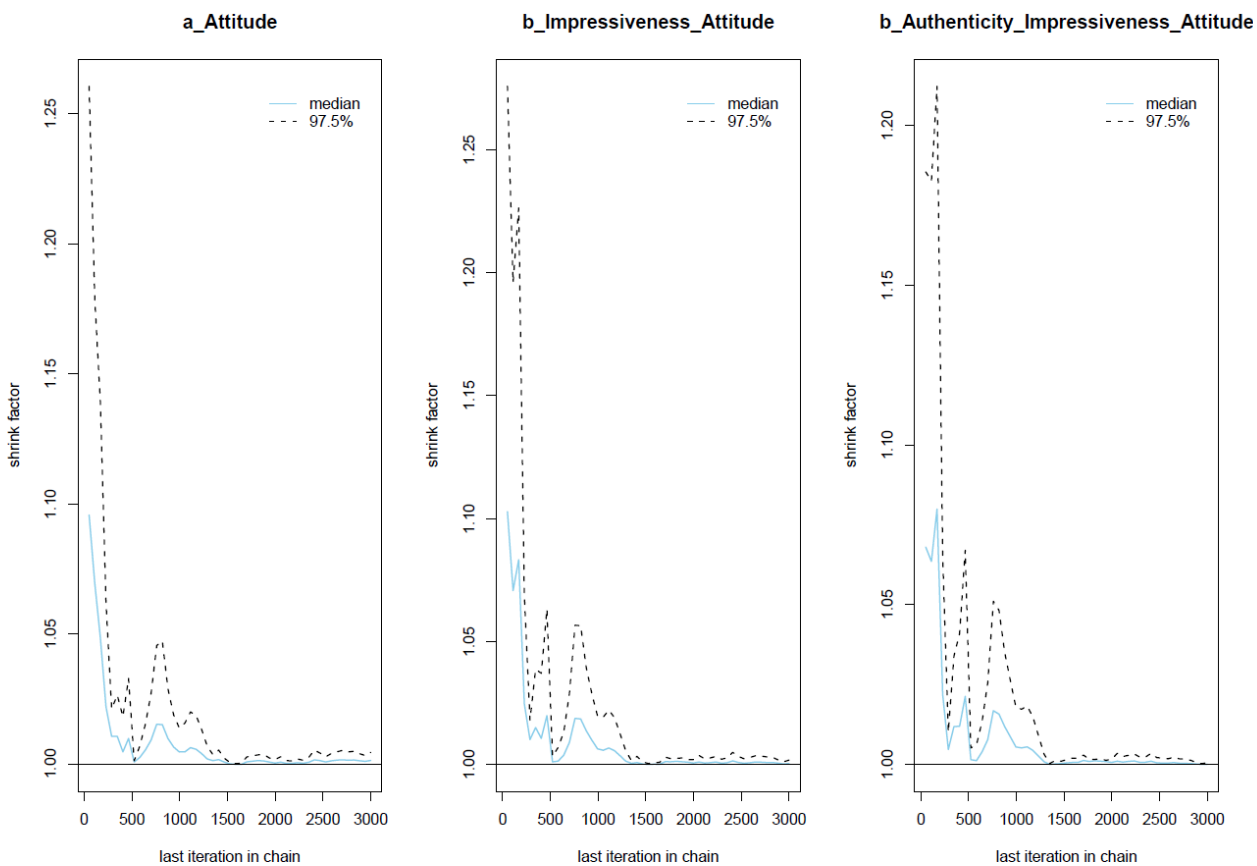

Figure A3. Gelman-Rubin-Brooks plots for model 2

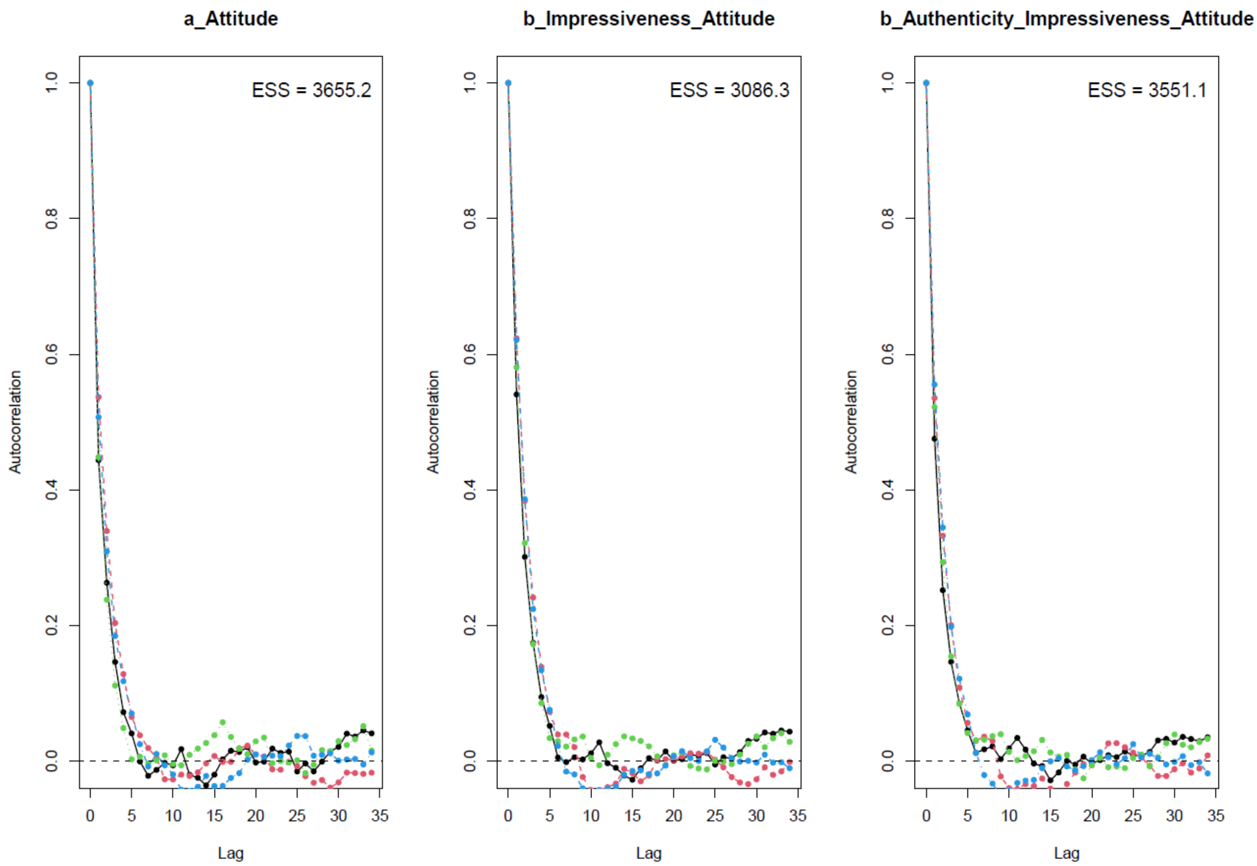

Figure A4. Autocorrelation plots for model 2