

The Potential of Gamification to Increase the Competitiveness of Tourist Destinations: literature review based on Scopus

Viviane da Silva Souza^a
Celeste Maria Dias Amorim Varum^b
Celeste Eusébio^c

Abstract

Gamification has emerged with the purpose of generating involvement, loyalty and, above all, providing a remarkable experience for tourists and visitors. In view of this, tourist destinations have become more sensitive to the opportunities to create new services and gamified products in the tourism industry. In this scenario, this article aims to analyze the scientific studies (theoretical and empirical) on gamification applied to tourism in order to identify elements that justify the potential of gamification to generate competitiveness in tourist destinations. In order to achieve this goal, an electronic research was carried out in the specialized Scopus database, reaching, at the end of the research, an aggregate of eleven scientific documents identified as significant for the approach of this study. Thus, this exploratory review of the literature brought the following conclusions: (1) identification of trends in the literature on tourism gamification; (2) authors and publications that stand out most in this area; (3) goals, contexts, and approaches to gamification in the industry; (4) the potential of gamification for competitiveness; and, finally, (5) the indication of the methodological approaches adopted in the studies analyzed. In addition, it was possible to make a synthesis of the knowledge on the subject, which made possible the perception of what is already known about the subject and what one needs to know, besides pointing out directions for future investigations and some limitations of investigations in this area.

Keywords: Gamification; Tourist destinations; Competitiveness.

Resumo

O potencial da gamificação para aumentar a competitividade dos destinos turísticos: revisão de literatura baseada na Scopus

A gamificação surgiu com o propósito de gerar envolvimento, lealdade e, acima de tudo, proporcionar uma experiência marcante para turistas e visitantes. Em vista disso, os destinos turísticos tornaram-se mais sensíveis às oportunidades de criação de novos serviços e produtos gamificados na indústria do turismo. Nesse cenário, este artigo objetiva analisar os estudos científicos (teóricos e empíricos)

-
- Doctoral student in Tourism at Universidade de Aveiro. Master in Administration by Universidade Federal Rural de Pernambuco (UFRPE). Bachelor in Tourism by Universidade Federal de Pernambuco (UFPE). Aveiro, Portugal. Email: vivianne.turismologa@gmail.com
 - Doctor in Economics. Master in International Business and Economic Integration by University of Reading (UK). Bachelor in Economics by Universidade de Évora. Professor of Economics at Universidade de Aveiro. Aveiro, Portugal. Email: camorim@ua.pt
 - Doctor in Tourism by Universidade de Aveiro. Adjunct Professor at Universidade de Aveiro and Researcher at Unidade de Investigação GOVCOPP (UA). Aveiro, Portugal. Email: celeste.eusebio@ua.pt

sobre a gamificação aplicada ao turismo com a finalidade de identificar elementos que justifiquem o potencial da gamificação para gerar competitividade nos destinos turísticos. Para atingir o objetivo, executaram-se pesquisas eletrônicas na base de dados especializada Scopus, atingindo-se, ao término da pesquisa, um agregado de onze documentos científicos identificados como significativos para a abordagem deste estudo. Deste modo, esta revisão exploratória da literatura trouxe as seguintes conclusões: (1) identificação de tendências na literatura sobre gamificação no turismo; (2) autores e publicações que mais se destacam nessa área; (3) objetivos, contextos e abordagens da gamificação no setor; (4) o potencial da gamificação para a competitividade; e, por fim, (5) a indicação das abordagens metodológicas adotadas nos estudos analisados. Além disso, permitiu-se realizar uma síntese do conhecimento sobre a temática, o que possibilitou a percepção do que já se sabe sobre o tema e o que se precisa saber, além de apontar direções para investigações futuras e algumas limitações de investigações nessa área.

Palavras-chave: Gamificação; Destinos turísticos; Competitividade.

Resumen

El potencial de gamificación para aumentar la competitividad de destinos turísticos: revisión de la literatura basada en Scopus

La gamificación se acercó con el propósito de generar participación, la lealtad y sobre todo proporcionar una experiencia notable para los turistas y visitantes. La vista de esto, los destinos turísticos se han vuelto más sensibles a las oportunidades para crear nuevos servicios y productos en la industria gamificados turismo. En este escenario, este artículo tiene como objetivo analizar los estudios científicos (teóricos y empíricos sobre gamificación) aplicado en el turismo con el fin de identificar elementos de apoyo al potencial de gamificación para generar competitividad en los destinos turísticos. Para lograr el objetivo, que se llevaron a cabo investigaciones en una base de datos electrónica especializada, Scopus, de llegar al final de la investigación un total de once trabajos científicos indicados como significativos para el enfoque de este estudio. Por lo tanto, esta revisión sistemática de la literatura permitió a las siguientes conclusiones: (1) la identificación de las tendencias en la literatura sobre gamificación en el turismo; (2) autores y publicaciones que se destacan en este ámbito; (3) los objetivos, contextos y enfoques de gamificación en el sector; (4) el potencial de gamificación para la competitividad y, por último, (5) apunta hacia arriba los enfoques metodológicos adoptados en los estudios analizados. También permite realizar una síntesis de los conocimientos sobre el tema, dando la oportunidad de conocer lo que ya se sabe sobre el tema y lo que necesita saber, y señalar direcciones para futuras investigaciones y algunas limitaciones de la investigación en esta área.

Palabras clave: Gamificación; Destinos turísticos; Competitividad.

INTRODUCTION

This article converges with the recent investigations on the new technologies and marketing, in particular with regard to the potential of gamification as a tool to increase the competitiveness of tourist destinations. A new model of tourism focuses on the experience tested by tourists in their destinations, and the most successful examples are services and products that use technology to provide timeless and unique experiences (KOVACEVIC et al., 2014). In order to respond to these changes in attitudes, behaviors and demands of

tourists, the tourism sector needs to position itself before this new market. That is, there is a need to understand these new behaviors, habits, preferences, desires and needs so that they can outline new strategies that help the offer to stay current and innovative in the face of the current reality.

It is in this scenario that games have been used in the tourism industry, to provide a remarkable experience for tourists. The new element that changes the paradigm of marketing and business is called Gamification, which has the most widespread definition: use of elements and game design in non-game contexts (DETERDING et al., 2011a). Gamification was purposely designed to achieve motivational or behavioral effects to attract more customers, increase their experience, and stimulate consumer retention in the corporate sector (ASQUER; KRACHKOVSKAYA, 2015). For example, the Foursquare location-based service uses game design elements in non-game contexts to motivate, increase user activity and promote engagement (DETERDING et al., 2011a). Given the recognition of the importance and impact that gamification has been playing in the context of management, health, education and tourism (XU et al., 2015), in the latter case, we can see the beginning of a close relationship with the Games industry; since the number of products and services being developed is increasing and others already available in the sector.

Therefore, this article aims: (1) to identify trends in the literature on gamification in tourism; (2) to point out authors and publications that stand out most in this area; (3) to identify objectives, contexts and approaches to gamification in the tourism sector; (4) identify the potential of gamification for competitiveness and, finally, (5) point out the methodological approaches adopted in the studies analyzed. To achieve these objectives, it was necessary to systematically review the literature in the Scopus database¹.

To carry out this study can be justified for the following reasons: in what concerns academic research on gamification, Xu et al. (2015) explain that they are still very limited, especially in the tourism sector. Regarding the construction of knowledge for marketing and tourism as a science, the study carried out for this article seems plausible in that it is in line with the research priorities established by major research centers such as Massachusetts Institute of Technology (MIT), Cornell University, Tampere Institute of Technology (TUT), among others. Finally, considering the academic interest on the subject, this article contributes with the knowledge areas of tourism and marketing.

This article is structured as follows: the second section reports the methodology applied in this study; the third section presents the following subsections: (1) tendencies in the literature on gamification in tourism, (2) notions about gamification, (3) authors and publications that stand out the most, (4) objectives, contexts and approaches of gamification in the tourism sector, (5) the potential of gamification for competitiveness in tourism, (6) methodological approaches adopted in the studies analyzed; the fourth section presents the main conclusions, implications for future research and limitations on the use of gamification for competitiveness in tourist destinations.

1. Database of abstracts, articles and quotes for academic journals (<https://www.scopus.com>).

METHODOLOGY

In this section the paths covered for the operationalization of the research are indicated, specifying the means by which data will be reached for this study.

Criteria for selection of documents

In order to achieve the objectives, it was necessary to establish criteria for the selection of documents (Tables 1 and 2). A search was made on the basis of scientific publications Scopus. The surveys were done over the course of a day in March 2016, applying the keyword “gamification” to the first stage. In the second stage, the terms “gamification and tourism,” “gamification and tourism and competitiveness,” “gamification and tourism and leisure,” “gamification and tourism or co-creation” were used. In this study, the database with the largest number of documents, in this case Scopus, was prioritized; since few articles on the topic have been identified on other bases such as the Web of Science.

Table 1 – Criteria for selection of documents: stage one

Subjects	Stages
Base of scientific publications	Scopus
Keywords	<i>Gamification</i>
Languages	English
Time horizon	1960 – 2016
Areas	<i>Computer Science; Social Sciences, Engineering, Mathematics, Business, Management and Accounting, Medicine, Economics, Econometrics and Finance, Psychology, Arts and Humanities, Decision Sciences, Health Professions, Environmental Science, Energy, Earth and Planetary Sciences, Nursing, Multidisciplinary, Biochemistry, Genetics and Molecular Biology, Materials Science, Agricultural and Biological Sciences, Chemical Engineering, Neuroscience, Pharmacology, Toxicology and Pharmaceuticals, Physics and Astronomy, Immunology and Microbiology, Undefined.</i>
Total number of studies	1,496 documents

Source – Elaborated by the authors

Table 2 – Criteria for selection of documents: stage two

Subjects	Stages
Base of scientific publications	Scopus
Keywords	<i>“gamification and tourism,” “gamification and tourism and competitiveness,” “gamification and tourism and leisure,” “gamification and tourism or co-creation.”</i>
Languages	English
Time horizon	1960 – 2016

(continues...)

Table 2 – Continuation

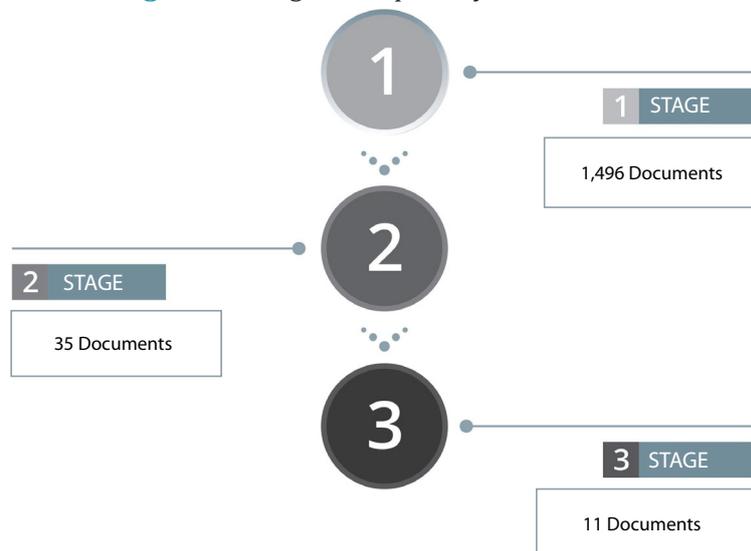
Subjects	Stages
Areas	<i>Computer Science, Business, Management and Accounting, Economics, Econometrics and Finance, Social Sciences, Arts and Humanities, Energy, Environmental Science, Mathematics.</i>
Total number of studies	35 documents

Source – Elaborated by the authors

In order to obtain a more complete result, the key concepts were searched in the following fields: title, abstract and keywords of the articles, in the areas “Social Sciences & Humanities,” “Life Sciences,” “Health Sciences” and “Physical Sciences.” As it is a recent topic in the literature and little explored in the tourism field, it was decided not to restrict the results, using the option: all types of document “Articles” or “Articles in press,” “Journals,” “Book Review,” “Editorial,” “Business Article,” “Short Survey” and “Erratum.” However, only “Conference Article,” “Article” and “Book Chapter” appeared as a source.

As for **language**, in both stages the English terms were followed. In the two phases, there was no delimitation regarding the **time horizon**, so all studies published between 1960 and 2016 were chosen. In the first stage, 1,496 documents were found, and in the second one, 35 were located. After the results achieved, a third step, in which the summaries of the documents were read and, based on them, only the themes that addressed *Tourism, leisure* and *co-creation* were included.

Figure 1 – Stages and quantity of documents



Source – Elaborated by the authors

Eleven documents were produced from this procedure (Figure 1), which were later read in full (Table 3). Of these, there are conference articles (5), articles (4) and book chapters (2). The domain of an article in conference is visible, because it is a new theme and still in use. These studies were published in conferences, books and scientific journals (Table 4).

Table 3 – Author x subject

Author	Subject
(XU et al., 2015)	<i>Tourists as Mobile Gamers: Gamification for Tourism Marketing</i>
(SIGALA, 2015b)	<i>The application and program gamification funware on trip planning and experiences: the case of TripAdvisor's funware</i>
(NEGRUŞA et al., 2015)	<i>Exploring gamification techniques and applications for sustainable tourism</i>
(SIGALA, 2015a)	<i>Gamification for crowdsourcing marketing practices: Applications and benefits in tourism</i>
(KACHNIEWSKA, 2015)	<i>Gamification and social media as tools for tourism promotion</i>
(KIRÁL'OVÁ, 2015)	<i>The place of gamification in tourism destinations' marketing</i>
(BÁRCENA; SANFILIPPO, 2015)	<i>The audiovisual knowledge pill as a gamification strategy in second language online courses</i>
(YAMAMOTO; YOSHIN; SONEHARA, 2015)	<i>Gamification effect of collection system for digital photographs with geographic information which utilizes land acquisition game</i>
(DÍAZ et al., 2014)	<i>The mystery of Elin. Incorporating a city cultural program in history and heritage into a pervasive game</i>
(GORDILLO et al., 2013)	<i>The city as a learning gamified platform</i>
(GIOVANNELLA et al., 2013)	<i>Villard-de-lans: A case study for participatory people-centered smart city learning design</i>

Source – Elaborated by the authors

Table 4 – Journals, books and conferences

Conferences	Articles	Book Chapter
<i>Proceedings Frontiers in Education Conference Fie, ACM International Conference Proceeding Series, Idimt 2015 Information Technology and Society Interaction and Interdependence 23rd Interdisciplinary Information Management Talks, Proceedings 2013 IEEE 13th International Conference on Advanced Learning Technologies Icalt 2013</i>	<i>Journal of Travel and Tourism, Círculo de Linguística Aplicada a la Comunicación, Sustainability Switzerland, Electronic Markets, Human-Computer Interaction</i>	<i>Advances in Crowdsourcing, Handbook of Research on Effective Advertising Strategies in the Social Media Age</i>

Source – Elaborated by the authors

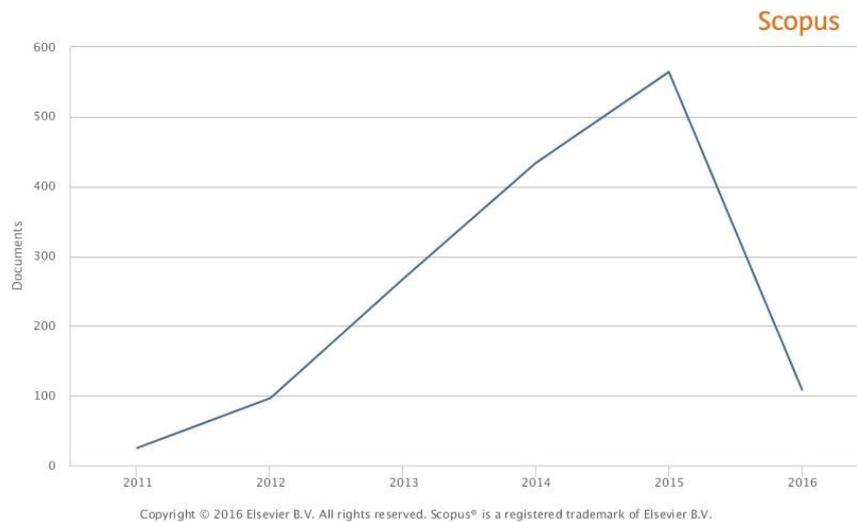
TRENDS IN THE LITERATURE ON GAMIFICATION IN TOURISM

Notions on gamification

In the Scopus database we found a total of 1,496 studies on gamification, as previously mentioned (Table 1), of these, the first emerged between 2011 and

2016 (Figure 2). In 2012, in the same database, studies on gamification applied to the tourism sector began to emerge.

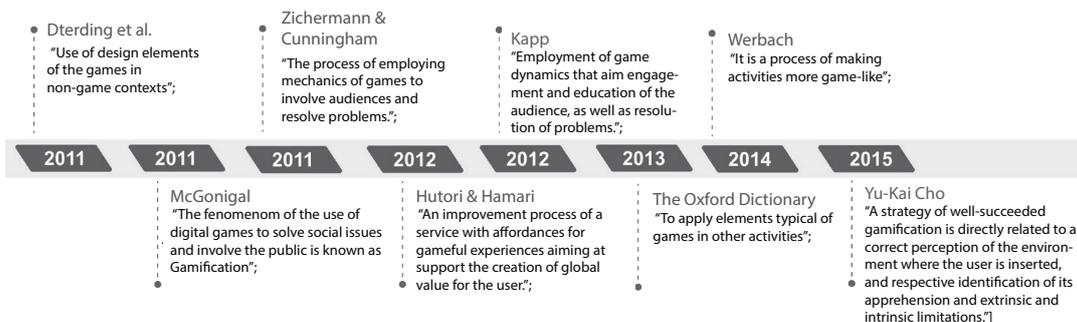
Figure 2 – Publication year x number of documents



Source – Scopus (2016)

We verified that the topic of gamification aroused the interest of several scholars, who conceptualized the subject from 2011. For the review of the identified studies, complemented with the analysis of the study of Ferreira (2015), we can point out that there are different definitions of gamification in the literature. Figure 3 summarizes the more dominant perspectives.

Figure 3 – Evolution of the concept of gamification



Source – Adapted from Ferreira (2015)

Despite the lack of consensus regarding the definition of gamification, the most widespread concept is given by Deterding et al. (2011b), who defines it as the “use of game design elements in non-game contexts,” being these the first authors to conceptualize the term. One year after this definition emerged, Hamari and Huotari (2012) refined the previous concept for “a process of reinforcing a service with affordances for fun experiences in order to support the creation of global value for users.” The most recent version of Chou (2015) explains that for a successful gamification strategy, it is necessary to have a correct perception of the environment where the user is inserted, that is, it is essential to understand

the target audience to which apply the gamification and, in addition, identify the external and internal motivations of the users, aiming for better applicability. The evolution of the concept is fundamental for a more comprehensive understanding and applicability on the subject.

In the eleven articles identified, we observed that in the literature on tourism gamification, the following approaches are followed (Table 5).

Table 5 – Definitions on gamification used in articles applied to tourism

Authors	Definitions
(XU et al., 2015)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a).
(SIGALA, 2015b)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a). “a process of reinforcing a service with affordances for entertaining experiences in order to support the creation of global user value” (HAMARI; HUOTARI, 2012).
(NEGRUŞA et al., 2015)	“Implementation and use of game elements (design and techniques), game thinking, game mechanics and analysis, computer game technology in business models, framing activities, processes, procedures, services and others to improve user skills, experience, engagement, effectiveness and productivity, as well as pure entertainment for both employee and customer” (USKOV; SEKAR, 2014). “uso de elementos de design do jogo em contextos fora do jogo” (DETERDING et al., 2011b).
(SIGALA, 2015a)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a).
(KACHNIEWSKA, 2015)	“the use of video game elements in non-game context to enhance user experience and user engagement” (ZICHERMANN; CUNNINGHAM, 2010).
(KIRÁL'OVÁ, 2015)	“Is a process that uses the best gaming ideas, loyalty and behavioral economics to engage people and motivate them to change behavior; develop skills or solve problems” (ZICHERMANN; LINDER, 2013; BURKE, 2014).
(BÁRCENA; SANFILIPPO, 2015)	“the concept of gamification is related to the use of game mechanics outside these contexts, so that people adopt, in these contexts, positive aspects of games related to behavior” (POPKIN, 2010).
(YAMAMOTO; YOSHIN; SONEHARA, 2015)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011b).
(DÍAZ et al., 2014)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a).
(GORDILLO et al., 2013)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a).
(GIOVANNELLA et al., 2013)	“the use of game design elements in non-game contexts” (DETERDING et al., 2011a).

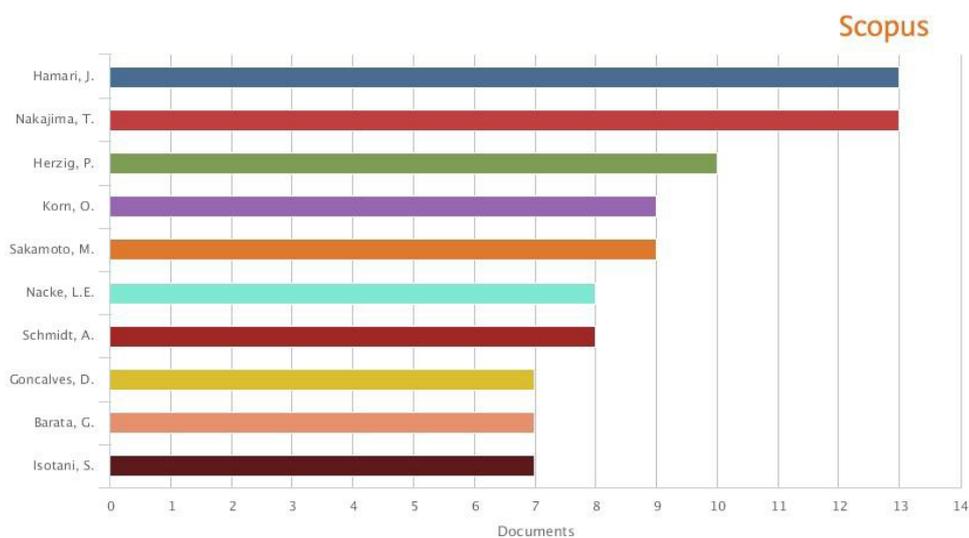
Source – Elaborated by the authors

From the eleven articles analyzed on gamification applied in the tourism sector, we observe the predominant use of the older concept developed by the authors Deterding et al. (2011a). However, the new approaches (BURKE, 2014; POPKIN, 2010; USKOV; SEKAR, 2014; ZICHERMANN; LINDER, 2013) presented in the studies by Bárcena and Sanfilippo (2015), Királ'ová (2015), Kachniewska (2015) and Negruşa et al. (2015), are directed to the most recent concept of Chou (2015), which focuses on the customization of the applicability of gamification and its internal and external limitations.

Authors and publications that stand out the most

When considering the 1,496 documents, the authors with the largest number of publications are Hamari, Nakajima and Herzig. As for the quantity of publication of these authors, the first and second present with a total of thirteen documents, and the third with ten (Figure 4).

Figure 4 – Number of documents published by author



Copyright © 2016 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Source – Scopus (2016)

The most cited articles are those of Deterding et al. (2011a) (404), Deterding (2011b) (158), Dominguez et al. (2013) (157). Regarding the studies on tourism, the author who stands out is Sigala (2015a, 2015b), with two articles. The most cited are Gordillo et al. (2013), with five articles, and Sigala (2015a, 2015b), with four articles.

The database analyzed shows that most of the studies on gamification come from the United States of America (312 documents), followed by Germany (145) and England (127), among others. In terms of tourism, the most popular publications come from countries such as Greece (2), Spain (1), Czech Republic (1) among others. The research areas on gamification in the eleven articles applied to tourism concentrate a larger number of studies in the area of computer science (6), and the second largest area of study, still in the scope of tourism, are business, management and accounting (4).

Objectives, contexts and approaches to gamification in the tourism sector

There are many possibilities for the application of gamification in the tourism sector. This article identified these applicabilities (Table 6). In addition to perceiving the objectives that the studies intended to achieve, it was necessary to point out the field of theoretical approaches and contexts prioritized by such studies.

Theoretical studies have different notes each other, and its objectives are described to allow for a better understanding of their approaches. Gordillo et al., (2013) propose a generic model to support a new way of visiting a city. Based on a literature review, the authors defined an educational walking model, considering three dimensions: tourism, learning and gamification. In our study, tourism is considered the starting point for activities aimed at learning, and gamification corresponds to the elements contained in the mobile application, such as badges, scorecards and win systems.

Table 6 – Objectives, contexts and approaches to gamification in the tourism sector

Objective	Context of application	Theoretical approaches	Author/year
Exploring the trend of gamification and its potential for developing experiences and marketing in tourism.	Marketing	<ul style="list-style-type: none"> – Concept of game – Motions for playing games – Game and tourism – Gamification and tourism marketing 	(XU et al., 2015)
Investigating the use and impacts of gamification in a specific context of tourism (e-commerce/ TripAdvisor).	Trip planning and online assessment platform	<ul style="list-style-type: none"> – Definition of gamification and Funware – Effective psychological and behavioral outcomes – Context of the study and research questions – Funware design: motivational affordances and experimental values 	(SIGALA, 2015b)
Identifying gamification techniques and their applications used by organizations in the hospitality and tourism industry to improve their sustainable activities.	Sustainability	<ul style="list-style-type: none"> – Concept of gamification – Application Contexts Gamification and sustainability	(NEGRUŞA et al., 2015)

(continues...)

Table 6 – Continuation

Objective	Context of application	Theoretical approaches	Author/year
Reviewing the literature to identify the principles and elements of the game that can lead to effective gamification.	Marketing	<ul style="list-style-type: none"> – Gamification in Marketing: concept, applications and benefits – Implementing gamification: elements and principles of funware design – Application of gamification in marketing – Before purchase/consumption: tourism experience – During shopping/consumption: tourism experience – After purchase/consumption: experience of tourism experience 	(SIGALA, 2015a)
Exposing the idea of a new mobile application that integrates social games and location-based technology and can lead to the growing interest of the social marketing network in location-based tourism.	Mobile application	<ul style="list-style-type: none"> – Gamification and social media as a marketing tool – Design of the game and its techniques in tourism 	(KACHNIEWSKA, 2015)
Describing how gamification can be used to attract the attention of visitors, arousing interest and generating the desired behavior – visiting a particular destination.	Marketing of the tourist destination	<ul style="list-style-type: none"> – The visiting <i>Homo</i> transformed into <i>Homo Ludens</i>? – The gamification and tourist destination marketing 	(KIRÁL'OVÁ, 2015)
Identifying the value of pedagogical playful learning resources in language learning in a digital context.	Education – Languages	<ul style="list-style-type: none"> – Gamification – Games – Learning 	(BÁRCENA; SANFILIPPO, 2015)

(continues...)

Table 6 – Continuation

Objective	Context of application	Theoretical approaches	Author/year
Developing the collection system “Photopolie” digital photo that includes geographic information.	Digital media	<ul style="list-style-type: none"> – Outline of the Photopolie figure – Photopolie Functions Function, location, acquisition, digital photo submission score 	(YAMAMOTO, YOSHIN; SONEHARA, 2015)
Reporting the use of mobile terminals in historical spaces for an adventure game, using a platform based on location to awaken children’s fantasy and curiosity about cultural heritage.	Mobile terminals in historical places for carrying out an adventure game	<ul style="list-style-type: none"> – The idea of developing an App – Why are pervasive games suitable for cultural environments? – Adaptation of historical elements to a contemporary environment – Transformative Narrative – Balance between players and history 	(DÍAS et al., 2014)
Proposing a generic template to support a new way of visiting a city.	Educational routes/ mobile application	<ul style="list-style-type: none"> – Formal learning outdoors – Informal Outdoor Learning – Requirements – Structure educational tour 	(GORDILLO et al., 2013)
Proposing “glocal” solutions for access to information and participation of the locals in the informal learning processes located in a <i>smart city</i> .	<i>Smart city</i> and learning	<ul style="list-style-type: none"> – <i>Smart city</i> and the adopted models – The case study: Villard-de-Lans – Gamification 	(GIOVANNELLA et al., 2013)

Source – Elaborated by the authors

Negrusa et al. (2015) identified gamification techniques and applications used by organizations in the hospitality and tourism industry to improve their sustainable activities. The authors relied on detailed industry research, through self-identified case studies of applications in the tourism and hospitality industry.

Kachniewska (2015) expounds on the idea of a new *mobile* application that integrates “social” games and location-based technology, which can lead to growing interest in social networking and location-based *marketing*. The author was based on a thorough review of the literature on gamification and presented a broad view on the opportunity of using social media in the field of tourism promotion. In addition, the objectives of the implementation of gamification are presented, which are: generate engagement, change behavior and stimulate innovation. Beyond these, the gamification techniques intended in the study sought to

increase people's natural desires for competition, achievement, *status*, self-expression, and altruism.

Sigala (2015a) reviewed the literature to identify the elements and principles of the game that can lead to effective gamification and then demonstrated the applicability and implications of this theory by discussing various gamut applications developed to support marketing practices and *crowdsourcing* in the tourism. All the objectives proposed by Gordillo et al. (2013); Negruşa et al. (2015); Kachniewska (2015); Sigala, (2015a), were reached from a theoretical multidisciplinary review, reaching themes of marketing, sustainability, education, mobility and technology.

The studies bring the focus of the theoretical approach in marketing (KIRÁL'OVÁ, 2015; SIGALA, 2015a; XU et al., 2015). Xu et al. (2015), from the literature review, present a graph of increasing linear curve to expose the motivations of mobile game use by different groups of users (tourists and non-tourists). The motivations for the game by non-tourists are: fun, passing time, kinship, socialization. Intermediaries are motivated by: limited time, unfamiliar with the environment, eager to know the place. The tourists are motivated by: being interactive, fantasy, time limit, unfamiliar with the environment, fun. Sigala (2015a) noted the motivations from the perspective of the TripAdvisor business model. The author shows that recognized motivations and experimental values are externalized through competence (achievement and competition), socialization, relationships, autonomy, relationship and mechanism to increase status. Understanding the motivations by which tourists are interested in the act of playing or in gamified apps contributes to the customization of gamification application in different scenarios.

In the context of education and learning, gamification is used with the purpose of motivating and stimulating students, including the language course of the Tourism undergraduate program as it presents the study of Bárcena and Sanfilippo (2015). Some learning-stimulating activities can be practiced, for example, watching a video about the place visited, a puzzle game that challenges the student's intelligence (GORDILLO et al., 2013). Gamification, when used for educational purposes, contributes to the natural predisposition of the human being to the competition, in order to soften certain tasks and involve the users (BÁRCENA; SANFILIPPO, 2015).

A concept that pragmatically covers the learning, gamification and tourism dimensions is addressed by Giovanella et al. (2013), which suggests learning from a *smart city*. In this study, gamification enters a third stage involving players (tourists/visitors) in collaborative activities through interaction points.

The use of gamification in the context of sustainability is addressed by Negruşa et al. (2015) that "gamification has the potential to improve the sustainability of tourism," including potential buyers of services in the area, such as companies (hotel chains, restaurants, tour operators), local institutions (the office of the mayor, official tourist agencies, public employment offices) and NGOs (concerned with social, environmental and political issues). In addition, the authors present three frameworks with the benefits and effects (environmental, social and economic) of gamification in the relationship of tourism organizations from the point of view of employees, tourists and community.

Potential of gamification for competitiveness in tourism

Tourists are aware of the added value of products and services, relying on an assumption of some combination of a holistic experience. These tourists became resistant to mass commercials and became very individualistic. As a consequence, destinations began to focus on building partnerships to support the development of a competitive tourism destination (KACHNIEWSKA, 2015). The introduction of new technologies in this competitive dynamics contributed to the design of gamification as a support tool to differentiate products and services.

Smartphones, tablets, phablets and mobile applications have important relevance for visitors (KIRÁL'OVÁ, 2015). The advent of mobile technologies, that is, all technology that allows its use during the movement of the user, has given the opportunity to play everywhere (WEBER, 2014). The use of these games offers a variety of benefits for tourism marketing and can increase brand awareness, attract potential customers, improve the experiences of tourists and increase engagement (XU et al., 2015).

Currently, elements of game mechanics are being employed in many areas such as education, military sphere, corporate training, marketing, environmental ecology, public policy campaigns, physical exercise programs (KACHNIEWSKA, 2015) and tourism. In the latter case, the dissemination occurred after the success of *Foursquare*², which offers points and trophies according to the use of the application, as a form of motivation and retention of users. The interests of companies on the use of gamification have arisen because of their ability to revolutionize human-computer interaction and user experience (SIGALA, 2015a). Business opportunities are diverse: more engaged customers, crowdsourcing, and innovation to improve employee performance (KACHNIEWSKA, 2015).

In the context of tourist destinations there are several forms of gamification, generally used as transmigration, letterboxing³, *geocaching*⁴ search, *waymarking*⁵, treasure hunting, *wherigo*⁶, rapid response, and augmented reality. However, in the documents analyzed, additional ways of using gamification as a tool for competitiveness in tourist destinations were found, such as a geolocation-based guide, promotion of environmental and social sustainability, and uploading photographs taken during journeys.

Some positive influences of gamification on tourist destinations (Table 7) are evidenced to justify the tool as a possible ally for increasing competitiveness in tourist destinations. In a *smart city*, gamification can raise awareness of resource consumption and be extended to many relevant aspects such as (smart gover-

2. Foursquare – tourism service developed by the company of the same name that uses the technology for intelligent location in order to create consumption experiences and significant business solutions. See more details at: <https://pt.foursquare.com/>.
3. It is an outdoor hobby that combines elements of guidance, art and puzzles. Seen on: <http://bit.ly/2n0VemU>.
4. It is a type of “treasure hunt” that uses GPS.
5. It is a means by which people can catalog, tag, locate places in the world through GPS. Seen on: <http://bit.ly/2n6MVaM>.
6. It is a platform that recognizes the location by GPS, which combines an adventure game and a geocache. Seen at <https://en.wikipedia.org/wiki/Wherigo>.

nance, e-democracy, etc.) to promote, for example, the acquisition of some of the so-called soft skills of the century XXI as decision-making, leadership and work team (GIOVANNELLA et al., 2013). In addition, several new learning opportunities can be achieved from outdoor activities by making use of formal and informal M-Learning (mobile learning), using the city as a learning platform in combination with gamification (GORDILLO Et al., 2013).

Table 7 – Positive influences of gamification on tourist destinations

Author/year	Positive influences of gamification on the destinations
Giovannella et al. (2013)	Acquisition of some of the so-called <i>soft skills</i> (decision-making, leadership and teamwork)
Gordillo et al. (2013).	<i>Mobile learning</i>
Kachniewska (2015)	Promotion of tourism
Negrușa et al. (2015)	Discover the history, the life and identity of destinations
Sigala (2015b).	The processes of training and the impact on the image of destinations/companies, training and diffusion of trends and trends in the tourism industry
Királová (2015)	Experience new attractions and leisure activities, experiencing a unique destination, increased visitation, involvement of visitors and length of stay, engagement and loyalty

Source – Elaborated by the authors

In addition, the gamification technique can be used to promote destinations through a mobile application. Citing a similar case, the “Play Mazovia” app suggested in the Kachniewska study (2015) may be necessary for two purposes: one covers the needs of tourism entities by promoting the destination, while the second contributes to the promotion of tourism. From the practice of sports activity among the adolescents in the destination.

Through the use of new elements incorporated into products and services, tourism can take advantage of economic objectives with positive social and environmental externalities. In addition to other possibilities, as the training environment becomes more engaging, and the opportunity for tourists to learn about the history, life and identity of destinations, all of which have minimal negative impact on the local, community and the environment (NEGRUȘA et al., 2015).

Tourism companies and destination managers can participate in the context of gamification to actively collaborate with travelers in various co-creation activities in order to influence tourists’ travel experiences, training processes and impact the image of destinations/companies, And in the formation and diffusion of fashions and trends in the tourism industry (SIGALA, 2015b).

Both visitors and destinations can gain by applying gamification to destination marketing. Visitors gain by experiencing new attractions and leisure activities, experiencing a unique destination. The destination is won by the increase of visitation, the involvement of the visitors, extending their stay and motivating their engagement and loyalty (KIRÁL’OVÁ, 2015).

In the next section, the methodological approaches adopted in the studies under analysis will be exposed.

Methodological approaches adopted in the analyzed studies

The articles analyzed present a small difference between their approaches. For a systematic perception, Table 8 shows the division of the articles as to the type of approach (empirical and theoretical).

Table 8 – Classification of studies regarding their nature

Empirical	Theoretical
Giovannella et al. (2013); Díaz, Toftedahl e Svensson (2014); Sigala (2015b); Xu et al. (2015); Bárcena e Sanfilippo (2015); Yamamoto, Yoshin e Sonehara (2015); Királ'ová (2015)	Gordillo et al. (2013); Negruşa et al. (2015); Kachniewska (2015); Sigala (2015a)

Source – Elaborated by the authors

Studies classified as empirical were divided into qualitative and quantitative, and also categorized as data collection and analysis (Tables 9 and 10). Because it is a new, exploratory and emerging area in the tourism sector, gamification needs to be explored in depth, thus, the qualitative research paradigm becomes coherent in some studies.

To achieve the goal of “proposing glocal solutions⁷” for access to information and participation of the locals in the informal learning processes located in a *smart city*, Giovannella et al. (2013) developed a case study in Villard-de-Lans, in the French Alps, comprising seven residential centers. The study uses the structured interview with the residents of the study community. The studies of Bárcena and Sanfilippo (2015) and Királ'ová (2015) also applied a structured interview as a method of data collection.

In their study of children in a neighborhood called Skövde, Sweden, Díaz, Toftedahl and Svensson (2014) reported the use of mobile terminals in historical spaces for the practice of an adventure game, using a location-based platform to awaken the fantasy and children's curiosity about cultural heritage. The authors divided data collection into two phases: qualitative (semi-structured interview and systematic observation), and quantitative (questionnaires). They were surveyed 82 children from four classes from two different schools in the neighborhood. The use of one or more methods of data collection and analysis contributes to a detailed design and allows a more complete validation of the results.

Table 9 – Methodology for data collection in empirical studies

Methodology of data collection	Empirical studies
Qualitative Structured Interviews Semi-structured interview and systematic observation	Giovannella et al., 2013; Bárcena e Sanfilippo, 2015; Királ'ová, 2015; Xu et al. (2015) Díaz, Toftedahl e Svensson, 2014 Xu et al (2015)
Focus group	

(continues...)

7. Glocal: term used by the authors Giovannella et al. (2013) as a global and local junction.

Table 9 – Continuation

Methodology of data collection	Empirical studies
Quantitative Questionnaire	Díaz, Toftedahl e Svensson (2014); Sigala (2015b); Yamamoto, Yoshin e Sonehara (2015); Bárcena e Sanfilippo (2015)

Source – Elaborated by the authors

The study by Xu et al. (2015) was the only one to use the focus group as a means of collecting data. The application of the method is explained, since it is generally used for themes that are not well understood and to discover new insights (XU et al., 2015), as is the case of this research. To be included in the study, respondents had to meet the following criteria: (1) Use smartphone frequently; (2) play PC games or mobile games at least twice a week; (3) made at least one vacation trip during the last twelve months. In total, 26 volunteer students were eligible. Four groups of students were established from the categories (grade of study, gender, age and material status).

With regard to data collection, in quantitative terms, the questionnaire is the most current instrument. These questionnaires were applied with Yamamoto, Yoshin and Sonehara (2015) - twelve students of information science, Díaz, Toftedahl and Svensson (2014) - 82 children, Bárcena and Sanfilippo (2015) - 273 undergraduate students of tourism of the language course, and Sigala (2015) - 3,137 travelers. The study by Sigala (2015) was more representative in the number of respondents, so perhaps the only study to use multivariate analysis.

Table 10 – Methodology for data analysis in empirical studies

Methodology for data analysis	Empirical studies
Qualitative Content analysis Thematic analysis	Giovannella et al. (2013); Guadalupe, et al. (2014); Bárcena e Sanfilippo (2015) Xu et al. (2015)
Quantitative Descriptive statistics Chi-squared, T-Test, Exploratory Factor Analysis (EFA)	Guadalupe, Toftedahl e Svensson (2014); Bárcena e Sanfilippo (2015); Yamamoto, Yoshin e Sonehara (2015) Sigala (2015b)

Source – Elaborated by the authors

In the data analysis, descriptive statistics, chi-square, T-Test, Exploratory Factor Analysis (EFA), are usually used in quantitative data and were identified in the analyzed studies. In the qualitative studies, the content analysis and thematic analysis were the methods found (Table 9). In view of the presented scenario, we concluded that most studies are qualitative, with a more common data collection method – interviews and content analysis as a form of data analysis.

CONCLUSIONS, IMPLICATIONS FOR FUTURE RESEARCH AND LIMITATIONS

The main objective of this article was to carry out a review of the literature on the topic gamification and tourism, in order to list indications in studies that justified the potential of gamification to increase competitiveness in tourist destinations. Based on the exploratory literature review, conclusions, limitations and paths for future studies were extracted.

Based on precursor articles, some studies were further developed in the field of tourism (BÁRCENA; SANFILIPPO, 2015; DÍAZ; TOFTEDAHL; SVENSSON, 2014; GIOVANNELLA et al., 2013; GORDILLO et al., 2013; KACHNIEWSKA, 2015; KIRÁL'OVÁ, 2015; NEGRUŞA et al., 2015; SIGALA, 2015a, 2015b; XU et al., 2015; YAMAMOTO; YOSHIN; SONEHARA, 2015, among others), which focused on *smart city* and learning design, tourism destinations, promotion of sustainability, tourism experiences, mobile applications for tourism and digital photography systems in tourism (Table 3).

However, from the eleven articles analyzed, we concluded that gamification as a tool aimed at the competitiveness of tourist destinations is investigated by few authors, for example, Kachniewska (2015) and Királ'ová (2015). These studies present two main conclusions: visitors are more open to new experiences and challenges during their travels, especially when connected with fun. And gamification can be used as an effective tool for promoting destinations through *mobile* applications.

We noted that, despite the recent discussion on the use of the tool, gamification is already considered a new approach to promoting tourist destinations. In addition, it provides tourism and marketing organizations with an opportunity to create informative settings with entertainment for successful brand awareness, interaction and communication between the tourist and the destination (XU et al., 2015).

From the analysis of the eleven documents exposed during the course of this article, we conclude an incipient synthesis of knowledge and present what is known about gamification, such as concepts, main authors, evolution of the concept in time, main fields of application, quantity of documents published on the basis of Scopus per year, major publishing countries on the subject; and what is known about gamification applied in tourist destinations, which comprises the main authors, practical situations, relevant studies on the theme, specific examples of application of gamification in tourist destinations and the main approaches adopted by the authors. Moreover, this study is able to design what still needs to be known about gamification (effects of gamification on consumer behavior, main tools that, together with gamification, can increase competitiveness, among others) and on gamification applied to tourist destinations (monetary implications when introducing the technology in tourist destinations, if gamification contributes to the increase of the stay of tourists in the destinations, emotional impact of gamification on the tourists, levels of involvement and motivation provided by gamification, and others).

Considering the aspects presented in the synthesis of knowledge and in view of the data presented on the number of documents found in the Scopus database, it is clear that research on the subject is on the rise; as well as the curve of interest by the topic of gamification by researchers, supply and demand in the tourism sector, is also in positive status. However, despite the interest, the number of studies is still reduced, making it difficult to analyze in depth and comparative.

Most of the studies analyzed, regardless of context and approach, conjectured gamification only under positive factors (involvement, motivation, emotion, etc.). Some negative factors (limiting the tool to a system of points and medals, focusing only on virtual and forgetting the real world, not personalization of the target audience, among others) have not been widely contemplated. It can also be inferred that, in spite of the stage of exploitation in which the subject is still found, in some cases, the qualitative approach becomes necessary. However, this does not justify that most studies have neglected quantitative emphases, preventing some generalizations of results.

In view of the arguments presented, from the literature review, namely in the section on the potential of gamification as a generator of competitiveness in tourist destinations, groups of studies are identified that are located in the fields of learning, sustainability, mobility, technology and marketing. Taking these aspects into account, it is concluded that, in order for a tourism destination to increase its competitiveness by using gamification as a tool for this purpose, it is suggested that tourist destinations expand their uses to previously unexploited sectors, such as financial market, retail, creative economy of small businesses and others, generating value beyond the tourists.

The scarcity of studies that approach gamification from a more economical perspective has in some ways limited the attainment of more holistic conclusions about the real potential of gamification for the competitiveness of tourist destinations. Another limitation identified relates to the banalization of the use of the term *gamification*, making it difficult to locate research that brings reliable contributions.

In relation to future research, it would be innovative to carry out more comprehensive research, such as theses and dissertations, aimed at analyzing how Brazilian companies have been developing products and services for the tourism sector. Also, investigate to what extent the gamification impacts on the experience of the tourists during the trip. In addition, a broader survey on gamification from a sustainability perspective, seeking to go beyond the replication of success stories on tourism gamification, would be appropriate, exposing a more recent and critical approach to the potential of gamification to make tourism more sustainable development.

According to the examples, arguments and topics that were exposed in the development of this study, it can be inferred that the introduction of our article is indeed true, when it says that the new tourism model focuses on the experience obtained in the destinations by tourists, in order to provide them, as well as visitors, with impressive, fun and unique experiences. This article helped to identify gamification as a tool of high potential for reaching competitiveness in tourist destinations through mobile applications, augmented reality, tourist-educational guides, offering of “carbon credits” from the supply to the demand, with a view to promoting sustainability and other benefits.

REFERENCES

ASQUER, A.; KRACHKOVSKAYA, I. Can gamification assist the implementation of co-production tools? Some experimental evidence from the monitoring of the urban environment. In: INTERNATIONAL CONFERENCE ON PUBLIC POLICY, 2., 2015. *Proceedings...* Milan: ICPP, 2015.

BÁRCENA, E.; SANFILIPPO, M. La píldora informativa audiovisual como estrategia de gamificación en los cursos en línea de segundas lenguas. *Círculo de Lingüística Aplicada a la Comunicación*, Madrid, v. 63, p. 122-151, 2015.

BURKE, B. *Gamify: how gamification motivates people to do extraordinary things*. Brookline: Bibliomotion, 2014.

DETERDING, S. et al. From game design elements to gamefulness: defining “gamification”, 2011a. In: INTERNATIONAL ACADEMIC MINDTREK CONFERENCE: ENVISIONING FUTURE MEDIA ENVIRONMENTS, 15., 2011, Tampere. *Proceedings...* Tampere: MindTrek, 2011a. p. 9-15. Disponível em: <<http://bit.ly/1LgKAQX>>. Acesso em: 24 mar. 2017.

DETERDING, S. et al. Gamification: using game-design elements in non-gaming contexts In: ANNUAL CONFERENCE EXTENDED ABSTRACTS ON HUMAN FACTORS IN COMPUTING SYSTEMS, 2011, Vancouver. *Proceedings...* Vancouver: CHI EA, 2011b. p. 2425-2428. Disponível em: <<http://doi.org/10.1145/1979742.1979575>>. Acesso em: 24 mar. 2017.

DÍAZ, M. G. A.; TOFTEDAHL, M.; SVENSSON, T. The Mystery of Elin: incorporating a city cultural program on history and heritage into a pervasive game. In: INTERACTIVE ENTERTAINMENT, 2014. *Proceedings...* Newcastle: ACM, 2014.

FERREIRA, A. F. M. *Gamification: um novo paradigma de criação de valor no Mass Market*. 2015. Dissertação (Mestrado em Gestão) –Universidade de Aveiro, Aveiro, 2015.

GIOVANNELLA, C. et al. Villard-de-Lans: a case study for participatory people-centered smart city learning design. In: IEEE INTERNATIONAL CONFERENCE ON ADVANCED LEARNING TECHNOLOGIES, 13., 2013. *Proceedings...* Beijing: IEEE, 2013.

GORDILLO, A. et al. The city as a learning gamified platform. In: FRONTIERS IN EDUCATION CONFERENCE, 2013. *Proceedings...* Oklahoma: IEEE, 2013.

HUOTARI, K.; HAMARI, J. Defining gamification: a service marketing perspective. In: INTERNATIONAL ACADEMIC MINDTREK CONFERENCE, 16., 2012, Tampere. *Proceedings...* Tampere: ACM, 2012. p. 17-22.

KACHNIEWSKA, M. Gamification in tourism: pitfalls and benefits. In: TOURISM IN THE AGE OF TRANSFORMATION, 2015. *Proceedings...* Varna: University of Economics, 2015.

KIRÁL'OVÁ, A. The place of gamification in tourism destination's marketing. In: INFORMATION TECHNOLOGY AND SOCIETY INTERACTION AND INTERDEPENDENCE, 23., 2015. *Proceedings...* Linz: Trauner Verlag, 2015. NEGRUŞA, A. L. et al. Exploring gamification techniques and applications for sustainable tourism. *Sustainability*, Basel, v. 7, n. 8, p. 11160-11189, 2015.

KOVACEVIC, I.; ZECEVIC, B.; VELJKOVIC, S. “Gamification” concept: theoretical framework and destination marketing management practice. *Ekonomika Preduzeca*, [s. l.], v. 62, n. 5-6, p. 315-322, 2014. Disponível em: <<http://doi.org/10.5937/ekopre1406315K>>. Acesso em: 5 abr. 2017.

POPKIN, H. FarmVille invades the real world. *NBC News*, 6 jan. 2010. Disponível em: <<http://nbcnews.to/2nbMr5f>>. Acesso em: 16 abr. 2016.

SIGALA, M. Gamification for crowdsourcing marketing practices: applications and benefits in tourism. In: GARRIGOS-SIMON, F. J., GIL-PECHUÁN, I., ESTELLES-MIGUEL, S. (Eds.). *Advances in Crowdsourcing*. Cham: Springer, 2015a. p. 129-146. Disponível em: <<http://bit.ly/2oJrc7L>>. Acesso em: 5 abr. 2017.

_____. The application and impact of gamification funware on trip planning and experiences: the case of TripAdvisor's funware. *Electronic Markets*, Leipzig, v. 25, n. 3, p. 189-209, 2015b. Disponível em: <<https://doi.org/10.1007/s12525-014-0179-1>>. Acesso em: 5 abr. 2017.

USKOV, A.; SEKAR, B. Serious games, gamification and game engines to support framework activities in engineering: case studies, analysis, classifications and outcomes. In:

IEEE INTERNATIONAL CONFERENCE ON ON ELECTRO/INFORMATION TECHNOLOGY (EIT), 2014. *Proceedings...* Milwaukee: IEEE, 2014 . p. 618-623.

XU, F. et al. Tourists as mobile gamers: gamification for tourism marketing. *Journal of Travel & Tourism Marketing*, London, v. 33, n. 8, p. 1124-1142, 2015.

YAMAMOTO, R.; YOSHIN, T.; SONEHARA, N. Gamification effect of collection system for digital photographs with geographic information which utilizes land acquisition game. In: INTERNATIONAL CONFERENCE ON HUMAN-COMPUTER INTERACTION, 17., 2015. *Proceedings...* Los Angeles: Springer, 2015.

ZICHERMANN, G.; CUNNINGHAM, C. *Gamification by design: implementing game mechanics in web and mobile apps*. Newton: O'Reilly Media, 2010.

ZICHERMANN, G.; LINDER, J. *The gamification revolution: how leaders leverage game mechanics to crush the competition*. New York: Mc Graw-Hill Education, 2013.

Received on: 09/25/2016

Approved on: 02/25/2017