JTIS
e-ISSN: 2651-3420

JTIS (2024), 7(2): 51-65
https://dergipark.org.tr/tr/pub/jtis
http://doi.org/10.58636/jtis.1472976
Research Article

The Impact of Tourists' Sensation Seeking in Space Tourism on Their Expectation of Experience Within the Postmodern Tourism Paradigm

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Abstract

Space tourism, within the post-modern tourism paradigm, emerges as an alternative tourism type in line with new information about space. The aim of research is to determine the impact of potential tourists' sensation seeking tendencies on their expectations of experiencing space tourism, which is expected to be a frequent activity in the future. To achieve this objective, a quantitative research method was used. The research was conducted on potential tourists living in Turkey. Data were collected through an online survey from potential tourists reached by convenience sampling, a non-random sampling method. This research is limited to the information obtained as a result of the resources available after a literature review in the field. finding of the study is that sensation seeking decreases as age increases. It is observed that individuals in younger age groups have a higher level of sensation seeking. A positive linear relationship is observed between the dimension of sensation seeking and the dependent variable of expectation of experience. The use of new technologies is often linked to hedonic motivation. Tourists' sensation seeking trait significantly influences their expectation of experience in space tourism. The study concludes that tourists' sensation seeking impacts their expectation of experience in space tourism by 37%. Space tourism has emerged as a new and rising field in recent years. The tendencies of potential tourists in this field can shape their future space experiences. In this sense, this study, which has a unique research area, can also provide important information for the marketing strategies to be developed by space tourism companies.

Keywords: Space Tourism, Postmodern Tourism, Sensation Seeking, Expectation of Experience

Jel Codes: M31, L10

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Submitted: 24/04/2024

Revised: 28/05/2024

Accepted: 25/06/2024

Online Published: 15/12/2024

Citation: Aciksozlu, O. and Varol, I. (2024). The Impact of Tourists' Sensation Seeking in Space Tourism on Their Expectation of Experience Within the Postmodern Tourism Paradigm, Journal of Tourism Intelligence and Smartness, 7(2), 51-65.

http://doi.org/10.58636/jtis.1472976

Introduction

Tourism is not a phenomenon that originates from people's physiological needs. Tourism movements are more about characterizing a certain social behavior than being a vital activity. In this context, tourism emerges when the social structure reaches a certain level. Therefore, it can be seen that there have been a number of changes to the tourism paradigm throughout history. These changes occur as a result of developments in civilizations and the evolution of social needs. While primitive societies only had basic needs such as food, shelter and warmth, today a large number of human needs are acknowledged. This has enabled the tourism movements to become a social need by spreading to lower social classes without being monopolized by the aristocratic class and the rich (İstanbullu-Dinçer, Can and İnan). Changes in tourism paradigms are essentially associated with production. As production was carried out as a direct response to demand, individual touristic products were dominant in the

primitive ages. Improved methods of production powered by the technological developments as a result of the Industrial Revolution provided an opportunity for the development of mass tourism products rather than individual tourism products. As we approach today, tourism products have become quite diverse, and types of alternative tourism that have become flexible within mass production have emerged (Roney, 2002).

Another reason for the changes in the tourism paradigms is the changes in technology (Kozak and Bahçe, 2009). Numerous technological advancements, from the invention of the wheel to jet engines, from the invention of language and writing to information and communication technology, have brought about certain changes in the structure of tourism (Akoğlan-Kozak, Evren and Çakır, 2013). When the impact of the Industrial Revolution on these developments are considered, the technological innovations provided by the current Industry 4.0 have brought changes in both tourism products and tourist profiles. Three tourism paradigms have emerged in the historical process. These are the premodern tourism paradigm, the modern tourism paradigm, and the postmodern tourism paradigm.

The premodern period encompasses a feudal era, where social life was shaped by nature and settled agricultural societies were dominant (Roney, 2011). Touristic products were influenced by the differences in class distinctions. In this period, when tourism awareness had not yet been formed, those who were considered to be the upper class in society would generally have short trips for trade, religion and health reasons (Akoğlan-Kozak et al., 2013).

The modern period began with the Renaissance and the Reformation movements which were followed by the Industrial Revolution, and continued with the French Revolution. Religion, the fundamental concept of the premodern period, was relegated to a secondary role during this time while mankind, science and reason was considered to be at the center of everything, paving the way for the domination of a system of social values in Europe (Odabaşı, 2012). These developments also led to some changes in tourism (Roney, 2011). The advent of steam trains with the First Industrial Revolution expanded transportation options, increasing the participation of the middle class in tourism activities. With the Second Industrial Revolution, the Fordist perspective that emerged with the assembly lines introduced by Henry Ford created more free time for people by increasing mass production. As a result, it can be seen that tourism became more for the masses, leaving class differences aside (Alçın, 2016; Xu vd., 2018). However, in the 1980s, this trend reversed towards individualism again. Tourism went through another transformation as the tendency towards alternative products and environmental awareness increased. This period, referred to as the post-modern era, started when mass tourism could no longer meet the diversifying consumer demands and consumers became more environmentally conscious, shifting towards tourism products aimed at preserving nature. In this period, tourists, initially inclined towards flexible mass products, later began turning to tourism products based on special interests (Uriely, 1997; Urry, 2009). The dynamics the Fourth Industrial Revolution offer (artificial intelligence, augmented reality, etc.) creates various tourism supplies, such as virtual tours and space tourism (Açıksözlü and Varol, 2022). Today, the changing social structure in the light of technological advancements and the tourism that has been transforming accordingly are experiencing the postmodern tourism paradigm. In this context, it is important to have a better understanding of the scope of the postmodern tourism paradigm.

Conceptual framework

Postmodern Tourism Paradigm

Technological advancements, globalization and the subsequent spatial mobility of knowledge, money, culture, and people, created a more homogeneous world. This period, referred to as postmodern, is the period of computers, scientific knowledge, communication, advanced technology, and rapid change resulting from these advancements (Sallan and Boybeyi, 1994). This change has been conceptualized the "postmodern tourism paradigm" in the tourism industry (İstanbullu-Dinçer et al., 2018; Akoğlan-Kozak et al., 2013). It is an approach based on the reality of the postmodern individual. Its main feature is the rejection of any statement that is claimed to be true for all people (Shehade and Stylianou-Lambert, 2020). In this paradigm, an era started where the tourism industry creates new supplies in line with the changing social patterns and needs, and where consumer focus is dominant. Individuals are now moving away from the mass tourism of sea, sand and sun (3S) towards new, alternative types of tourism. Additionally, a societal structure that values sustainability within the context of environmental awareness has taken shape (İstanbullu-Dinçer et al., 2018; Akoğlan-Kozak et al., 2013).

The most distinctive feature of the postmodern society is individualism. The post-modern individual moves away from envisioning themselves within a social hierarchy, from imitating the lifestyles and consumption patterns of higher groups in the hierarchy, and instead, emphasizes their own differences. The postmodern consumer, who expresses their desires differently from society and exhibits individualistic buying behavior, wants to be both a producer of experience and a part of consumption

(Sönmez and Karataş, 2010; Ağaoğlu and Altunışık, 2012). The diversity of tourist motivations, experiences, and environments stands out as a key feature of postmodern tourism. (Dujmovic and Vitasovic, 2015). Therefore, production-based tourism products based on individualism, hyperreality, virtual reality and surreal experiences started to form within the framework of the post-modern tourism paradigm (Akoğlan-Kozak et al., 2013).

Tourists are free to choose between various types of holidays for different experiences. A tourist who chooses to go to rainforests for eco-tourism one year might opt for a sea, sand and sun holiday the next year (Kozak et al., 2013). Consequently, the diversity of tourism types expands to cater to the changing and diversifying tourist profiles. Drawing from all this, the postmodern tourism paradigm is a hyper-individualized tourism phenomenon with an emphasis on environmental sensitivity and sustainability, a growing orientation towards hyperreality and virtual experiences, and an increase in the variety of tourism along with trivialization of tourist typologies. Moreover, this paradigm represents an era that utilizes technology at the highest level. The interest in extraordinary tourism types, such as space tourism, is expected to increase in the future. While the number of people participating in space tourism is still quite low, with the completion of projects by companies interested in space tourism, advancements in technology, and the resolution of perceived risks, the space tourism, which is a product of the postmodern tourism paradigm (Collins, 2004; Otto, 2009), is expected to become more widespread.

Space Tourism

Space is defined as the region beyond the Earth's atmosphere (NASA, 2023). According to information available on the website of the National Aeronautics and Space Administration (NASA), the imaginary space boundary, called the Kármán line, is defined as 100 kilometers above sea level. Beyond the Kármán line, airplanes cannot fly effectively. Therefore, beyond this level, a spacecraft, rather than an aircraft, is required. In light of this information, space can be explained as an outer region beyond Earth, inaccessible by the sea, land, or air vehicles used within the Earth (Arısan, 2022).

NASA, built upon the National Advisory Committee for Aeronautics (NACA), which was the center for U.S. civil aviation research and development, has been conducting manned and robotic space flight operations since October 1, 1958. NASA, a world leader in space research, is an American civilian space program. The organization's purpose is to collect information about Earth, the solar system, and other planets for the benefit of humanity, and to explore space. It aims to make discoveries beneficial to life on Earth by developing new space technologies and gaining more knowledge about the Moon and Mars. Space explorations by NASA have strengthened people's dreams of one day traveling to space. Three years after the launch of the first manned artificial satellite, in 1954, Thomas Cook began accepting early payments for reservations for the first package tour to the Moon (Chang and Chern, 2016). Excited by the idea of traveling to the Moon, over 1000 tourists registered for this tour. Thomas Cook guaranteed the provision of tickets for commercial trips to the Moon at the earliest possible date (Açıksözlü and Varol, 2022; Eilingsfeld and Schaetzler, 2000). Unlike those times, today, space is more than just a fantasy; it's a phenomenon, an attractive and elite destination (Crouch, 2001). In this context, space tourism encompasses commercial activities under the umbrella of post-modern tourism, promising tourists a space experience (Gürsel, 2020).

To conduct space operations, the International Space Station (ISS) was established in 1998 through a partnership involving 15 countries, including the USA, Russia, Japan, Canada, and the member countries of the European Space Agency. The space station, which can accommodate up to eight spacecrafts simultaneously, is controlled by more than 50 computers. Space shuttles sent to the space station typically reach their destination approximately four hours after launching from Earth (International Space Station, 2022). The first space tourist was the American businessman, Dennis Tito. In 2001, Tito paid $20,000,000 to an American company called Space Adventures and spent approximately 8 days at the International Space Station. In the period from the first space tourist being sent to space in 2001 until 2010, space tourism activities were sporadic; some years there were no trips, some years one, and some years two. However, no space tourism activities occurred between 2010 and 2021, as priority was given to trained astronauts. On September 15, 2021, SpaceX, founded by Elon Musk, conducted a space journey in low Earth orbit (Arısan, 2022). The significance of this journey lies in it being the first mission conducted around the Earth with an entirely civilian crew. The capsule, which ascended to an orbit 150 kilometers higher than the International Space Station, approximately 575 kilometers above Earth, had four passengers. As they aimed to inspire others, they were called Inspiration4. Although the capsule's control was automated from Earth during their 3-day space journey, the passengers underwent approximately six months of training beforehand in case of unexpected situations (SpaceX, 2021).

Space tourism is defined as a space journey conducted with a spacecraft for entertainment, pleasure, sightseeing, exploration, and similar purposes (Arısan, 2022). Today, companies focused on space tourism are working on routes to the International Space Station (ISS), Mars, and the Moon (Açıksözlü and Varol, 2023). Space tourism has two types: orbital and suborbital. Orbital space tourism includes trips above the Earth's orbit which is at around 400 kilometers of altitude. Tourists can experience a zero-gravity environment with orbital space tourism. Trips to the International Space Station are considered orbital space travel. Suborbital space tourism, on the other hand, offers an exciting short experience and beautiful scenery with trips below Earth's orbit. Suborbital space tourists reach outer space in 2.5 hours, with the total journey lasting about 5 hours. Touristic trips on the orbit not only take long, but also are very expensive. In comparison, suborbital space tourism is more affordable compared to orbital space tourism. The market for orbital space tourism consists of individuals with a high income level (Kozhanazar, 2014; Define Space Tourism, 2022; Arısan, 2022).

As the COVID-19 pandemic highlighted the world's diminishing resources, deteriorating natural environment, and population density, it strengthened the belief that the Earth can no longer sustain such levels of industrial and human burden. Consequently, many people who once considered space colonization as far-fetched, unnecessary, or impossible have begun to embrace the idea (Arısan, 2022). In this context, companies involved in space ventures are proposing projects like establishing colonies, creating villages, and building hotels. Almost all of these projects include activities aimed at tourists. Blue Origin plans to send tourists to the Moon, and Orion Space aims to develop a space hotel project. Chinese-based companies such as Xiaomi and OPEN Architecture have designed a living space prototype for Mars with their Mars Case project. The Mars Case, designed as a portable structure, aims for mobile living (Shang, 2018; Açıksözlü and Varol, 2022). The Academy of Launch Vehicle Technology of the People's Republic of China plans to conduct its first commercial flight in 2028. The academy announced that they are designing spaceships that are similar to the US space shuttle but reusable, and that the ships are planned to go 100 kilometers above the Earth with vertical launch and to land horizontally like an airplane with the help of wings. This vehicle, capable of carrying up to 20 tourists, will offer an experience lasting about 10 minutes, for which tourists will receive several weeks of training (STM ThinkTech, 2019). SpaceX aims to increase the number of humans living on Mars to one million by the end of the 21st century to establish a sustainable colony. The Starship spacecraft is being developed not just for one-way trips but to return and transport new colonizers. Much of the work necessary for the terraforming of Mars will be carried out by robots sent in advance (Mansfield, 2019, p. 346).

Although space tourism applications are currently taking place, it is predicted that they will reach a much larger market in the future due to advancements in technology and increased investments by the private sector in this area (Webber, 2013). Ultimately, space tourism will start a new era, bringing significant economic, scientific, and social changes. However, these changes will develop in relation to the demand for space tourism. Two of the primary motivators for consumers in space travel are the desire to see the Earth as a blue sphere and to experience the infinite outer space (Başyazıcıoğlu, 2022). However, space tourism is a highly costly type of tourism (Prideaux and Singer, 2005). Therefore, current high-level space tourism practices are considered a niche market catering only to a limited number of wealthy individuals (Beard and Starzyk, 2002). The development of materials used in the space industry to be either reusable or cheap, yet durable, along with increased global investment in the space industry, will eventually make space tourism more accessible in terms of pricing, depending on the rate of technological advancement worldwide.

Besides costs, there are other factors limiting demand for space tourism. Participating in space travel requires undergoing certain training and successfully completing it as a prerequisite. The limited nature of space activities, the length of the trip allocated for space travel, accommodation facilities, and risks and health issues associated with space tourism are considered factors negatively impacting the demand for space tourism applications (Prideaux and Singer, 2005). Despite these limiting factors related to space tourism, motivations such as the desire to explore uncharted territories (Gürsel, 2020), the pursuit of adventure (Rather, 2020), the quest for novelty (Chang, 2017), self-actualization (Zhang and Wang, 2020), the desire for prestige (Chang, 2017), seeing the Earth from space, experiencing a weightless environment and high-speed flight, acquiring a unique experience, and contributing to science (Reddy, Nica and Wilkes, 2012) are considered to be the motivations driving consumers towards space experiences.

Drawing from this, unless a new global disaster like the COVID-19 pandemic that causes prolonged long-term loss of resources and a halt in production occur, space tourism will evolve into a tourism type accessible to everyone. All findings from research emphasize that space tourism will become widespread and a reality of everyday life (Civelek and Türkay, 2020). It is estimated that within 25-30

years, especially with the reduction in the costs of suborbital flights, space tourism will gradually become accessible to a broader audience (Arısan, 2022).

The mentions of space tourism projects from companies carrying out space operations increases the demand in this sector. After Virgin Galactic's successful test flight to an altitude of 82 km in the atmosphere in December 2018, the company announced that it had begun taking reservations for space travel. By February 2020, the company reported having received 8,000 reservations. This indicates a significant demand for space tourism, even though it is not yet widespread. The concepts of novelty seeking and sensation seeking are considered to have a high impact on tourists' selection of destinations (Yuan and McDonald, 1990; Oh et al., 1995). Considering that space tourism is exciting, sensation seeking could play a role in tourists' expectations of experience towards space tourism. Some studies in the space tourism literature also discuss space travel in the context of extreme sports and adventure tourism (Laing and Frost, 2019).

The increasing number of companies engaged in space endeavors and rapid technological developments indicate that space tourism will experience a rapid growth, similar to that of air travel. As a result, customer-oriented studies on space tourism are progressively increasing. As it presents a new and different experience for consumers, understanding the impact of potential tourists' sensation seeking in space tourism on their expectation of experience will help determine the target demographic for space tourism marketing.

Sensation Seeking

Individuals who are considered "new tourists" within the post-modern tourism paradigm want their traveling experiences to bring them more important benefits (Ferguson and Todd, 2005; Cater, 2006; Lepp and Gibson, 2008). Tourists' travel decisions are influenced by various factors such as financial status, health problems, travel companions, lifestyle, and personality traits influence. Besides these factors, motivation plays a decisive role in tourists' holiday destinations (Pearce, 1993). The fundamental motivational elements for tourists can be listed as risk taking, sensation seeking, and the pursuit of achievement. These elements increase an individual's interest in different travel options (Garda & Karaçor, 2016).

Tourists are willing to take social, physical, legal and financial risks for experiences that offer a high sense of excitement due to their search for novelty, diversity, complexity and intense excitement (Zuckerman, 1979). Tourists with these characteristics are considered to be high sensation seeking. High sensation seeking tourists have a strong desire to engage in activities perceived as fast, dangerous, and risky (Cater, 2006), as risky activities contribute to their search for intense excitement. Exciting activities involve high levels of adrenaline, which plays a crucial role in how humans control their experiences. For instance, during mountain climbing, the increase in adrenaline levels helps climbers focus more on their ascent (Page et al., 2005). According to a study comparing space travel to extreme sports, space travel is perceived to be at least 50% riskier than extreme sports like scuba diving, parachuting, skiing, snowboarding, and mountaineering (Laing and Frost, 2019). However, it has been observed that individuals seeking adrenaline, novelty, difference, or excitement have a lower perception of risk compared to others (Cohen 1972; Keng and Chang 1999; Lepp and Gibson, 2003).

In space tourism, risk is an important factor (Laing and Frost, 2019). The perceived risk factors in space travel include flaws in safety, danger associated with launch and re-entry, technical failures, health problems, and the inability to return (Wang, Stepchenkova and Kirilenko, 2021). These are risks arising from the space environment. Considering that these risks will negatively affect travel motivation, it can be said that space travel appeals more to tourists with low risk perception, in other words, high sensation seeking individuals.

Method

Space tourism, within the post-modern tourism paradigm, emerges as an alternative tourism type in line with new information about space. It is considered one of the special interest tourism types among alternative tourism forms. In recent years, space tourism has emerged as a new and rising sector not only in science fiction but also in the real world. In this exciting field, it is thought that the preferences and tendencies of potential tourists will determine how the journeys to the depths of space will be shaped and what features these experiences will contain. In this context, this study on space tourism, which offers a unique research area, can play an important role in shaping the future of this exciting new form of travel by providing important data for companies operating in this new sector to develop their marketing strategies. This information can support developments and innovations in this field by enabling companies to reach their target audiences more effectively and better understand the future of space tourism. Space tourism is attractive to tourists seeking a different experience. Accordingly, the aim of research is to determine the impact of potential tourists' sensation seeking tendencies on their

expectations of experiencing space tourism, which is expected to be a frequent activity in the future. Additionally, it is hypothesized that the age variable may also influence sensation seeking tendencies. To achieve this objective, a quantitative research method was used. The survey designed for this method consists of three sections. It contains statements about the demographic characteristics of the participants in the first section, statements from the Sensation Seeking Scale to measure the level of sensation seeking in the second section, and statements about tourists' expectations towards space tourism experiences in the third section. The statements for determining the level of sensation seeking are adapted from the scale (SSS-V) developed by Zuckerman et al. (1978). The statements regarding expectations of experience towards space tourism experiences are taken from the scale by Ivkov, Blešić, Dudić (2020) on attitude towards the use of service robots, with the experience dimension appropriately adapted for space tourism.

The population of the research consists of domestic tourists living in Turkey. These participants can be characterised as potential space tourists. The sample of the research consists of domestic tourists who accepted to conduct a survey during the data collection process. Data were collected through an online survey from potential tourists reached by convenience sampling, a non-random sampling method.

This research is limited to the information obtained as a result of the resources available after a literature review in the field. Another limitation is that the research is limited to the data collected between January and March 2023.A survey model was used in the study. The hypotheses of the research are:

H_1: *Tourists' sensation seeking varies according to age groups.*

H_2: *Tourists' sensation seeking has an impact on their expectation of experience in space tourism.*

Findings

Descriptive Findings

Descriptive findings for the participants are evaluated through frequency analysis. According to Table 1, which includes findings related to descriptive questions, 53.6% of the respondents are female, and 35.1% are between the ages of 25-32. 45.1% of the participants state that they go on vacation twice a year. It can be said that space tourism is not an actively popular type of tourism today, since it is very recent, the space research is still ongoing, and projects on space hotels are yet to be completed. Based on this, participants are asked to predict in which years space tourism would become an actively practiced and preferred type of tourism. 22.8% predicted the year 2050, and 19.5% predicted 2040. Examining the types of space tourism participants would like to join, it is observed that all types of space tourism are in demand, but zero-gravity tours (40.3%) are the most preferred. Finally, 88.7% of the participants express that participating in space tourism will be considered a status symbol.

Table 1: Frequency Analysis of Descriptive Findings

Gender	**n**	**%**	**Vacations per year**	**n**	**%**
Female	209	53.6	None	35	9.0
Male	181	46.4	Once	125	32.1
Age	**n**	**%**	Twice	176	45.1
18-24	64	16.4	Three times or more	54	13.8
25-32	137	35.1	**Perception of space tourism as a status symbol**	**n**	**%**
33-40	115	29.5	Yes	346	88.7
41-48	58	14.9	No	44	11.3
49 +	16	4.1	**Total**	**390**	**100**
Total	**390**	**100**			
The year space tourism is expected to be active	**n**	**%**	**Types of space tourism participants would like to join**	**n**	**%**
2030	37	9.5	I would like to use space simulation devices.	143	36.7
2035	53	13.6	I would like to join tours of space facilities.	136	34.9
2040	76	19.5	I would like to join satellite observation, stargazing tours.	116	29.7
2045	23	5.9	I would like to join high altitude jet flights.	139	35.6
2050	89	22.8	I would like to join zero-gravity environment tours.	157	40.3
2055	30	7.7	I would like to join Earth orbit tours (such as ISS and orbital tours).	132	33.8
2060	32	8.2	I would like to join tours beyond Earth's orbit (such as Moon or Mars tours)	132	33.8
Never	50	12.8	**Total**	**390**	**100**
Total	**390**	**100**			

The frequency analysis related to expressions of sensation seeking is presented in Table 2. A 5-point Likert scale is used, and the range for evaluating arithmetic means is calculated as: 1.00-1.80 strongly disagree. 1.81-2.60 disagree, 2.61-3.40 neutral, 3.41-4.20 agree, and 4.21-5.00 strongly agree. Upon examining Table 2, it is observed that only the statement "I would like to have new and exciting

experiences even if they were illegal" falls within the -disagree- range. The statement "I enjoy exploring interesting places" has the highest average score.

Table 2: Frequency Analysis of Statements on Sensation Seeking

Statements on Sensation Seeking		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Average
I enjoy exploring interesting places (S1)	**n**	1	41	15	149	184	**4.21**
	%	0.3	10.5	3.8	38.2	47.2	
I would like to go on a trip with no set route and no time limit (S2)	**n**	0	43	44	185	118	**3.96**
	%	0	11.0	11.3	47.4	30.3	
I like doing scary things (S3)	**n**	20	134	158	58	20	2.80
	%	5.1	34.4	40.5	14.9	5.1	
I would like to do bungee jumping (S4)	**n**	39	131	64	63	93	3.10
	%	10.0	33.6	16.4	16.2	23.8	
I get restless when I spend too much time at home (S5)	**n**	20	106	59	74	131	**3.48**
	%	5.1	27.2	15.1	19.0	33.6	
I prefer exciting, unpredictable friends (S6)	**n**	1	110	155	83	41	3.13
	%	0.3	28.2	39.7	21.3	10.5	
I enjoy wild parties (S7)	**n**	35	105	116	99	35	2.98
	%	9.0	26.9	29.7	25.4	9.0	
I would like to have new and exciting experiences even if they were illegal (S8)	**n**	75	146	124	31	14	2.39
	%	19.2	37.4	31.8	7.9	3.6	

* Statements on Sensation Seeking abbreviated by the letter (S)

The exploratory factor analysis conducted to determine the factor loadings for the sensation seeking scale is presented in Table 3. The results show that all of the statements in the scale fall under a single factor. To measure whether the necessary sample size has been reached for factor analysis, the Kaiser-Meyer-Olkin (KMO) test is conducted. The KMO value for the sensation seeking scale is found to be 0.653. The recommended KMO value is at least 0.5 (İslamoğlu and Alnıaçık, 2016); the sample size is thus considered to be sufficient for factor analysis. When the factor loadings for the variables are examined in order for the statements in the scale to provide information about the variables in the scale, the factor loadings vary between 0.473 and 0.819. Factor loadings greater than 0.300 are considered as the ideal level of factor loadings (Büyüköztürk. 2002). This single-factor scale with 8 statements explains 40.139% of the total variance.

Table 3: Factor Analysis for Sensation Seeking

	1	**Cronbach's Alpha**		.779
S1	0.819			
S2	0.751	**Percentage of Total Variance Explained**		40.139
S3	0.735			
S4	0.672	**Kaiser-Meyer-Olkin Measure of Sampling Adequacy**		.653
S5	0.549	**Bartlett's Test of Sphericity**		
S6	0.482	Approx. Chi-Square	1299.921	
S7	0.476	df	28	
S8	0.473	Sig.	.000	

*(S) stands for Statements on Sensation Seeking.

Table 4 contains statements on expectation of experience. Among the statements regarding expectation of experience, the statement "Space tourism is an innovative idea" falls within the-strongly agree- score range, while all other statements are evaluated within the -agree- score range.

Table 4: Statements on Expectation of Experience

Statements on Expectation of Experience		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Average
Space tourism is an innovative idea (E1)	**n**	0	14	44	173	169	4.30
	%	0	1.0	11.3	44.4	43.3	
Being in the space environment would be fun (E2)	**n**	1	15	37	214	123	4.13
	%	0.3	3.8	9.5	54.9	31.5	
Spending time in space would be an incredible experience (E3)	**n**	0	38	37	164	151	4.09
	%	0	9.7	9.5	42.1	38.7	
The use of space technology makes a service experience more enjoyable (E4)	**n**	0	36	28	203	123	4.05
	%	0	9.2	7.2	52.1	31.5	
Being in a service environment in space is beneficial for enhancing experiences (E5)	**n**	1	41	46	179	123	3.97
	%	0.3	10.5	11.8	45.9	31.5	

* Statements on Expectation of Experience abbreviated by the letter (E)

The exploratory factor analysis conducted to determine the factor loadings for the expectation of experience scale is presented in Table 5. The 5 statements on expectation of experience used in a dimension of Ivkov et. al. (2020)'s survey on attitude towards the implementation of service robots are used, also as a single dimension, in this study. The Kaiser-Meyer-Olkin (KMO) value for the statements on expectation of experience on space tourism is 0.848, which indicates that the sample size is sufficient for factor analysis. When the factor loadings for the variables are examined in order for the statements in the scale to provide information about the variables in the scale, the factor loadings vary between 0.844 and 0.934. This scale with 8 statements explains 82.331% of the total variance.

Table 5: Factor Analysis for Expectation of Experience

	1	Cronbach's Alpha	.944
E1	0.934	**Percentage of Total Variance Explained**	82.331
E2	0.925	**Kaiser-Meyer-Olkin Measure of Sampling Adequacy**	.848
E3	0.922	**Bartlett's Test of Sphericity**	
E4	0.910	Approx. Chi-Square	1978.632
E5	0.844	df	10
		Sig.	.000

*(E) Stands for Statements on Expectation of Experience

Testing for Normality

There are certain prerequisites for the use of parametric tests in a research study. One of these conditions is the normal distribution of data. To assume that the data are normally distributed, the skewness and kurtosis values of the variables in the research model can be examined. The reference range for skewness and kurtosis values is accepted to be between -1.500 and +1.500 (Tabachnick and Fidell, 2013).

Table 6: Kurtosis and Skewness Values of Variables

Variables in the Scale	Kurtosis Value	Skewness Value	Number of Observations (N)
Sensation Seeking	-0.359	-0.734	390
Expectation of Experience	0.352	0.070	

As seen in Table 6, the skewness and kurtosis values of the relevant variables are within the reference range of -1.500 to +1.500. Therefore, it is assumed that the data related to these variables are normally distributed, and it has been decided to use parametric tests for the statistical tests of the research. In this context, one-way analysis of variance (ANOVA) and t-test have been used to test the differences between the variables.

The results of the t-test conducted to determine whether there is a statistically significant difference between sensation seeking and gender are presented in Table 7. According to Table 7, there is no statistically significant difference between sensation seeking and gender (Sig. 0.916).

Table 7: T-test Results for Sensation Seeking According to Participants' Gender

	Gender	Frequency	Mean	Standard Deviation	Sig. (2-tailed)	Levene's Test	t	df
Sensation Seeking	**Female**	209	3.32	0.667	.916	0.011	2.012	388
	Male	181	3.18	0.665				

"H_1: The sensation seeking behavior of tourists varies according to age groups."

The results of the ANOVA test conducted to determine whether there is a statistically significant difference between sensation seeking and age within the scope of the hypothesis H_1 are presented in Table 8. The test results indicate a statistically significant difference between these two variables (p<.000). To identify between which groups this difference occurs, it is necessary to examine the post-hoc test. To determine the appropriate technique for the post-hoc test, the homogeneity of variances should be examined. For the dependent variable of sensation seeking, the test of homogeneity of variances yields p>.05, indicating that variances do not show a homogeneous distribution. Thus, the Games-Howell test, which is one of the post-hoc tests used if the variances were not distributed homogeneously among the groups, was utilized (Nakip, 2006). According to the Games-Howell test, sensation seeking decreases as age of the groups increase. Therefore, H_1 is accepted.

Table 8: ANOVA Test Results for Sensation Seeking According to Participants' Age

Factors		Variables	Frequency	Arithmetic Mean	Standard Deviation	F-Value	Significance
Sensation Seeking	Age	18 -24	64	3.73	0.56084	35.245	.000
		25-32	137	3.42	0.55297		
		33-40	115	3.14	0.57614		
		41-48	58	2.87	0.64635		
		49 and over	16	2.19	0.54766		
Leneve		df1		df2			
0.216		4		385			

A correlation analysis is conducted to determine whether there is a relationship between the decrease in sensation seeking with age and the expectation of experience towards space tourism, and if a relationship exists, to identify its direction. Correlation coefficients, which range between +1 and -1, provide information about the strength of the relationship between variables. According to the correlation analysis results in Table 9, all variables forming the research model are seen to have linear and statistically significant relationships with each other. Upon examining the linear relationships in terms of their directions, it is observed that there is a positive linear relationship between the independent variable of sensation seeking and the dependent variable of expectation of experience.

Table 9: Correlation Analysis Results

Variables in the Model	1	2
Sensation seeking (1)	1	
Expectation of Experience (2)	0.610*	1

*Correlations are significant (p<.01).

"H_2: Tourists' sensation seeking has an impact on their expectation of experience towards space tourism."

To test the H_2 hypothesis formulated in the research, a regression analysis is conducted. The results of the regression analysis are presented in Table 10. It is necessary to examine the F-value and the p-value in order to make inferences about the functionality and significance of the research model. It is observed that the F-value (230.514) is significant (p<.01), as well as the sensation seeking variable within the model (p<.05). The effect of the independent variable, sensation seeking, on the dependent variable, expectation of experience, in the research model is evaluated by examining the β values. According to the β value, sensation seeking (β=0.610) has a positive effect on the expectation of experience in space tourism. The extent of the effect of sensation seeking on the expectation of experience in space tourism is explained by the square of the R coefficient. In this context, the R^2 value (.371) shows that tourists' sensation seeking has an effect of 37% on their expectation of experience in space tourism. The remaining 63% that is unexplained could be accounted for by other variables included in the model. Hence, H_2 is accepted.

Tablo 10: Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients	t-value	Significance	Hypothesis Acceptance/Rejection
	B-value	**Standard Error**	**β -value**			
Constant	1.855	0.152		12.193		
Sensation Seeking	0.694	0.046	0.610	15.183	.000	**Accepted**

R= .610, R^2= .373, Adjusted R^2= .371, F (230,514) = 35.245, p= .000

Conclusion, discussion and suggestions

Considering the current and potential target audience of space tourism and the uniqueness of the product offered, it is believed that the space tourism industry will not compete with other tourism sectors and will provide more economic benefits than those achieved to date (Collins, Stockmans and Maita, 1996; Bunghez, 2015). With the competition for space tourism still being low, companies engaging in space tourism are expected to adopt a skim pricing strategy, capturing the cream of the market (Crouch et al., 2009). This strategy refers to initial high prices in space tourism before the competition increases. This way, the tickets for space travel would be purchased by the rich at first. However, with each consecutive price drop, the cost of tickets is expected to decrease over time in an ever-expanding market. This approach will ensure tourists pay the maximum amount they are willing to spend. As ticket prices drop below a certain amount, the number of space tourists will significantly increase. Based on this, participants were asked to predict in which years space tourism will become an actively practiced and preferred type of tourism. Participants generally foresee space tourism becoming widespread in the years 2040 and 2050. The new space industry, as a growing market, is expected to reach a value of at least 3 billion dollars by 2030 (Acar, 2023), with commercial space tourism gradually developing from the 2020s to the 2040s, offering business opportunities and creating a new industry chain (Chang, 2020). Mesa-Arango et al., (2023) predict that the space tourism market will grow by 18-26% between 2020 and 2030.

Participants state that participating in space tourism will be considered a symbol of social status. Space tourism can be regarded as a luxury consumption product. When examining luxury consumption literature, luxury is among the most important factors influencing consumption (Vigneron and Johnson, 2004). Consuming luxury products provides a sense of satisfaction to the customer due to the attention it draws in society (Wong, 1997). In the postmodern era, individuals believe they exist as much as they are visible, hence establishing a strong connection between visibility and existence (Bostancı, 2022: 357). The most important reason why an individual, who wishes to consume what is different in order to be visible, acquires unique products is the desire to differentiate themself from other people (Snyder, 1992). Luxury products meet the criteria of being unique due to their high prices and limited accessibility (Vigneron and Johnson, 2004). Space tourism, being both high-priced and hard to access, places itself at the pinnacle of luxury consumption. Space tourism, being both different and luxurious, provides participants with a sense of intrinsic pleasure and enables them to achieve experiences such as gaining prestige in their social environment, becoming visible, being accepted, having status and displaying opulence.

There isn't a statistically significant difference between sensation seeking and gender. Some studies have identified a significant difference between the level of sensation seeking and gender. Part of the research suggests that men have a higher propensity for adventure-seeking compared to women (as found in studies by Cross, Cyrenne and Brown in 2013; Roth, Schumacher and Brahler in 2005; Öngen in 2007). When examining the literature, it is generally concluded that men's sensation seeking levels are higher than women's. Yet, there are also studies that conclude otherwise. For instance, Beşikçi and Dinç (2022) in their study on pilots, found that women's levels of sensation seeking were higher than men's. However, in this particular study, no relationship between the gender variable and sensation seeking is found.

Another finding of the study is that sensation seeking decreases as age increases. It is observed that individuals in younger age groups have a higher level of sensation seeking. The tendency for self-actualization is closely related to individuals' age (Swarbrooke et al., 2003: 60-61; Richards and Wilson, 2006: 41; Pearce, 1992: 13). According to a survey conducted by Berno et al., (1996) on 651 tourists in New Zealand, it was found that the 20-34 age group showed more interest in touristic activities like bungee jumping, rafting, jet skiing, skiing, and mountaineering compared to other age groups. Additionally, numerous studies show that individuals' sensation seeking levels peak during adolescence and tend to decrease in later years (Zuckerman, 1979; Ball, Farnhill and Wangeman, 1984).

The higher risk perception of the thrilling activities can be explained by the willingness of the young people to take higher risks during these activities. When examining studies in the literature, it is evident that there are statistically significant differences between sensation seeking levels and age, with younger individuals showing a greater inclination towards sensation seeking (Ball et al., 1984; Li et al., 2015; Yumuk, 2019; Bilgen, 2021; Gürer, 2022).

Sensation seeking fundamentally represents a personality trait. It is defined as the pursuit of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for such experiences (Zuckerman, 1994). A positive linear relationship is observed between the dimension of sensation seeking and the dependent variable of expectation of experience. The use of new technologies is often linked to hedonic motivation. However, studies associated with the structure of experience also exist (Ivkov et. al., 2020). Space research is more than just an exciting journey; it is a heroic quest where risks are taken in order to experience space, and where extraordinary achievements are accomplished (Campbell, 2008). Therefore, tourists' sensation seeking trait significantly influences their expectation of experience in space tourism.

Throughout history, humans have possessed an exploratory spirit. With changing times, growing population, and increasing needs, there has always been a continuous desire to explore. In 15th-century Europe, the establishment of central monarchies led to increased expenditures, resulting in a shortage of coins. The exploration journeys undertaken to meet the need for resources inadvertently led to the discovery of the American continents. The exploration of space bears resemblance to the discovery of America. The increasing population and changes in social structures on Earth, leading to insufficient energy resources, have heightened interest in space. Thus, the primary motivation behind space exploration efforts is to access various minerals in space (Özmen, 2022; Açıksözlü and Varol, 2022). However, these exploration activities are quite costly, and space tourism presents a revenue-generating opportunity. Therefore, companies conducting space exploration activities consider space tourism as a secondary aspect of their ventures (Seo, 2013; Açıksözlü and Varol, 2022).

Space tourism represents both adventure and luxury consumption. The dangerous nature of space, along with security risks and uncertainties, are its negative aspects. Therefore, it serves as an alternative primarily for those seeking sensational experiences. For tourists driven by sensation seeking, the allure of space tourism is heightened by the prospect of being in a different environment, experiencing immersive and risky adventures in spacecrafts. The emergence of new companies focused on space-related activities will foster technological advancement. Particularly, the increase in environmentally friendly and recyclable spacecrafts will reduce the costs of space travel, leading to lower fees for space tourism. As a result, the number of individuals interested in space tourism is expected to rise.

The idea of constructing hotels and establishing villages in space, or observing Earth from inside a giant capsule captivates the imagination of many. The target demographic for this type of tourism, which is expected to become widespread post-2030, should be individuals with a high level of sensation seeking. While a general negative correlation between sensation seeking and age has been identified, it's important to remember that sensation seeking can be a personality trait. Therefore, marketers of space tourism should consider this aspect when evaluating their target market.

In this study, the relevant literature was analysed and information about space tourism and the postmodern tourism paradigm was presented in detail. In the application part of the study, the relationship between age and excitement and the relationship between experience expectation and excitement towards space tourism were tested. As a result, it is estimated that the target market for space tourism is people with high thrill seeking and that thrill seeking decreases with increasing age. However, as the target market is still unknown, it is necessary to reach the target market with the right marketing strategies and to address the concerns. This study is limited to domestic potential tourists living in Turkey. In future studies, comparisons can be made with tourists living in countries with different cultures and levels of development. In addition, new studies can be conducted on the fears and expectations of space tourism in the future.

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Conflict of interests:

The author(s) has (have) no conflict of interest to declare.

Grant Support:

The author(s) declared that this study has received no financial support

Ethics Committee Approval:

This study requires ethics committee approval due to the collection of data from the participants with the survey method.

Yalova University Ethics Committee was applied for this study and the Ethics Committee approved the study on 24.08.2022 with decision number 2022/109.