SERIOUS GAMES - NEW LEARNING TOOLS IN TOURISM

Otilia-Maria BORDEIANU
Stefan cel Mare University of Suceava, 720229, Romania
otilia.bordeianu@usm.ro
Lacramioara BEILIC
Bucovina Tourism Association, Suceava, Romania
contact@bucovinaturism.ro

Abstract

Today, nobody doubts that technology and travel are the perfect combination. There are many surveys in the field of serious games, but most surveys are specific to a particular area. During the last decade, serious gaming has been applying to a broad spectrum of research domains, such as military, education, corporate, healthcare, advertisement, cultural heritage and also organization or city management, also earning a widespread recognition of distinctive features and intrinsic capability from different types of organizations (public, private, NGOs). Gamification of tourism can contribute to more interactions and higher level of satisfaction. Finally, the paper provides details about the development of a successful serious games, in the field of tourism. Your Local Guide project is trying to come up with relevant learning materials to bring adequate answers and solution for learning and providing tourism services. Your Local Guide focused on the development of digital competences of seniors willing to work as tourist agents or local guides in order to become experts in destination promotion through a life-long learning perspective. There have been developed materials that enable staff of tourism agencies or individuals to increase their skills and improve a touristic destination in their local communities in order to compete with the growing global competitiveness.

Key words: *tourism, cultural heritage, learning tools, gamification, serious games*

JEL Classification: C70, *L28, Z30*

I. INTRODUCTION

Persuasive computing technology has become very popular. Serious games, as a type of persuasive technology, are computer / video games with a set of cognitive design properties to focus on changing user behavior and knowledge transfer, not having only a simple entertainment function of traditional games. They are widely used in different domains, in training field, for medical applications, leisure activities and even in city or destination management. Researchers (Xu, Tian, Buhalis, Weber, & Zhang, 2015; p. 2) suggest that they could "collect information about consumers, determine patterns of behavior, thought processes, priorities, and interests; the goals of these games usually include the use of gambling technologies and methodologies to engage users at a deeper level and to improve their experiences ".

The rapid development of smart mobile devices contributed to the increased popularity of video games in the last decade, enabling mobile experiences and on-site communication, becoming popular and attractive to a wider group of players. Nowadays, serious games have attracted great attention in various fields, including education, health and tourism, motivating its adoption in a non-game context (Xu, Weber and Buhalis, 2014). Through a wide range of applications and support functions, its business potential is significant, such as engaging clients in experiential co-creation and training service providers for innovative processes and functions. (Xu, Weber and Buhalis, 2017).

Today, nobody doubts that technology and travel are the perfect combination. This joint force also plays a crucial role in the way we travel and we promote travel. The role of digital Technology in tourism is rapidly shifting, from a more marginal role to principal driver of innovation.

Tourism sector has to be close to the shift to technological tools. Current tourism digital skills have been a continual challenge for tourism operators and destination marketers all over the world ever since customers started to use and enjoy the online world, passing from travel agents and brochures to websites, social media and mobile devices. The internet is the top source for both leisure and business travel planning. 80 % of people book their holiday or work trip on an online platform. It is essential that tourism operators keep up with the technological change in order remain competitive and also to attract as many customers through new possible strategies, involving interaction

in specific e-environments.

II. Digital transformation trends in tourism

According to Technavio, a global market research firm with industry expertise on hundreds of technologies, the top 5 digital transformation trends in the tourist industry are realted to:

I. Integration of internet of Things (IoT): The Internet of Things (IoT) consists of all the web-enabled devices that collect, send and act on data they acquire from their surrounding environments using embedded sensors, processors and communication hardware. IoT's rapid digitization of machines or physical things as smart connected devices is significantly impacting service offerings, business models, and traveller expectations. As more and more devices get connected to the IoT, the travel and hospitality sectors can use this data to improve customer experience significantly.

II. Artificial Intelligence and chatbots: Today, travellers can do anything from asking their smartphone if their flight is on time to having their queries answered by a chatbot. This is made possible with the emergence of Artificial Intelligence (AI). Travel service providers can provide all the information via AI-powered apps and technology. By merging historical data with sophisticated machine learning algorithms, travel companies can now predict when and where travellers might want to go and generate personalized ads, thereby boosting sales.

III. *Virtual Reality:* VR technology is the ideal supplement to travel brands marketing and promotional campaigns. With the immersive experiences that are readily available, travel companies can offer customers an opportunity to see new sights or enjoy exotic adventures without leaving the comfort of their own space. The possibilities of VR technology in travel are endless. So much that it can transform the travel industry like never before.

IV. *Redefining travel with big data*: A traveller leaves behind a vast quantity of data from multiple devices and channels at several stages including planning, research, price search, booking, cancellation, and feedback. Many players in the tourist business have already adopted big data analytics to deliver real-time, personalized and targeted travel experiences.

V. *Wearable Technology*: Wearable devices are being designed with consumer convenience in mind, and their fundamental goal is to enhance the overall experience of the traveller. Wearable devices become a mini-screen that can perform many of the same functions as a smartphone. Boarding pass reminders, reservation information, gate updates, QR codes, and all the associated information that fuels a traveller's trip would be available right there on the wrist.

More than 87% of travelers use their mobiles in booking hotels/flights/services. Smartphone users use their phones to be inspired on travel choices in their spare time, such as when waiting, commuting. Travel agencies/airlines/hotels must optimize their website for mobile or create apps that facilitate the experience for the consumer.

It is strongly suggested to tourism operators to have a strongly and healthy presence on internet. Consumers are highly influenced by video advertisement, and it can be crucial for their last decision. Businesses operating in tourism must adopt more instruments as a way to present or to make available a route or a hotel in order to engage as many travellers as possible.

Industry leaders and digital change agents need to collaborate in order to keep the sector as in line with the new trends as possible. Three key values that tour operator should adopt: 1. Culture of continual learning: Keep on the pace being updated with the newest digital skills. 2. Culture of good will: Tourism operators should engage more with their customers online. 3. Test and Measure: Tourism businesses should not be afraid to test new digital ways of communications and reshape them in connection with travellers' opinions.
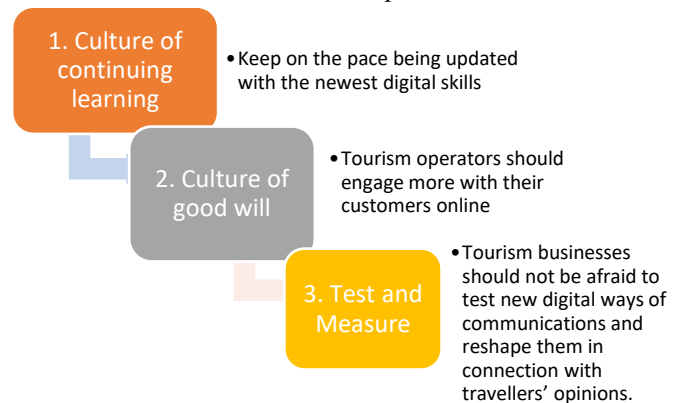

Figure 1. Key values for tour operators

III. FROM GAMES TO SERIOUS GAMES

In the literature there are many definitions for the term *game*, but the main features are: fun and entertainment, governed by rules, has no educational objectives, is separated in time and space from reality. The game is seen by most authors as a system, an art form or activity, where players participate voluntarily and follow the rules. In this sense, the author Jane

McGoniga defines a game, as follows: *When you strip away the genre differences and the technological complexities, all games share four defining traits: a goal, rules, a feedback system, and voluntary participation.* Using the arguments of positive psychology, McGoniga argues that games contribute to human happiness, community development, and increased motivation (Barbieru, 2014). Games are not only used for fun, they are also a way to socialize and get to know the world. A game based on rules or not, with one or more participants with the help of the pedagogical component supports and pursues the achievement of educational objectives by involving memory, thinking ability, imagination and creativity. So we may say that the game must be reanalyzed in a more general perspective of understanding social reality in its various dimensions, because, being part of the culture since its inception, it can indicate qualities/strengths, weaknesses or development possibilities of the world we live in. We can discuss about some minimum conditions for a game to appeal to a wide range of consumers. The initial conditions for manifesting an interested party and becoming a possible future player could be (Barbieru, 2014):

• the game's graphics and interface, which includes both aspects related to the virtual environment and the characters of the game;

• if there is a story behind the game and it is known or partially known from other sources of information;

• average hardware requirements;

• interaction, community;

• equal conditions for all players.

If we refer to the concept of *gamification*, Deterding et al.'s (2011) definition is widely accepted – gamification means contextualizing game design outside its original domain. Some authors suggest that the role of gamification is to engage users and influence their behaviour by using game mechanics in other areas than traditional gaming context. As Deterding et al. (2011, p. 10) suggest "gamification involves applying elements of gamefulness, gameful interaction, and gameful design with a specific intention in mind". For example, designing a treasure hunt in a tourism destination will help visitors to explore various areas and to collect points, photos, memories and experiences but may not have winners or losers. Seaborn and Fels (2015, p.16) add some explanations that "gamefulness refers to the lived experience, gameful interaction refers to the objects, tools and contexts and gameful design refers to the practice of crafting a gameful experience". Gamification is more about motivating people to take actions (Deterding et al., 2011) in a structured way and following specific rules to achieve variable outcomes. Games are more about fun and entertainment, but gamification focuses on changing players' behaviour, engagement with their environment and coplayers who may also be fellow customers or service providers towards achieving meaningful interaction and engagement and potentially achieve rewards.

Some terms have also been used to gamification, such as 'game based learning', 'serious games' or 'pervasive games' (Kapp, 2012). This also makes it difficult to differentiate the concept of 'games' and 'gamification'. Serious games often focus on changing behaviour and influence the user.

The wide use of gamification is evidenced in education applications, health industry, business training and marketing campaign (Barata, Gama, Jorge, & Goncalves, 2013), sustainable behaviour applications (Gnauk, Dannecker, & Hahmann, 2012; Negrusa et al., 2015) and tourism industry (Sigala, 2015a; Xu et al., 2014; Correa & Kitano, 2015, Xu et al., 2017).

IV. SERIOUS GAMES IN TOURISM

WTM (2011) predicts gamification as a popular trend for tourism. Chaffey & Ellis-Chadwick (2012) propose gamification as an important trend for marketing. There is an emerging academic attention to this topic. There is also a book 'Gamification in Tourism' that has been published, and discusses how gamification can contribute to memorable tourist experiences.

Vargo and Lusch (2008) introduce the customer's role in value co-creation. Tourism experiences are co-created by both the tourists and the service providers (Neuhofer, Buhalis, & Ladkin, 2012). These experiences can be mediated by technology. Due to the fast development of new technology, tourists are now seeking more personal, unique and memorable experiences, which require a deeper engagement and a multisensory stimulation. New technology such as virtual reality or augmented reality offer technology mediated experiences, making experiences more interesting and more participatory. Technology (including gaming) can help achieving new experiences, regarded to as 'technology enhanced tourism experiences'. A number of tourism destinations and organizations have already experienced gamification for different domains like marketing, sales consumer behaviour and customer engagement. Research on gamification suggests it can influence user experiences at the following aspects: social, emotional, and create an immersive experience of the user (Xu, 2011). Sigala (2015b p. 202) verifies these functions through a questionnaire survey with users of Trip Adviser, proving that gamification can enhance tourists experiences by "getting tourists immersed into a simulated travel world", which is fantasy and fun in nature.

Gamification can benefit tourism marketing at the following areas: raise brand awareness, enhance tourist experiences, engagement, improve customer loyalty, entertainment and employee management.
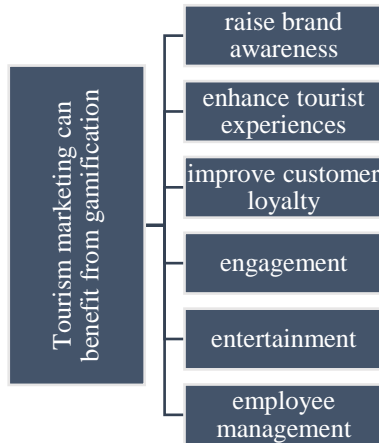
Figure 2. Tourism marketing can benefit from gamification

Table 1 summarizes some of the best practice cases in thetourism industry.

Table 1. Benefits of tourism gamification

	WHEN	BENEFITS	HOW
OUTWARD FUNCTION OF GAMIFICATION	Before	• Increase brand awareness, inspiration/dream • Generate interests • Information conversion to sales/purchase	• tourism specific games (online games; mobile games) feed tourism information to potential tourists, generate • interests, stimulate visiting inspiration, increase brand awareness; Virtual Reality/3D technology as a technological tool supports these functions.
	During	• Engagement/interact • Enhance experiences • Entertainment tool	• location based games encourage on site engagement with the destination, augmented reality games interact the player with the real surrounding tourism attractions; Gaming as an entertainment tool to kill time.
	After	• Loyalty/repeat visit • Share experiences • Recall memories • Advocate/ambassador	• Online games recall memories, encourage sharing experiences, inviting friends, advocate the destination, rewards/coupons in the game and gamified loyalty programs encourage repeat visit
INWARD FUNCTION OF GAMIFICATION		• Employee management • Employee training • Generate fun interests	• Use of games to familiarize the employee, use for staff training

Source: Xu, F., Weber, J.,_ Buhalis, D. (2017). Serious games and the gamification of tourism, Tourism Management, 244-256, p.253

V. BEST PRACTICE EXAMPLES IN GAMING IN TOURISM

Trying to solve some relevant questions: What are the new technological trends in the tourism sector? What kind of digital skills are required in tourism? What is seniors and older adults role in the sector? How can marketing and promotion help?, the partnership in the project Your Local Guide developed relevant learning materials to bring adequate answers to the above questions!

Your Local Guide is an Erasmus+ KA204 project (N 2018-1-RO01-KA204-049516) focused on the development of digital competences of seniors willing to work as tourist agents or local guides in order to become experts in destination promotion through a life-long learning perspective. The partnership developed materials that enable staff of tourism agencies or individuals to increase their skills and improve a touristic destination in their local communities in order to compete with the growing global competitiveness.

The project partnership has developed FOUR HANDBOOKS with new and innovative teaching materials which provide a pathway to learn how to manage and promote tourism destinations by using digital tools and platforms:

1. Digital Skills in Tourism
2. Tourism Destination Management: Strategies and Best Practices
3. Tourism Destination Promotion
4. Social Media Communities for Tourism Destination

These handbooks focus on the role of digital technology and social media in tourism management and promotion, and are illustrated with case studies and good practices from different countries. The handbooks are available in five languages: English, Italian, Spanish, Bulgarian and Romanian.

Gamification can be a great method to digitally engage visitors with a use of their smartphones, tablets or other digital devices. Here are some simple examples of gamification elements anyone can apply to engage users:

• challenges (quizzes, puzzles, making and submitting photos according to a certain task)
• scores (show your user how well he accomplished a challenge)
• leaderboards (keep the user updated on how far he is in completing the game, how many challenges he completed, how many scores he received)
• virtual and real rewards (congratulate and motivate users upon completing a game with badges, titles or even tangible presents).

Figure 3. Your Local Guide video game
Source: https://www.yourlocalguide.org/ro/videogame

The Your Local Guide project proposed an interesting and innovative tool for learning, which comes to complete the developed training materials. The videogame "Learn Tourism 4 All" is an application that works as a gamified virtual assistant during the learning process of how to promote and manage a tourist destination. The gamified interaction with the learning environment intends to improve motivation to accomplish the knowledge objectives and make the content absorption more fun and easier.

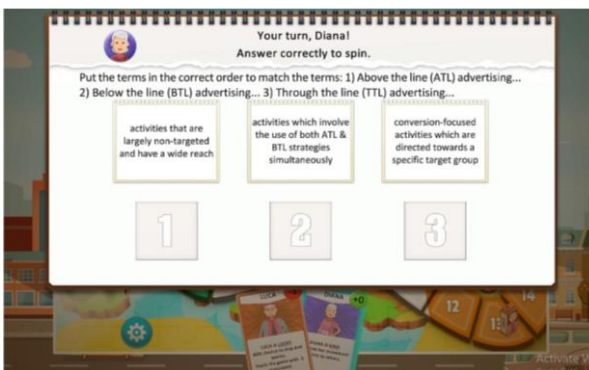

Figure 4. Your Local Guide video game
Source: https://www.yourlocalguide.org/ro/videogame

Figure 5. Your Local Guide video game
Source: https://www.yourlocalguide.org/ro/videogame

One of the important areas in tourism gamification is destination marketing. Games can contribute to advertising by developing specifically designed advergames. They are created to promote the brand, aiming at the association and recall of the brand

(Celtek, 2010; Sigala, 2015b).

The tourism industries may place specific tourism brands when designing games. As we discussed in table 1, some games are specifically designed to raise brand awareness, to encourage travellers to visit a place: for example the 'Smiled Land Thailand game is specifically designed by Tourism Authority Thailand (TAT) as part of its digital marketing strategy, based on the tourism attractions of Thailand)

Figure 6. Smiled Land Thailand video game
Source:
https://absoluteresorts.wordpress.com/2011/06/27/tat-launches-smile-land-games-on-social-networking-media/

Discover Hong Kong city walk is a gamified mobile app that offers structured city walks: travel through time, adventure in architecture, etc (Bulencer & Egger, 2015). Tourists are encouraged to take these city walks and they will earn a stamp when they finish at least 50% of their walk, which can be shared on Facebook (Stadler & Bilgram, 2016). This app is one of a few mobile apps initiated by Hong Kong Tourism Board with the goal of promoting sites and encouraging tourists to visit more places in the city.

These games can also be used as a virtual community between players to communicate information about the destination. The effect of online communities cannot be ignored due to their influence on the 'world of mouth' marketing (Buhalis & Law, 2008).

Hilton Garden Inn's Ultimate Team Play is also a serious game to demonstrate to hotel employees how their actions have an impact on the hotel and on the guest's mood, which in turn drives the brand's satisfaction and loyalty tracking system - SALT. SALT is the real-world survey tool used by Hilton Garden Inn to measure and track guest loyalty, satisfaction and overall experience at a particular hotel, as well as guest thoughts on the brand in general. The game puts employees in a 3D virtual Hilton Garden Inn hotel where they must respond to a number of different guest-related requests by a specific deadline. The appropriateness, level and speed of their response directly affect the guest's satisfaction in the game as well as the hotel's SALT scores. The game integrates training content for positions in housekeeping, food and

beverage, engineering/maintenance and front desk customer service.
(https://www.hospitalitynet.org/news/4034599.html)

'Marriot my hotel' is a game based on Facebook launched by Marriot Hotel Group. Players can play as managers of a "virtual" restaurant in the hotel, they can create their own restaurant, where they can buy equipment and ingredients on a budget, hire and train employees, and serve guests. When they proceed, they can also play other roles in the hotel. Points will be given when they satisfy a customer's need. In the end, players will get rewards if they make a profit. The aim of this game is to get people to know the operation of hotels, generate interests to work in hotels, and stimulate new staff training for human resources (Xu et al., 2014).

Enigmas Tour is also new and different way to discover a city through a game of enigmas for tourists and locals. A traveler may find the solutions to the riddles proposed in the city, in its streets, monuments, a huge challenge for the most intrepid travelers!

Through these city games travelers are being able to discover the more significant places of a city in a more creative, fun and enigmatic way. There are stories revealed and curiosities that certainly are not to be read in the traditional city guides.
(https://enigmastour.com/)

Figure 7. Enigmas Tour – city games
Source: https://enigmastour.com/en/cities-alternative-tourism/

VI. CONCLUSION

Technology and travel are the perfect combination. Millennials have also played a significant role in this paradigm shift. They love to travel and are also passionate about new technology. This combined interested has given way to a new context where social media, apps, blogs, and so more have an important part to play when it's time to play a trip. By that same token, the industry, as it becomes increasingly aware of this trend, has followed suit by adapting its business model and product offering to attract this coveted target. Gamification has become a focus of attention in an increasing number of fields including business, education, and healthcare, tourism. The paper also recommends some of the best practices of gamification in the tourism context and discusses the benefits of gamification in tourism (especially tourism marketing) Gamification is a vital strategy for business in general, and it is also emerging as a future trend for tourism.

These games can also be used as a virtual community between players to communicate and exchange information about destinations. The effect of online communities cannot be ignored due to their influence on the marketing strategies. A wide range of tourism sectors are applying gamification into tourism marketing practices, co-creating tourism experiences and training employees.

Research on gamification of tourism needs to be future developed. Even to include the tourist experiences in the design process of serious game in tourism and also to observe the influence on sales of the use of serious games.
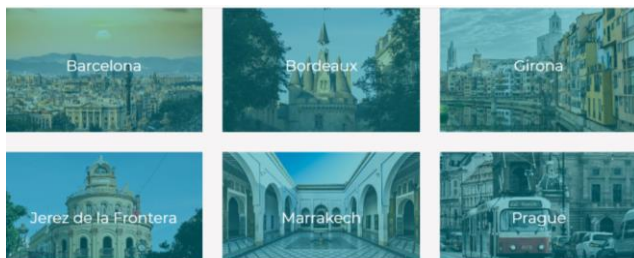
I. REFERENCES

1. Buhalis, D., & Law, R. (2008). Progress in tourism management: Twenty years on and 10 years after the internet: The state of eTourism research. Tourism Management, 29(4), 609-623.
2. Celtek, E. (2010). Mobile advergames in tourism marketing. Journal of Vacation Marketing, 16(4), 267-281.
3. Chaffey, D., & Ellis-Chadwick, F. (2012). Digital marketing, strategy, implementation and practice (5th ed.). UK: Pearson.
4. Correa, C., & Kitano, C. (2015). Gamification in tourism: Analysis of Brazil quest game. The National Council for Scientific and Technological Development. https://www.researchgate.net/publication/286926048_Gamification_in_Tourism_Analysis_of_Brazil_Quest_Game, (Accessed 07.12 2020).
5. Barbieru, D. (2014). Pedagogical aspects in serious games design, Buletinul Universității Naționale de Apărare „Carol I", 73-82
6. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. E. (2011). From game design elements to gamefulness: Defining "Gamification". http://hubscher.org/roland/courses/hf765/readings/Deterding_2011.pdf (Accessed 07.12 2020).
7. Gnauk, B., Dannecker, L., & Hahmann, M. (2012). Leveraging gamification in demand dispatch systems. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.643.8730&rep=rep1&type=pdf (Accessed 10.12 2020).
8. Kapp, K. M. (2012). The gamification of learning and Instruction: Game based methods and strategies for training and education. San Francisco, CA: Pfeiffer.
9. Negrusa, A. L., Toader, V., & Sofica, A. (2015). Exploring gamification techniques and applications for sustainable tourism. Sustainability, 7, 11160-11189. https://www.researchgate.net/publication/281446290_Exploring_Gamification_Techniques_and_Applications_for_Sustainable_Tourism#fullTextFileContent (Accessed 07.12 2020).
10. Neuhofer, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising technology enhanced destination experiences. Journal of Destination Marketing & Management, 1(1-2), 36-46. https://www.researchgate.net/publication/236214188_Conceptualising_Technology_Enhanced_Destination_Experiences#fullTextFileContent (Accessed 10.12 2020)
11. Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. International Journal of Human-Computer Studies, 74, 14-31. https://www.researchgate.net/publication/266398023_Gamification_in_Theory_and_Action_A_Survey#fullTextFileContent (Accessed 10.12.2020)
12. Sigala, M. (2015a). Gamification for crowdsourcing marketing practices: Applications and benefits in tourism
13. Sigala, M. (2015b). The application and impact of gamaification funware on trip planning and experiences: The case of TripAdvisor's funware. Electron Markets, 25, 189-209. https://www.researchgate.net/publication/273168932_The_application_and_impact_of_gamification_funware_on_trip_planning_and_experiences_the_case_of_TripAdvisor's_funware#fullTextFileContent (Accessed 10.12.2020)
14. Stadler, D., & Bilgram, V. (2016). Gamification: Best practices in research and tourism. In Egger, R., Gula, I., Walcher, D. et al. (Eds.), Open tourism, tourism on the verge. Springer-Verlag Berlin Heidelberg, 363-370
15. Vargo, S. L., & Lusch, R. F. (2008). Service-dominant Logic: Continuing the evolution., Journal of the Academy of Marketing Science, 36, 1-10. https://www.researchgate.net/publication/272566616_Service-Dominant_Logic_Continuing_the_Evolution#fullTextFileContent (Accessed 07.12.2020)
16. WTM. (2011). World travel market global trends report. http://www.toposophy.com/files/1/files/onsite_global_trends_v3_lo.pdf (Accessed 10.12.2020)
17. Xu, Y. (2011). Literature review on web application gamification and analytics. CSDL Technical report, 11-05. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.462.5228&rep=rep1&type=pdf (Accessed 07.12.2020)
18. Xu, F., Tian, F., Buhalis, D., Weber, J., & Zhang, H. (2015). Tourists as mobile gamers, the gamification for tourism marketing. Journal of Travel and Tourism Marketing. DOI: 10.1080/10548408.2015.1093999
19. Xu, F., Weber, J., Buhalis, D. (2017). Serious games and the gamification of tourism, Tourism Management, 244-256

20. https://www.yourlocalguide.org/ro/videogame (Accessed 10.12.2020)
21. https://enigmastour.com (Accessed 10.12.2020)
22. https://blog.technavio.com/blog/top-5-digital-transformation-trends-travel-tourism-industry (Accessed 10.12.2020)
23. https://www.hospitalitynet.org/news/4034599.html (Accessed 10.12.2020)
24. https://absoluteresorts.wordpress.com/2011/06/27/tat-launches-smile-land-games-on-social-networking-media/ (Accessed 10.12.2020)