SCIENTIFIC CULTURE

www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 11112-11122
Open Access. Online & Print

DOI: 10.5281/zenodo.20125892

AI HALLUCINATION: HOW TRUSTWORTHY IS GEN-AI FOR TRAVEL PLANNING? REVIEW OF THE GASTRONOMIC EXPERIENCE IN THE TOURISM DESTINATION OF KIRKLARELI, TÜRKİYE

Sibel Sü Eröz[1*]

[1]Associate Professor, Kırklareli University, Faculty of Tourism, Department of Tourism Management, Türkiye, Email: sibeleroz@hotmail.com

Received: 06/04/2026
Accepted: 29/04/2026

Corresponding Author: Sibel Sü Eröz (sibeleroz@hotmail.com)

ABSTRACT

The study's objective is to examine the AI hallucination by considering the trusthworthy of the use of Gen AI outputs in travel planning from a tourism perspective. In the study, gastronomy tourism-based outputs for Kırklareli destination in Türkiye were analyzed using ChatGBT as a Gen AI platform. The findings reveal that Gen AI generates two types of hallucinations: intrinsic and extrinsic. These hallucinations are caused by factors such as incomplete, outdated or inaccurate training data, dynamic structure of the tourism sector, production of outputs based on probabilities, training on large amounts of unsupervised data, uncertain prompt and limited context, training data bias, inability to understand real-world complexities, and model complexity. In the study, hallucinations generated by ChatGPT are categorized into six themes: place and location, menu, geographical mismatch, inconsistencies with cultural and daily life reality, incoherency and repetitions, and terminology hallucination. The findings indicates that, in its current state, Gen AI should not be regarded as a totally trustworthy resource for travel planning, but rather as a supportive resource for users.

KEYWORDS: Artificial Intelligence Hallucination, Gen AI, Travel Planning, Tourism, Gastronomy.

1. INTRODUCTION

The widespread use of Artificial Intelligence (AI) and Gen AI (Generative Artificial Intelligence) in many areas of life is creating new opportunities and challenges for the tourism industry. In particular, in travel planning, Gen AI platforms support potential tourists in many areas, such as determining travel routes, adjusting accommodation options according to their personal preferences, recommending activities and even providing detailed travel plan suggestions. However, it is seen that these technologies bring some risks as well as the innovative opportunities they offer.

One risk of Gen AI is called hallucination (Anthony, 2023). It is seen that the concept, which evolved from the late Latin word hallucinatio, meaning "*delusion, delirium*," was derived by adding the suffix +(t) ion to the verb hallucinari meaning "*to be confused, delirious*" in late Latin (Nişanyan Etymological Dictionary, 2025). This concept seems paradoxical when evaluated in terms of computers. Because hallucinations usually associated with the human brain, not with machines. However, Gen AI systems can sometimes generate outputs that are inappropriate for the real world or are completely fabricated. From a metaphorical point of view, this is called an "*AI hallucination*" (IBM, 2025). In this context, the concept of "*hallucination*" is considered not only a psychological or biological phenomenon, but also a technological and ethical problem. At the same time, these erroneous outputs bring up the issue of trustworthiness in travel planning and make it require research it in terms of the tourism sector.

The expanding use of digital technologies has significantly changed the actions in travel planning. Travels, which was planned with individual efforts or through travel agencies in the past, can now be realized online thanks to digital platforms. However, this transformation process in technology has recently reached a more advanced level. Now, instead of researching a variety of platforms, it has become possible to plan a travel through a single AI-based platform called "*Gen AI*." In this research, focuses on the trustworthiness of Gen AI platforms, which are still undergoing transformation, in travel planning is chosen as the research subject.

The consequences of hallucinations in Gen AI outputs have been investigated with a focus on academic studies (Alkaissi & McFarlane, 2023; Athaluri et al., 2023). Gen AI systems such as ChatGBT are increasingly used in the tourism industry. However, issues such as the trustworthiness related to the use of these systems in travel planning have not been fully clarified. In the literature, a number of studies have examined travel planning with AI from different perspectives (Kim et al., 2023; Gursoy, Li, & Song, 2023; Akpur, 2023; Flower Mountain, 2024; Li et al., 2024). Also, there is limited research in the literature that examines the trustworthiness of using Gen AI in travel planning from a computer hallucination perspective (Christensen, Hansen, & Wilson, 2024). The relevant study investigated users' awareness of AI hallucinations and the rationale behind their selection of AI platforms. The objective of this research is to understand how trustworthiness the using of Gen AI outputs in travel planning is in practice. In addition, this study aims to comprehensively evaluate the impact of Gen AI hallucinations on the tourism sector, to enhance knowledge on this subject, and provide a solid basis for future research.

In this context, primarily the research theoretically examines the concept of the Gen AI hallucination, why it emerges, and the consequences it may lead to from a tourism perspective. The implementation part of the research analyses the trustworthiness of Gen AI in the gastronomic experience of the Kırklareli destination. In the final part of the research, the data obtained are evaluated, inferences are made both academic and sectoral, and suggestions are made for the relevant stakeholders on how to manage this problem.

2. LITERATURE REVIEW

2.1. The Concept of Gen AI Hallucination

The tourism industry has significant potential for adoption of AI technologies. Gen AI, which has been stated as one of the revolutionary technologies facing humanity (Basalamah et al., 2024), refers to the use of AI techniques, in particular machine learning and deep learning methods, for the automatic generation of content such as text, images, music, etc. (Ling, 2023). Generative systems can produce solutions that exceed human capabilities owing to the computing power of AI which far exceeds the capabilities of the human brain (Perov & Perova, 2024).

However, one of the pivotal concerns of Gen AI systems is that when they do not understand the questions, they misinterpret them, and because they cannot provide accurate answers, they begin to make up answers in a process called "*AI hallucination*" (Anthony, 2023). Zhou et al. (2024) indicated that whereas early models tended to take an evasive approach, such as "*I can't do that/I can't answer about that*" when they did not know the user questions correctly, today they tend to give a seemingly logical but incorrect or nonsensical answer rather than not

answering. AI hallucination, according to Anthony (2023), is "*a concept used to describe the phenomenon in which AI algorithms and deep learning neural networks produce unreal outputs that do not match the any data on which the algorithm was trained on, or any other identifiable pattern*"; according to Athaluri et al. (2023), "*a phenomenon in which AI generates a convincing but completely made-up answer*"; According to Perov and Perova (2024), "*the phenomenon that large language models (LLMs) perceives patterns or objects that do not exist or cannot be observed by humans, and as a result, generate meaningless or completely inaccurate outputs*"; According to Hasan (2024), it is defined as "*situations in which language models generate semantically or syntactically plausible outputs, but these outputs are actually incorrect or nonsencical*."

Typically, when a user requests an output from a Gen AI system, they expect a reasonable response (i.e., a correct answer to a question they asked). However, sometimes AI algorithms may generate outputs that are not based on training data, are incorrectly encoded by the transducer, or do not follow any recognizable patterns. In other words, it "*hallucinates*" the response (IBM, 2025). Gen AI hallucinations may be likened to visual hallucinations, which are expressed as a type of sensory misperception (Teeple, Caplan & Stern, 2009). For instance, objects on a chair in a dark room may resemble a person or other figure.

Nikhil (2024) categorizes hallucinations as hallucinations caused by a lack of information or errors that comprising despite the correct information of the model. Researchers consider two different phenomena when distinguishing between hallucinations *caused by incomplete information* and hallucinations *caused by misapplied information*. The first type occurs when the model does not have the necessary information, for instance, when questions are asked about specific, lesser-known facts. In this case, LLMs tend to give answers that seem logical but are incorrect. The second type occurs when the model has the information but still produces an incorrect answer. Such hallucinations indicate that there is a problem with how the model processes or recalls stored information, rather than a problem of information scarcity (Nikhil, 2024). Zhang et al. (2023) specifically describe hallucinations that occur in LLMs; they categorize it as *input-conflicting hallucinations* (where LLMs generate content that deviates from the source input provided by users), *context-conflicting hallucinations* (where LLMs generate content that conflicts with previously generated information by itself), and *fact-conflicting hallucination* (where LLMs generate content that is not faithful to established world knowledge). Maynez et al. (2020) and Ji et al. (2023) categorize hallucinations as *intrinsic hallucinations* and *extrinsic hallucinations*. These distinctions in hallucinations are of great importance in terms of requiring different types of interference for different errors (Nikhil, 2024).

When the literature is examined, these hallucinations in Gen AI include; missing training data (Perry, 2024), training on large amounts of unsupervised data (Alkaissi & McFarlane, 2023; Zhang et al. 2023), training data bias (IBM, 2025; Pradeep Reddy, Pavan Kumar & Purna Prakash, 2024), ambiguous prompts, limited context, adversarial attacks (Pradeep Reddy, Pavan Kumar & Purna Prakash, 2024), overfitting and high model complexity architecture (IBM, 2025; Pradeep Reddy, Pavan Kumar & Purna Prakash, 2024), training and modeling choices (Ji et al., 2023).

2.2. Gen AI Hallucination in Travel Planning, Causes, And Consequences

Since Gen AI outputs are generated in natural language, they can be very persuasive even if they are not accurate. Gen AI hallucinations in travel planning take two forms, intrinsic and extrinsic hallucinations (Maynez et al., 2020; Ji et al., 2023). Intrinsic hallucinations refer to "*hallucinations generating by manipulating the information contained in the input document*" (Maynez et al., 2020). For instance, if the input is "*This hotel is located by the beach*", the output can be manipulated into "*This hotel is known for its private beach on the seaside*". Here there is a misrepresentation of the information in the document. Extrinsic hallucinations, on the other hand, are "*hallucinations generated by adding information that cannot be directly inferable from the input document*" (Maynez et al., 2020). For instance, if the input is "*Kırklareli has a clean beach where you can swim*", the output can be "*Kırklareli beaches attract millions of visitors every year and are known as one of the world's top ten beaches*". The unverifiable aspect of this additional information increases the risk from a factual security perspective (Ji et al., 2023).

Trust is recognized as an important desirable feature of the interaction between any user and AI (Jacovi et al., 2021). Zerilli, Bhatt and Weller (2022) note that in many laborotary-based settings, AI users initially show unrealistically high levels of trust, but this trust drops abruptly when they see a system fail. Dzindolet et al. (2003) observed that when the participants realized that the automations made mistakes, they did not even trust reliable systems when the reasons for this were not explained, and

when the reasons for the mistakes were explained, the trust increased despite the mistakes. Similarly, the increasing rate of use of Gen AI models in travel planning today makes it imperative to understand the causes of such errors and minimize them. In this context, in the study, Gen AI hallucinations in travel planning in parallel with those stated above; it is predicted that it may be caused by factors such as incomplete, outdated or inaccurate training data, the dynamic nature of the tourism industry, generation of outputs based on probabilities, training on large amounts of unsupervised data, training data bias, ambiguous prompts and limited context, inability to understand real-world complexities, overfitting and high model complexity, and training and modeling choices.

The basis of Gen AI is deep learning, based on specific database. Models such as GPT (Generative Pre-trained Transformer) generate outputs based on the information (data sets) previously presented to them. These outputs are formed as a result of matches with existing data sets. All the results generated (text or visual) are a repetition of existing patterns. In this context, all the capabilities of Gen AI are limited by the data used in the training process presented to it (Perov & Perova, 2024), but this information can rapidly become outdated (Perry, 2024). The potential for misinformation also affects the output of the system (Susanto et al., 2023). *In cases where the training data is incomplete, outdated, or inaccurate*, Gen AI may generate incorrect or incomplete, in other words, hallucinated outputs. For instance, if a travel plan made by a user for the August is made in May, it will not include a tourism business that has not yet been launched in its output. Similarly, it is possible to add a business that has ended its activities to its output. Another potential cause of hallucination in Gen AI the *dynamic structere of the tourism industry*. The information required for travel planning, such as the price policies of tourism enterprises, the departure and arrival times of transportation businesses, the dates and times of events, and the opening and closing times of businesses serving tourists, can change dynamically. In such cases, Gen AI may have difficulty tracking and control these changes in real time and may generate misleading outputs to the user based on outdated or inaccurate information. It is important to note that, Gen AI, like all other branches of AI, is rooted in statistical modeling and probability theories (Gen AI Report, 2023). Since *Gen AI generates outputs based on probabilities*, it will be able to generate fictitious responses to requests that it thinks are low probability (for instance, can you recommend a place where ı could go on snow travel in Antalya?). when there is limited information in the dataset. *The fact that training takes place on large amounts of unsupervised data* (Alkaissi & McFarlane, 2023) is also considered to be another reason that may cause hallucinations in travel planning through Gen AI. Unstructured unsupervised data refers to data types that are not in a standardized format, such as written texts, audio files, videos, social media posts, and user comments (Gandomi & Haider, 2015). Since some of this data may contain subjective assessments, biases, and misinformation, it may cause the output production that can be described as hallucinations. Furthermore, today, AI systems learn from the internet as if it were a normative reference (Walter, 2022). In this context, *training data bias* is another reason that may cause hallucinations. In the computer system, bias is defined as "*the tendency to showcase recurrent errors that result in unfair outcomes*" (Mavrogiorgos et al., 2024). Biased outputs can be caused by the bias of engineers (engineer bias), the data itself (data bias) and the machine learning models used (algorithm bias) (Mavrogiorgos et al., 2024). It is thought that the bias caused by algorithms in travel planning may be due to reasons such as representation bias, ranking bias and popularity bias. In *representation bias*, which arises from how a sample from a population in the data collection process that causes bias, there are non-representative samples and missing subgroups (Mehrabi et al., 2019). *Ranking bias* refers to the ranking of algorithms by Gen AI where the top-ranked results are the most relevant and important to the prompt. In *popularity bias*, there is a tendency to extract more popular results into outputs, which may be subject to manipulation by social bot or fake reviews (Mehrabi et al., 2019). For instance, in the tourism-related dataset, if chain hotel businesses in the luxury segment in a destination are ranked higher in the search engine, and the data on local businesses is more limited, or if some tourism businesses have more positive reviews, Gen AI may narrow down the options and ignore more affordable options, generating hallucinated outputs which are ranked high and popular, unappropriate the user's request. *Ambiguous prompts* and *limited context* can also be another cause of Gen AI hallucinations. When users do not express their questions or requests clearly enough, or when Gen AI does not understand the question in the context that humans understand it, it may interpret the input differently, filling in the missing information with fictitious elements, generate hallucinated outputs. In addition, users making requests using local dialects, making requests with metaphorical sentences, or requests

based on satisfying different desires that may be considered contradictory by Gen AI (e.g. a quiet destination with multicoloured nightlife or a romantic destination proper for children) may cause hallucinations. Another cause of hallucination is the inability to understand real-world complexities. For instance, a natural beauty that is very often mentioned on the Internet can be located in a place where there is no transportation. Despite this, it may be listed as a must-see destination in the outputs generated. Similarly, it can generate an output that recommends a destination as a luxury travel destination, while ignoring infrastructure deficiencies and environmental problems. *Overfitting* and *high model complexity* (IBM, 2025) are also considered as one of the causes of hallucinations. Overfitting can be defined as a model that fits the training data perfectly and makes accurate predictions for the training data but makes incorrect or misleading predictions when faced with new data (Ozcan, 2024). *Training and modeling choices* can also lead to imperfect representation learning, erroneous decoding, exposure bias, and parametric knowledge bias, and affect hallucination rates (Ji et al., 2023). It should also be noted that hallucination rates may vary in different AI models. For instance, while ChatGPT's hallucination rate is about 3%, it can be as high as 27% on Google's systems (Perry, 2024).

All these hallucinated outputs generated by Gen AI will have effects such as economic loss, waste of time, disappointment as a result of developing unrealistic expectations for users, as well as dissatisfaction with the destination visited, and negative comments against the destination or business. While the negative comments made are on the internet as data, this time the negative data about the destination or the business may spread further throught other outputs. In addition, while agencies are looking for ways to compensate for all these negativities experienced as a result of hallucinations during or at the end of the travel, Gen AI does not take responsibility. The lack of skills such as emotional intelligence or errors caused by hallucinations is also a factor that will significantly reduce user trustworthy and satisfaction. Moreover, describing a risky area as an "*undiscovered paradise*" may lead visitors to put themselves in danger. In addition to all these, some of the tourism businesses may gain unfair profits from the misguidance of Gen AI, while some of them may suffer serious economic losses due to this situation. In the manipulations that can be created in the data intentionally or unintentionally, may cause hallucinations in Gen AI, and this may lead to loss of reputation of the destination or tourism businesses. In addition to all these, trustworthy in digital technologies will also decrease, and the sense of insecurity in human-machine interaction may negatively affect digital transformation process.

3. METHODOLOGY

3.1. Methodology Procedure

Qualitative research method was used in the study. ChatGBT was used as the Gen AI platform for the research. This platform was used because it is the most well-known and widely used Gen AI platform by people across the globe. The free version available to everyone used in the study is GPT-4-turbo. This model was developed based on the GPT language model developed by OpenAI in 2018 (Al-Amin et al., 2024). In addition, ChatGPT is recognized as the most powerful platform within Gen AI and has the lowest hallucination rate (Perry, 2024). In the research conducted on using of ChatGBT's in travel planning; Christensen, Hansen and Wilson (2024), concluded that the most important reason why users choose the itinerary generated by ChatGPT is the belief that this platform is more interesting and more successful in providing personalized recommendations. Demir and Şen Demir (2023) also emphasize that ChatGPT individualizes tourism services and strengthens the service value.

Within the scope of this research, the Kırklareli destination in Türkiye was examined. Kırklareli is a destination that offers tourists many tourism experiences such as rural tourism, cultural tourism, camping and caravan tourism, sea, sand, and sun tourism, and gastronomy tourism. Additionally, Kırklareli bordered by Bulgaria. In 2024, 2.918.581 visitors traveled Türkiye from Bulgaria (Directorate General of Investments and Enterprises, 2025). Furthermore, 170.908 vehicles entered through the Dereköy border crossing (Republic of Türkiye Ministry of Trade, 2025). Therefore, these visitors have the potential to conduct research using ChatGBT. Also, it may not be completely healthy to use search engines to verify the reliability of the outputs obtained. Therefore, the fact that it is a province that can be controlled by the researcher was also decisive in choosing the destination. To conduct more comprehensive and in-depth analysis, the experience of gastronomy tourism, one of these types of tourism, was analysed. This approach aims to analyse the trustworthiness of Gen AI in exploring the local cuisine of the destination.

In this context, a prompt related to the aim of the study was directed to OpenAI's GPT-4-turbo AI model on July 13, 2025. A screenshot of the response

provided by ChatGPT is shown in Figure 1. The prompt used in this research is provided below.

Question: *I would like to visit the city center of Kırklareli for gastronomy tourism. What can I eat and drink in which restaurants during a one-week trip. Can you make a travel plan?*

In order to analyse the research data were categorized into themes through content analysis.

4. FINDINGS

The content generated by GPT-4-turbo in response to the research prompt is shown in Figure 1.

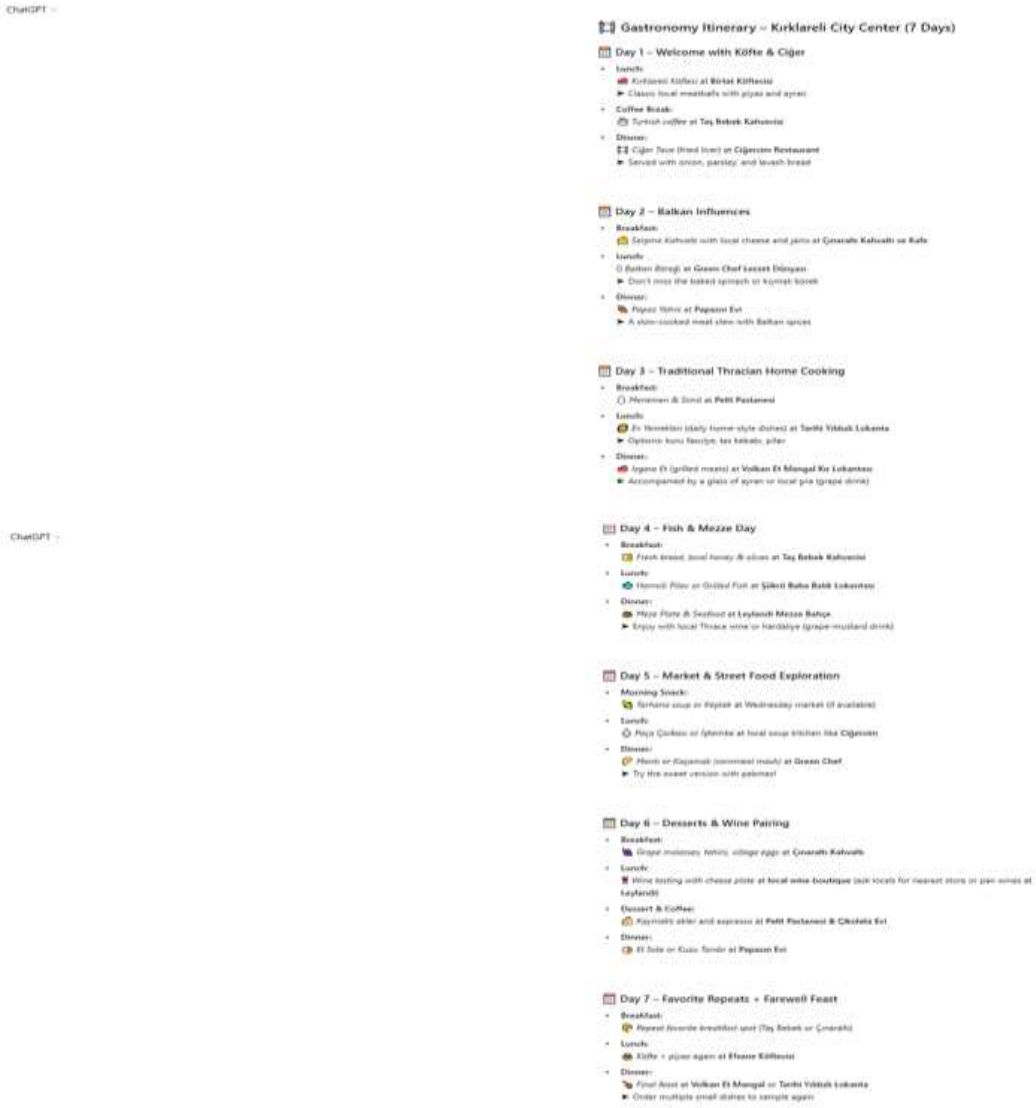

Figure 1: Chatgpt-Generated Content (Https://Chatgpt.Com/, 2025).

The analysis revealed that ChatGPT had biases in its travel planning, such as not recommending breakfast and starting the gastronomic travel plan with lunch. Additionally, many hallucinations were detected in the gastronomic-based travel plan suggested by ChatGPT.

These were categorized into themes and presented below:

- ***Place and location hallucinations***: This theme involves the recommendation of restaurant names that do not actually exist. The restaurant "Çınaraltı Kahvaltı ve Kafe" which is recommended for breakfast on the second day does not exist in Kırklareli. Upon further investigation, it was found that there are two businesses with the name "Çınaraltı" in the province. In addition, one restaurant's name starts with "Çınar." Furthermore, these businesses operate in districts, not in the provincial center of Kırklareli (Çınaraltı Restaurant in Lüleburgaz-Kırklareli, Çınaraltı Kahvecisi in Pınarhisar-Kırklareli, and Çınar

Aile Çay Bahçesi in Vize-Kırklareli). Similarly, "Pelit Pastanesi" reccomended for breakfast on the third day, "Tarihi Yıldızlı Lokanta" recommended for lunch, "Şükrü Baba Balık Lokantası" suggested for lunch on the fourth day, "Pelit Pastanesi & Çikolata Evi" recommended for dessert and coffee on the sixth day, and "Efsane Köftecisi" recommended for dinner on the seventh day do not exist in Kırklareli.

- ***Menu hallucinations*:** This theme involves the recommendations of foods that do not actually exist on the menu of a restaurant. "Balkan böreği", "mantı", and "kaçamak" are recommended at "Green Chef Lezzet Dünyası" despite these courses not being on the menu (Green Chef Lezzet Dünyası, 2025). Similarly, "Papazın Evi" does not serve "papaz yahni," only an association based on the similarity of the name. Furthermore, non-existent businesses are also recommended with menu options.
- ***Geographical mismatch hallucinations***: This theme involves recommendations that businesses are not located in the geographical area being research. Some restaurants recommended in the travel plan are located within the district borders but are shown within the city center. For instance, businesses named "Çınaraltı" and "Çınar" are all located in districts. In addition, Lüleburgaz and Pınarhisar, which are recommended destinations for tasting wines specific to the Thrace region, are also districts of the Kırklareli province.
- ***Inconsistencies with cultural and daily life reality***: This theme involves recommendations that do not overlap with local life practices in the destination visited. The information that "tarhana soup" and "keşkek" are sold as food every week in the Wednesday market in Kırklareli does not reflect the truth. Additionally, Kırklareli patisseries do not serve hot breakfast menus such as "menemen," only patisserie products (cakes, cookies, desserts, etc.) are sold. Similarly, there is no dessert called "kaymaklı ekler- eclair with clotted cream" in Kırklareli.
- ***Incoherency and repetitions***: This theme involves recommendations that repeatf the same businesses under different names or roles. "Taş Bebek Kahvecisi" is recommended for a coffee break on the first day of the travel and for breakfast on the fourth day. "Ciğercim Restaurant" is recommended for dinner on the first day of the travel and for lunch on the fifth day. "Green Chef Lezzet Dünyası" is recommended for lunch on the second day of the travel and for dinner on the fifth day under the name "Green Chef." "Pelit Pastahanesi," which is not located in Kırklareli, is recommended for breakfast on the third day of the travel and for dessert and coffee hour on the sixth day under a different name, "Pelit Pastahanesi & Chocolate House." Similarly, "Çınaraltı Kahvaltı ve Kafe," which is not available in Kırklareli and recommended for breakfast on the second day of the travel, is again recommended for breakfast on the sixth day, this time under the name "Çınaraltı Kahvaltı." "Leylandi Mezze Bahçe," which was recommended for dinner on the fourth day of the travel, is recommended for lunch on the sixth day as "Leylandi." "Papazın Evi" is recommended for dinner on both the second and sixth day of the travel.
- ***Terminology hallucination***: This theme involves the recommendations of food in the destination with a different name other than local usage. In the destination, "Balkan böreği-Balkan pastry" which is one of the types of pastry belonging to Balkan cuisine and served with this name in the menus, is suggested as "Balkan böreği when the local name is "Boşnak böreği-Bosnian pastry". Also, there is no dessert called "kaymaklı ekler-eclair with clotted cream" in the recommendations.

5. CONCLUSION

Gen AI is considered an innovative technology that enhances the user experience in the tourism sector, as in many other industries, and is predominantly highlighted for its positive effects. However, the negative effects and trustworthiness issues of this technology are often overlooked. Whereas trust is recognized as a central component of the interaction between humans and AI (Jacovi, Marasović & Miller, 2021). This phenomenon, known as AI hallucination, occurs when an AI model generates unexpected or inaccurate results. AI algorithms and deep learning neural networks are said to hallucinate when they generate results that are not real, do not match the data on which algorithm was trained on, or do not follow any other discernible pattern (Susanto et al., 2023). In this research, the trustworthiness of Gen AI in the travel planning process was examined qualitatively from the perspective of AI source hallucinations. The

research first attempted to determine the causes of hallucinations and their effects on users in the travel planning process. In addition, the potential limitations of ChatGPT's ability to generate trustworthy recommendations for travel planning were also determined.

In the study, the findings revealed that ChatGPT generates output appear confident but are partially inaccurate, in other words, hallucinated. In the study, hallucinations generated by ChatGPT were categorized *into six themes*: place and location, menu, geographical mismatch, inconsistencies with cultural and daily life reality, incoherency and repetitions, and terminology hallucination.

It can be stated that a significant part of hallucinations is generally caused by internal hallucinations generated by manipulating the information contained in the input document. In addition, external hallucinations are also generating by adding information that cannot be directly extracted from the input document, such as "local products such as tarhana soup and keskek can be eaten in the Wednesday market." When the possible causes of hallucinations are analyzed, it can be said that this hallucination may be caused by the inability to understand real-world complexities. In addition, it is thought that a significant number of hallucinations are caused by the *incomplete, outdated, or inaccurate training data*. The fact that local restaurants do not have up-to-date menu information or have limited information may cause the model to fill in missing or inadequate data with imaginary elements. Especially in small destinations such as Kırklareli with limited digitalization, the fact that businesses do not attach sufficient importance to their visibility on the Internet reduces the timeliness of the data sets, generating some businesses to be repeatedly highlighted in the recommendations, while others are completely excluded. This situation is also caused by problems arising from the training data, such as representation bias and underrepresentation of subgroups. More importantly, businesses operating in other geographical locations are partially hallucinated and shown in Kırklareli. At the same time, the presentation of the same restaurant with different names or functions in the content shows that the model cannot maintain contextual integrity during content generation and produces hallucinations that contradict the context. In addition, all these hallucinations point to complex patterns in which both internal and external hallucinations occur together.

5.1. Considerations For Future Research

This study demonstrates that further research is required to address Gen AI hallucinations and their effects in in the tourism sector in the future. According to Christensen, Hansen and Wilson's (2024) research, it is concerning that the discrepancy between recognizing the potential of AI hallucination and choosing to trust AI suggestions despite significant errors. In this context, research can be conducted that focuses on examining trust in Gen AI in the context of individual differences and generational differences. Similarly, examining the differences between trust in Gen AI and trust in the humans working in travel agencies will broaden the horizon for the future role of the human factor in service.

Investigating the relationship between tolerance levels and user trust when they encounter hallucinations in travel planning will also provide a different perspective on the subject. In addition, studies that measure the intention to use Gen AI in the travel planning process will also contribute to the literature. In th study, Gen AI hallucinations were only analyzed for ChatGBT, and other platforms were excluded from the scope of the research. Studies analyzing other platforms will provide more holistic results from a tourism perspective. This study focuses on Kırklareli as the destination. Considering the global structure of the tourism industry, it is important to conduct research on different destinations to evaluate the degree of hallucination of Gen AI. Also examining Gen AI outputs in different types of tourism can provide important results on this subject.

The study was conducted using the free version of ChatGBT, which is accessible to everyone. Repeating the study in the paid version, which offers more advanced features, and revealing the differences between them will enrich the literature on hallucinations in terms of tourism. It is also crucial to increase studies on how Gen AI can be more trusthworthy especially in the technical field.

5.2. Practical Implications

This research contributes to a comprehensive understanding of the theoretical knowledge of AI hallucinations, the trustworthiness of AI in travel planning, and the effects of AI hallucinations in tourism. These findings have implications not only for academic literature but also for tourists and restaurant owners/managers at destinations.

Athaluri (2023) emphasizes that researchers using ChatGPT should be cautious when relying on the generated references. According the findings of this research, attention should be paid to the outputs

generated during the travel planning process. This result indicates that, in its current state, Gen AI should not be considered completely reliable source for travel planning but rather as a supportive tool for users.

The use of Gen AI platforms in travel planning can facilitate the acquisition of exploratory information. However, it is great importance for users to be aware of potential problems such as hallucinations and take the necessary precautions to deal with them effectively. Therefore, adopting a conscious and questioning approach to check the accuracy of the generated information is essential for a more reliable travel experience. For this, users can request Gen AI to provide supporting source links or other forms of evidence with travel planning queries. Before all this, clearly defining expectations and goals at the beginning of the travel planning process can faciliate generate more accurate outputs. Enhancing digital literacy levels related to this subject is also important both individually and socially. Thus, users who are more aware of Gen AI hallucinations will be able to make more reliable travel decisions by being protected from misguidance.

Rebuffel et al. (2022) emphasize that the main factor in determining the model's performance is the quality of the the training data. The trustworthiness of Gen AI in travel planning is directly related to the actuality and accuracy of the data used. Therefore, business managers should improve the accuracy, actuality, and scope of the data.

In addition, all stakeholders who want to participate in the tourism ecosystem should update the content they produce and ensure the accuracy of their data. In this regard, all stakeholders within the tourism ecosystem should update the content they produce and ensure the accuracy of their data. The creation of systems in which users can provide feedback on the outputs of Gen AI will also enable tourism stakeholders to take corrective measures. For this, stakeholders should allocate trained workforce and resources. Furthermore, as Walter (2022) points out, developers of Gen AI platforms should provide more transparency about how information about the platform's operation is generated, by whom its accuracy can be guaranteed, and how it is distributed. Kim et al. (2023) state that consumers may hesitate to adopt AI-generated recommendations as they tend to be concerned about privacy and information transparency. Text generation technologies based on hallucination detection mechanisms that aim to improve factual accuracy and logical coherence in text generation are also among the technical issues that require further study. These technologies will not only maintain text fluency and significantly reduce factual and semantic errors, making the generated text more coherent and trustworthy (Li et al., 2024).

5.3. Limitations

In the research, only the outputs generated by ChatGPT were analyzed, and other Gen AI platforms were excluded from the scope of the evaluation. In addition, the travel planning for the Kırklareli destination focused only on gastronomy tourism, and other types of tourism in the destination were excluded from the analysis. Therefore, the research does not represent other types of tourism that ChatGPT can generate output in travel planning. As the research relied on written communication, hallucinations derived from ambiguous requests and limited context could not be analysed throught verbal communication. Another point is that the number of businesses in the Kırklareli destination examined in the research can recommend for gastronomy tourism is relatively low. Investigating destinations where tourism is not more intense can be considered as an advantage (ease of reliability control of the outputs obtained) or a disadvantage (lack of sample for reliability) for the research. Moreover, since AI systems are dynamic and up-to-date data are continually being added to search engines, the reproducibility of the results obtained is also considered as a significant limitation of the research.

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