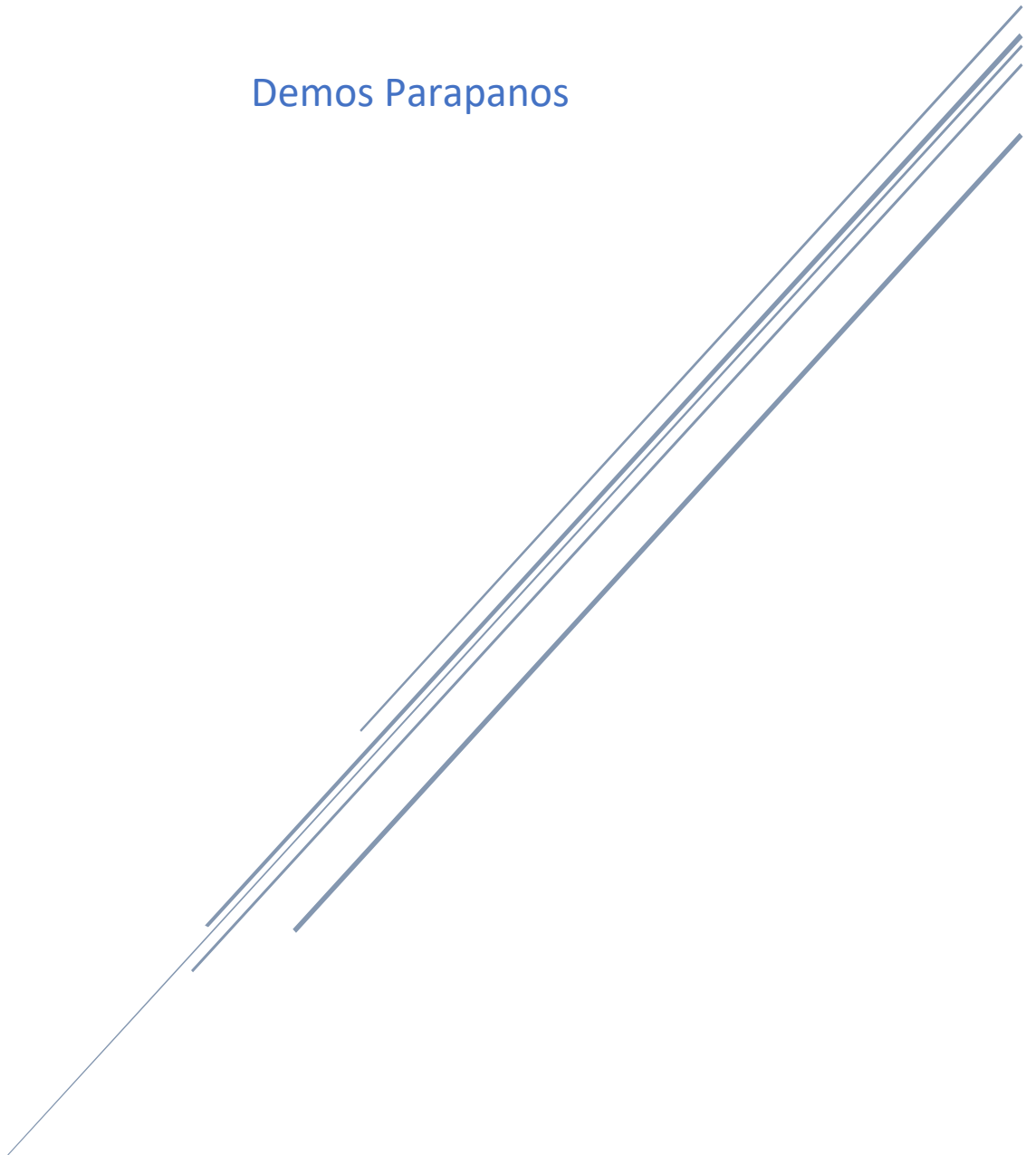# UNDERSTANDING HOTEL VISITORS' MOTIVES TO USE HOTEL GAMIFIED APPLICATIONS

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Abstract

While hospitality has been one of the industries that have been keen to adopt and use various technologies, the proliferation of gamification application is still to materialise. It is therefore very interesting to investigate the potential benefits of gamified applications in the area of the hospitality industry by identifying the motives of individuals' when they use a hotel-gamified application. Hospitality industry is becoming more and more competitive and surviving and marketing a destination has become a challenge, so in order to gain a competitive advantage, the use of modern technology is crucial for many destination-marketing organizations.

Gamification can be applied in technology-mediated and non-technology-mediated contexts. Within technology-mediated contexts, gamification is more applicable due to the favourable environment that such context offers. Recent evolutions indicate that mobile devices are becoming travel buddies and their use is profoundly influencing the different phases of a travellers' journey. Hence, it could be assumed, that a mobile hotel gamified application is now easier than ever to develop and succeed. Since fun has become the requirement to ensure continuous demands for many products or services, companies and organizations feel the need to involve fun in their offerings to secure continuity in consumption and use. Therefore, this study aims to understand the meaning of fun for individuals when they will use a hotel-gamified application, using visual material so the interviewees would have an idea of how a hotel-gamified application would look if it was in existence today based on the current definitions of gamification.

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Chapter 1: Introduction

Gamification is a major trend in hospitality, a trend that is likely to continue over the coming years (Xu et al, 2015). It is suggested that it appeals to consumers across all ages and demographics (Xu et al, 2015). Daisyme (2017) suggests that gamification is the next big thing in marketing, by combining the increasing adoption of video games across society and the influence they have in shaping everyday life and interactions. It is recognised that through these elements, gamification can produce a desirable experience and motivate users to remain engaged in an activity (Daisyme, 2017). In order to highlight the importance of games and pleasure as a new marketing strategy, Zicherman and Linder (2010), argued that games are about pleasure, and that pleasure is the new marketing (or an extreme dimension of marketing). Hence, because digital games are fun, engaging and popular, many organizations, including schools, military units, companies and health-care organizations, are using games to train individuals, engage online customers and connect a global workforce (Dickey, 2005; Stapleton, 2004).

Lombriser and Van der Valk (2011) clarify that whilst games are considered unproductive, with no valuable outcomes, gamification can engage users in solving real-world problems, entailing value-adding activities and outcomes. Gamification is defined as "using game-based mechanics aesthetics and game thinking to engage people, motivate action, promote learning and solve problems" (Kirsh, 2014: 63). Current research concentrates on the definitions of gamification (what it consists of) and the importance of motives for the engagement of the phenomenon in people's lives. For example, taking into consideration the motivational aspect of gamification da Silva Brito et al (2018) define gamification as "the use of technologies engaged in promoting intrinsic motivations by using diverse characteristics of games in other domains outside the entertainment industry, such as education, marketing, public administration, politics and health. It is a trend derived from the popularity of games and their intrinsic ability for call to action to solve problems or enable learning in different fields and in people's lives". The gamification trend is growing, with no signs of slowing down (Kapp, 2012), and the enhancement of software via design features borrowed from video games has become a notable development in many software engineering projects (Morschheuser et al, 2018). As new technologies have been developed to enhance individuals' motivation, adding beneficial behaviour of the users

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towards the developer, gamification is seen as the most popular trend in this respect (da Silva Brito et al, 2018). This thesis investigates this phenomenon in the hospitality industry as a potential benefit for the hotel sector. It explores the potential for maximising effectiveness of a mobile application for a chain hotel through gamification, by investigating hotel visitors' motives when using the system.

1.1 The role of m-commerce for hospitality

M-commerce can uniquely and comprehensively mediate the consumer-firm experience, and thus extend the traditional interactions between consumers and firms to spheres that are not feasible to replicate outside m-commerce (Morosan, 2018). Research by Ozturk et al (2016) argues that mobile devices have introduced both convenience and easiness to contemporary travellers to highlight that with this technology, it is possible to complete a variety of transactions including shopping on-the-go for travel-related products or services. Today's increasingly technology-savvy hotel guests travel with various technologies, such as smartphones, mobile phones, tablets and laptops, and they use them to pre-check into their hotel rooms, browse the internet and purchase hotel products and services during their stays (DeFranco, Morosan and Hua, 2017). This suggests that m-commerce may overcome some of the limitations associated with e-commerce, and could help influence marketing strategies to produce a profile to accurately identify and cluster travellers based upon gamified user type.

Mobile technologies that make access to information fast and easy from anywhere, at any time, make it possible to deliver information to many users (Yilmaz and Olgac, 2016). Businesses are therefore forced to develop new strategies and to change their business processes, so that they can more economically deliver their products and services to any part of the world in the shortest time (Yilmaz and Olgac, 2016). The biggest change regarding digital technology is that a digital social network can connect people all over the world (Sooksatit, 2016). Similarly, tourism businesses can also market complementary products and services through cross-selling, delivering information to motivate buying during the consumers' shopping process (Yilmaz and Olgac, 2016). For example, a travel company posting their recent activities on a mobile application such as TripAdvisor and Lonely Planet Business can easily and

immediately learn about what tourists need and how they react to offerings with the help of mobile communications (Yilmaz and Olgac, 2016).

Firms spent about a quarter of their digital budget on mobile, and mobile contributed nearly a quarter of all digital revenues in 2015 (Venkatesh, 2016). Hofacker et al (2016) also point out that the annual global mobile retail purchases are expected to surpass $700 billion and account for 30% of online purchases in 2018. In parallel with the growth of mobile marketing, interest in gamification has emerged (Hofacker et al, 2016). However, mobile marketing is most effective when shoppers, consumers and users are most engaged, and gamification appears to be a powerful way to increase engagement (Venkatesh, 2016). The gamification trend is growing, with no signs of slowing down (Kapp, 2012), and the enhancement of software via design features borrowed from video games has become a notable development in many software engineering projects (Morschheuser et al, 2018).

The rapid growth of mobile marketing in recent years raises several important questions in regards to marketing communication and shopper response, with how relevant gamification is in the mobile environment being one of them (Venkatesh, 2016). It is argued by Law, Buhalis and Cobanoglu (2014) that the development of information and communication technology in general, and e-business in particular, presents unprecedented challenges and opportunities for tourism and hospitality businesses. The fast development of the internet in recent decades makes information broadcast and sharing much easier and faster (Zhou, Wang and Li, 2017), effectively revolutionizing the hospitality and tourism industries (Law, Buhalis and Cobanoglu, 2014). The role of ICT and mobile marketing in the hospitality industry therefore cannot be underestimated, and it is a crucial driving force in the current information-driven society (Kaur and Sharma, 2015). It is argued by Buhalis and O'Connor (2005) that ICT's evolution provides new tools for tourism and hospitality marketing and management, supporting the interactivity between tourism enterprises and consumers, leading to an entirely new process of developing, managing and marketing tourism products and destinations. Drawing on these findings, this thesis considers gamification as a new marketing tool for hotels to support interactivity between hotels and hotel visitors, by investigating the motives that would enhance user behaviour towards the system and enlarge engagement with the hotel.

This thesis is inspired by the fact that even though it is within human nature to like games, not everyone likes the same kind or style of games (Killian, 2013). According to Marczewski (2013), even though it is possible to design games, serious games or gamified systems without knowing who the target players and users are, it is more likely to create a more engaging experience when the target players are identified first. The developments in mobile communication technologies, along with the increase in mobile devices and internet usage, have led the tourism and hospitality industry to utilize these technologies and create applications as in many others, resulting in hotels developing mobile applications to advertise their brands, to market their products and services to consumers, and to increase their sales (Yilmaz and Olgac, 2016). As technologies become more accessible, adopting such technologies alone will not lead to a competitive advantage (Kim and Law, 2015). This thesis will investigate the target users' motives, identifying their characteristics when using a hotel's gamified application in order to create a user's profile to effectively increase systems performance.

1.2 Problem statement

Han, Jung, and Gibson (2014) argue that tourism and hospitality industries are becoming more and more competitive, and therefore marketing a destination has become a challenge. Consequently, the use of modern technology is crucial for many destination-marketing organizations in order to gain competitive advantage (Han, Jung, and Gibson, 2014). Gamification can be applied in technology-mediated and non-technology-mediated contexts (Egger and Bulencea, 2015). Within technology-mediated contexts, gamification is more applicable due to the favourable environment that such context offers (Burke, 2013). Recent evolutions indicate that mobile devices are becoming travel buddies and their use is profoundly influencing the different phases of a traveller's journey (Inversini, 2017). It could therefore be assumed that a mobile hotel gamified application is now easier than ever to develop and have success with.

The phenomenon of gamification has been applied with several objectives, ranging from increasing brand awareness to encouraging consumer engagement (Garcia et al, 2016). Even though the hospitality industry has already used game elements (Garcia et al, 2016), limited research has been focused on individuals' motives to use

them. Hence, this study aims to identify individuals' motives when they use a gamified application, with significant attention to the element of fun as a major motive. Gaming is in its infancy in many industries and also in tourism, as very few successful examples have already been established, mainly specialised treasure hunts and cultural heritage applications (Xu et al, 2016). As a relatively new phenomenon in the industry, factors affecting its usage behaviour have yet to be researched. Fun as a perception of experience from the users' and consumers' point of view may be particularly instrumental in the consumption of products or services (Tasci and Ko, 2016). Identifying these outcomes could offer several advantages to hotels by providing relationship marketing and engagement, increasing revenue and strengthening customer loyalty.

1.3 Research aims and objectives

Gamified applications are failing due to poor game design (Burke, 2013; Dredge, 2012). Berkling and Thomas (2013) further discuss game design in the concept of education, explaining that part of the problem with the gamification platform was probably its lack of aesthetic appeal. Even though the platform was fully functional in aspects that could have easily been of interest, factors such as getting extra points and public recognition for helping others was not utilized at all. Morschheuser et al (2018) mention that even though it is suggested that more than half of all organizations would have had gamified parts of their organizational software and internal practices by 2015, it has been predicted that a majority of these gamification implementations are doomed to fail due to the poor understanding of the gamification design process. Organizations are focusing on the obvious game mechanics, such as points, badges and leader boards, rather than the subtler and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Burke, 2013). Considering the current focus of the industry to game mechanics, this thesis's subject of investigation is humans behaviour in regards to the usage of a gamified application applied for hotels.

1.3.1 The aim of this research:

This research focuses on investigating hotel visitors' motives when using a mobile hotel gamified application to understand what fun means for them, by exploring motivational factors influencing intention to use a technology system. To do that, the

methodological approach of this thesis will focus on investigating individuals' behaviour, as hotel visitors, towards the new technology in order to understand the factors that would create engagement between the user and the system so as to enlarge the repeating behaviour. As pleasure appears to be a central topic as a motive when gamers play games (Zicherman and Linder, 2010), this thesis will attempt to give an understanding of the meaning of fun when users would use hotel gamified applications, so the system will be able to apply those characteristics to enhance engagement between the user and the system. For the purposes of this research visual material have been prepared based on the literature of gamification, game mechanics and game thinking to give a better idea to the participants of what a hotel's gamified application would look like. For this reason, this thesis is embedded in the body of literature of the hospitality industry as the participants would elaborate opinions and feelings based on the material in front of them. The idea is that, if the active ingredients that make games addictive could be isolated, then developers can put those ingredients into their digital technologies and make them engaging too. To apply gamification, developers first need a list of game design elements, and then second, they need to integrate these elements into their intervention.

1.3.2 The objectives of this research:

Objectives:

1. Propose a model with factors influencing intention to use a gamified system in the hospitality industry

Sub-Objectives:

a. Critically evaluate the term gamification and identify the key components of the phenomenon

b. Explore the game mechanics and their use to a gamified system

c. Identify gamers' motives when playing games and using a gamified application

d. Examine existing empirical studies in related domains to identify factors contributing towards intention to use hotels' gamified applications

e. Measure hotel visitors' motives when using hotel gamified applications

f. Investigate and support the results of the quantitative questionnaire survey

2. Propose a meaning of the term fun for users towards a gamified application in the hospitality industry

Sub-Objectives:

    a. Explore the importance of the element of fun in the continuation of playing a game

    b. Understand the meaning of fun when playing games

    c. Understand individuals' perception of fun when using hotels' gamified applications

1.4 Proposed contribution

Many studies have explored users' initial adoption of e-commerce (Cheema et al, 2013; Aren et al, 2013; Venkatesh, 2000; Harn et al, 2014) and m-commerce (Kim and Preis, 2016; Sohn, 2017; Ozturk et al, 2016; Agrebik and Jallais, 2015), but little has been done about influencing factors of continuance intention towards gamification (Yang, Asaad and Dwivedi, 2017; Yoo, et al, 2017) and users' behavioural intention to try new mobile gamified applications in the context of the hospitality industry. The sustainability and success of a gamified application relies on users' continuance usage rather than first-time adoption behaviour. Thus, the creation of an engaging experience is more likely when the users' motives are identified when designing games, serious games and gamified systems (Marczewski, 2014). Considering that there is insufficient research into the identification of those motives influencing intention to use a hotel's gamified application, this research tries to fill this gap and enlighten existing gamification research by investigating the predictors of users' continuance intention towards hotels' gamified applications.

This research also aims to add to the body of knowledge of the meaning of fun. The present study extends the understanding of fun elements when using hotels' gamified applications. Previous studies focusing on understanding the meaning of fun when playing games (e.g. Bartle, 1996) or gamification systems (e.g. Marczewski, 2014), yet none of the existing studies focus on understanding the meaning of fun when using a gamified system in the context of the hospitality industry. Using the visual material this study fills the gap regarding the meaning of fun when using hotels' gamified applications, contributing to the perception of fun for hotel visitors and consequently affecting the intention to use the system. For future researchers with an interest in understanding the perception of fun, these factors may serve as a strong reference.

1.5 Thesis structure

This thesis contains five chapters, two of them (Literature review, and Findings and discussion) broken into sub-section (Figure 1). The Literature review chapter is divided into four sections, reviewing relevant literature to hotels' gamified applications from three supporting areas of topics. It begins with defining m-commerce and the evolution of the technology, especially for the hospitality industry, in the first section. This is followed by a section focusing on games, and the success of the industry in regards to profitability and engagement with the audience. The third section aims to explain the success that hotels' gamified applications could provide to organizations, when identifying the audience characteristics to maximize engagement and thereafter loyalty with the brand. The final part is a hypothesis development section built to investigate the results of identical hypotheses in similar contexts. The third chapter, Research methodology, focuses on the methodology for the research's different studies. The core considerations of the research design are discussed. The research strategy is presented detailing a design based on the research approach. Proceeding to chapter 4 (Findings and discussion), the focus will be on presenting the data collected and discussing the findings. This chapter is divided into three sections, each one explaining each phase of the research. Section 1 aims to investigate individuals' motives to use a hotel's gamified application based on opinions collected from participants with experience in gaming. Section 2 aims to present the results of the data and apply analysis techniques to validate the measurement items and structure of the proposed model, as well as to test the set hypothesis. Finally, section 3 presents the results of semi-structured interviews that were conducted with the purpose of further investigating and supporting the results of the quantitative questionnaire survey, which explored levels of behavioural intention and the gap between them amongst hotel visitors. Finally, Chapter 5 provides a conclusive evaluation of the findings drawn from the three phases, further discussing these results and comparing them in relation with previous literature.
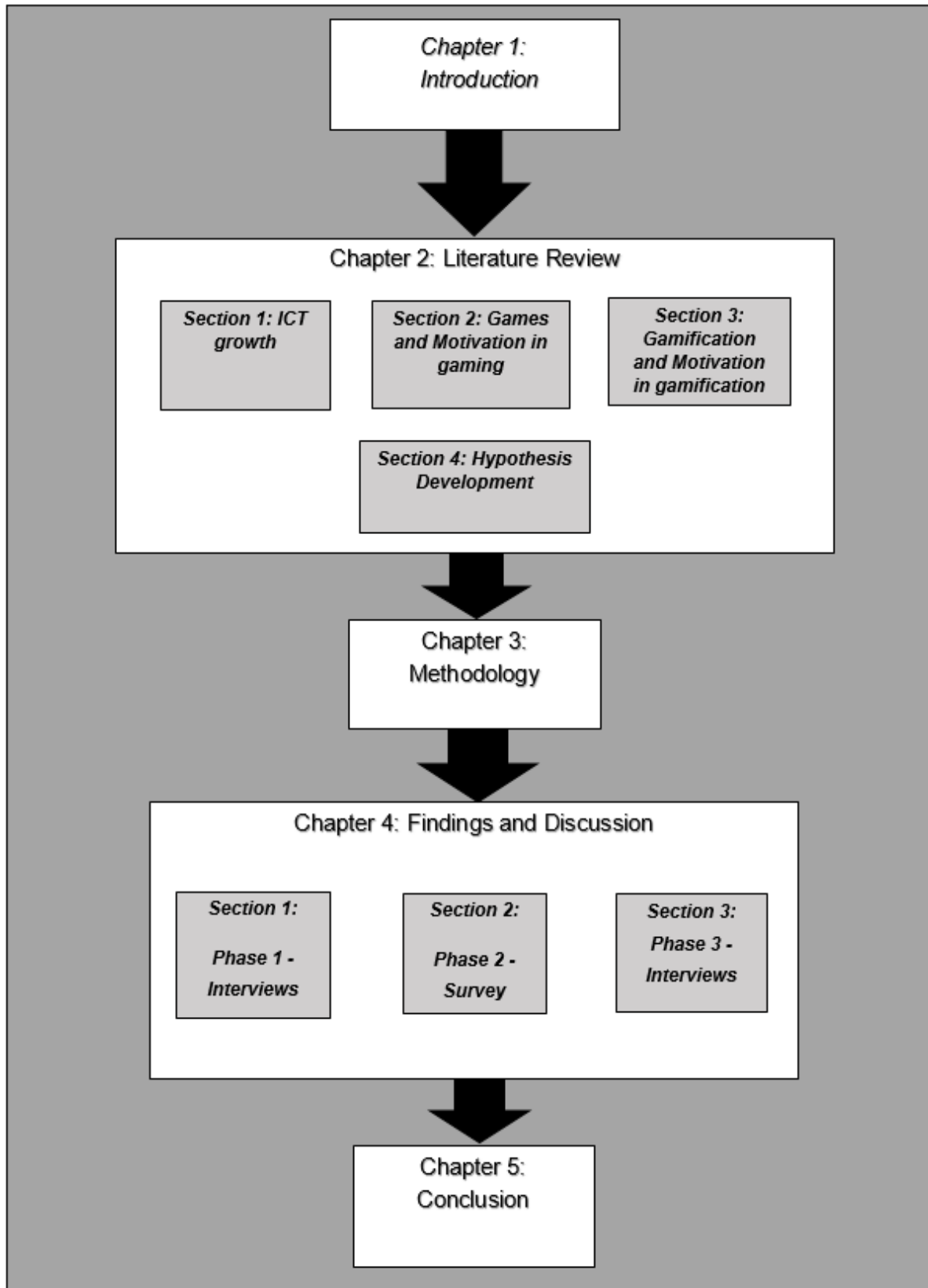
Figure 1. Thesis structure

Chapter 2: Literature review

Overview

This chapter reviews key literature relevant to hotel gamified applications from three supporting areas. It begins with defining m-commerce and the evolution of the technology, especially for the hospitality industry, in the first section. This is followed by a section focusing on games and the success of the industry with regard to profitability and engagement with the audience. The third section aims to explain the success that hotels' gamified applications could provide to organizations when identifying the audience characteristics to maximize engagement and thereafter loyalty with the brand. The final part is a hypothesis development section, built to investigate the results of identical hypotheses in similar contexts.

Section 1

This section focuses on the evolution and development of technology and the opportunities emerging for the market today. This section aims to define information and communication technology (ICT) as well as several classifications of the industry. Advantages and disadvantages of e-commerce are identified, leading to the evolution of m-commerce. However, this section further identifies the limitations of m-commerce relating to effective engagement with users.

Section 2

This section focuses on an overview of the strength of games in the current era as well as examining motivational factors influencing gamers' decisions. Gamification uses elements, mechanics and aesthetics derived from the gaming industry to produce a new engaging strategy. Thus, before examining factors that explain the gamification effectiveness process, this section examines what a game is, the success of the gaming industry, and the gamers' motivational factors that prompt that success.

Section 3

This section examines the origins of gamification, by examining several definitions of the phenomenon and comparing it with similar terminologies such as games, serious games, advergaming and pointsification. It is then followed by a classification of the

phenomenon from its psychological standpoint (also called game thinking) by examining several motivational theories focused on intrinsic motivation such as: self-determination theory, cognitive evaluation theory and flow theory, as well as the extrinsic motivational factor that rewards could play on influencing engagement between hotel gamified applications and the user. It is then followed by a technological standpoint (also called game mechanics), examining mechanics such as feedback, points, badges, leaderboards and levels, and the challenges trying to adapt them as used in the game industry. It is believed that understanding gamers' behaviour towards games will be beneficial when designing a sustainable gamified application for hotels. Finally, this section discusses several examples of gamification in the hospitality industry.

Section 4

This section focuses on the technology acceptance model and its choice as a core instrument when developing the survey in Phase 2. It should be noted that this chapter was developed after the first phase of data collection, in order to get a better understanding of the themes that arose, as well as to examine their previous use in similar contexts. It also aims to explain the choice of the technology acceptance model, as the research aims to investigate whether these variables (as built from the first phase of data collection) actually have an effect on the intention to use a hotel's gamified application.

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2.1 Section 1: ICT growth

Introduction

This section focuses on the evolution and development of technology and the opportunities emerging for the market today. Although mobile apps are becoming even more frequent due to technological advances, they do not assure either competitive advantage or engagement. It aims to define information and communication technology as well as several classifications of the industry. Advantages and disadvantages of e-commerce are identified, leading to the evolution of m-commerce. Limitations of m-commerce are identified, relating to effective engagement with the users.

2.1.1 Information and communication technology

Information and communication technologies (ICTs) such as computers and mobile phones are being used to promote or support human development initiatives by governments, businesses and international organizations (Kuriyan, Kitner and Watkins, 2010; Kaur and Sharma, 2015). Considerable research has focused on the effect of information and communication technology use, examining the role ICT plays in enhancing a country's productivity, showing that investment in ICT led to an increase in the GDP of nations (Ganju, Pavlou and Banker, 2016). In addition, research by Ganju, Pavlou and Banker (2016), shows that adopting ICT may lead to an increase in the level of individual well-being.

The development of information and communication technology in general, and e-business in particular, presents challenges and opportunities for the tourism and hospitality business (Law, Buhalis and Cobanoglu, 2014). The development of the internet makes information broadcast and sharing much easier and faster (Zhou, Wang and Li, 2017). The rapid deployment of the internet from Web 1.0 to Web 4.0 has effectively revolutionized the hospitality and tourism industries (Law Buhalis and Cobanoglu, 2014). Therefore, the role of ICT in the tourism industry is a crucial driving force in the current information-driven society (Kaur and Sharma, 2015). Research by Buhalis and O'Connor (2005) argues that ICT's evolution provides new tools for tourism marketing and management, supporting the interactivity between tourism

enterprises and consumers, leading to an entirely new process of developing, managing and marketing tourism products and destinations.

The development of mobile and portable devices, from laptops and tablet PCs to PDAs and smart phones, also offer significant computational power, storage and portability (Buhalis and O'Connor, 2005). The continued advancements in ICT and surge in user-generated contents have not only contributed to new knowledge production modes through crowdsourcing, but also influenced many areas of human life, including the tourism industry and travel behaviours (Zhou, Wang and Li, 2017). Research by Seric, Gil-Saura and Molla-Descals (2015) shows that ICT advancements have a positive and significant influence on perceived quality, brand image and quality.

The internet has become a platform for tourism companies to bring their products and services to their customers around the world, offering their services online in order to satisfy those customers (Kaur and Sharma, 2015). In addition, wireless and mobile networks have been developed to allow access everywhere (Buhalis and O'Connor, 2005). These developments have changed the structure of business to electronic activities called e-commerce and m-commerce. However, the specific nature of services, especially their intangibility and the inseparability between production and consumption, calls for a different approach to create a powerful service brand (Seric, Gil-Saura and Molla-Descals, 2016). As a result, e-commerce and m-commerce have become an interesting topic throughout the hospitality industry.

2.1.1.1 E-commerce

The rapid development of e-commerce merged attracting new customers and retaining old customers as a hot topic for research (Xiong and Zhang, 2018). In particular, e-commerce is critical for the hospitality industry, as appropriate actions regarding e-commerce lead to competitive advantages in hotels (Hua, Morosan and DeFranco, 2015). Several definitions of e-commerce have emerged throughout the industry. DeFranco, Morosan and Hua (2017) state a definition related to the costs of e-commerce, defining e-commerce as:

"The cost of website development and maintenance, including website registration fees, link costs and the cost of producing a virtual tour, reflecting the entire process

of the design, communication, delivery and evaluation of the entire hotel's experience."

Zhou (2004:56) looking from a customer-supplier point of view, defines e-commerce as:

"The conducting of business communication and transactions over networks and through computer technology and it encompasses all activities associated with buying and selling, such as financial transactions, business data exchange and communicating with customers and suppliers."

Tesone (2006:95), defines e-commerce from a transaction point of view:

"E-commerce includes all business functions that may be processed over telecommunications networks in any industry."

Based on these definitions, e-commerce marketing and operations activities are a set of interdependent activities with technology (Yang, Shi and Yan, 2016). Many hotels integrated IT into their traditional commercial and marketing functions, eventually developing robust electronic commerce platforms (DeFranco, Morosan and Hua, 2017). The internet has therefore affected how people shop, becoming a significant distribution channel and changing consumer behaviour, as customers are not only consumers, but also internet users (Bilgihan et al, 2014).

E-commerce classification

Class	Definition	Examples
Business to Business (B2B)	B2B e-commerce is any business process between two companies that uses web-based network technology.	An online broker of travel and lodging arrangements (i.e. Orbitz) pre-purchases blocks of rooms from a hotel (another business) for sale to consumers at discount prices.
Business to Consumer (B2C)	B2C e-commerce is described when businesses attempt to reach individual consumers.	A consumer who books an airline reservation is engaged in that type of transaction.
Consumer to Consumer (C2C)	C2C e-commerce provides a way for consumers to sell to each other, with the help of an online market maker such as e-bay.	A consumer prepares the product for auction or sale and relies on the market maker to provide catalogue, search engine and transaction-clearing capabilities so that the product can be easily displayed, discovered and paid for.
Peer to Peer (P2P)	Peer to peer technology enables internet users to share files and computer resources directly without having to go through a central web server, although in fact most P2P networks make use of intermediary "super servers" to speed operations.	This platform gains importance for the hospitality and tourism industry as Airbnb firms are included in this category.
Sources: Zhou, 2004; Tesone (2006); Laudon and Traver (2008); Zervas, Proserpio and Byers (2017)		

Issues in E-commerce

Research is conducted worldwide on e-commerce, which is undoubtedly a growing market, and its applications represent a particularly high-growth area in the business sector (Bilgihan et al, 2014). According to Stair, Reynolds and Chesney (2008), e-commerce provides business with an opportunity to achieve operational excellence by enabling consumers and companies to gain a global reach to worldwide markets, reduce the cost of doing business, speed the flow of goods and information, increase the accuracy of order processing and fulfilment, and improve the level of customer service. Research supports the essential role of ICT in company productivity and performance, indicating that the implementation of new technologies results in notable

advantages in competition, increasing productivity, efficiency, information-sharing and guest satisfaction (Seric, Gil-Saura and Molla-Descals, 2016).

The revolution in ICT has profound implications for economic and social development (Kaur and Sharma, 2015). The relationships between ICT investment, business productivity and performance have been examined, but the outcomes were not consistent (Seric, Gil-Saura and Molla-Descals, 2016). Research by Yang, Shi and Yan (2016) mentions that most e-commerce firms suffer from initial losses when they enter the online market, experiencing diminishing financial performance. Nowadays, most hotels begin with a storefront website, integrating an array of corresponding business processes, which aims to persuade guests who visit the website and eventually search for a hotel stay (DeFranco, Morosan and Hua, 2017).

However, when looking into technology innovations, it is evident that ICT has also changed consumer behaviour in hospitality and tourism in recent years (Law, Buhalis and Cobanoglu, 2014), supporting that establishing a website is not enough for increasing the productivity, efficiency, or creating an advantage in competition. Customers who choose to shop in the e-commerce environment can compare the parameters of various aspects with the help of the network (Xiong and Zhang, 2018). Since many hotels have integrated IT into their traditional commercial and marketing functions developing e-commerce (DeFranco, Morosan and Hua, 2017), it is not certain that e-commerce will lead to engagement with the audience and increase profitability for the hotel.

ICT has profound implications for tourism, and e-tourism reflects the digitization of all processes and value chains in the tourism, travel and hospitality industry (Buhalis and O'Connor, 2005). However, the technological advancement provided the new and convenient tools through which consumers can purchase tourism and hospitality products. Research on online purchase behaviour is relatively limited (Law, Buhalis and Cobanoglu, 2014). Bilgihan et al (2013) mention that, in online environments, earlier e-commerce research solely highlighted the importance of the utilitarian nature of online shopping, yet contemporary e-shoppers also seek enjoyment of the experience when shopping online. It is therefore understood that, through ICT development, online purchase behaviour has changed.

With the rapid development of e-commerce, how to attract new customers and retain old customers is what businesses should consider the most (Xiong and Zhang, 2018). E-commerce is critical for the hospitality industry, as appropriate decisions regarding e-commerce lead to competitive advantages in hotels (Hua, Morosan, DeFranco, 2015). Increasingly, tourism organizations need to use ICT to develop strategies that are customer-centric, which will assist them to focus on their customers (Buhalis and O'Connor, 2005). Hotels should collect customers' information at each stage of service – before, during and after - to understand consumer behaviour choices, concerns and determinants (Buhalis and O'Connor, 2005). Consequently, online marketers attempted to promote website loyalty by providing online features such as adver games and gamification (Bilgihan et al, 2013).

2.1.1.2 M-commerce

E-commerce is continuously evolving in the hotel industry, currently by extending heavily into the mobile commerce domain (Hua, Morosan and Defranco, 2015). The early introduction of mobile commerce (or m-commerce) in the late 1990s created a hype, which turned out to be counter-productive for a serious industrial adoption of the possibilities offered by mobile technology (Carlsson, Carlsson and Walden, 2005). Hence scholars and industry representatives turned their attention towards the promise of electronic wireless media, envisaging that the next, or the real, phase of e-commerce growth will be in the area of mobile commerce (Carlsson, Carlsson and Walden, 2005). According to Christou (2010) e-commerce in travel services provides this convenience by enabling consumers to make activities such as reservations and order tickets from home, even having the tickets or vouchers subsequently delivered at home or receiving an electronic confirmation of the reservation. However, Christou (2010), further identifies that m-commerce (mobile commerce) utilises all e-commerce advantages and combines them with the added benefit of enhanced flexibility and mobility, to further clarify that like any other industry, hospitality industry has been affected by the evolution of mobile technology and m-commerce capitalising on the advantages of e-commerce adding on further benefits.

The development of networks and the popularity of smartphones have brought a rapid development of e-commerce (Xiong and Zhang, 2018), and further popularity to m-commerce. Laudon and Traver (2008:93) define m-commerce as:

"Taking traditional e-commerce models and leverage emerging new technologies to permit mobile access to the Web."

Gay, Charlesworth and Esen (2007:6) define m-commerce as:

"The buying and selling of goods and services through wireless handheld devices such as mobile phones and personal digital assistants."

In recent years, mobile commerce has had a high rate of penetration in the hotel industry, as mobile devices became popular travel tools and the hotel industry developed various mobile applications and services adapted to the m-commerce ecosystem (Morosan and DeFranco, 2016). Keen and Mackintosh (2001) stress that mobile commerce (m-commerce) is marking the start of another era of innovation in business and that m-commerce will continue to extend the way organizations conduct business, changing the relationships between companies, customers, suppliers and partners. After Apple introduced the multi-functional touch screen with the iPhone in 2007, a tiny keyboard pad became a thing of the past (Okazaki and Mendez, 2010). Smartphone users can now access the Internet and search information more easily with built-in keyboards, which allow for rapid data entry. For example, a survey indicates that travel search with mobile device increased by 1200%, and in particular, hotel searches on Google Maps grew 3000% in 2011 (Okazaki and Mendez, 2013). As a result of that evolved relationship between the company and the user, mobile technologies and mobile applications have affected the supply chain management in the hospitality industry bringing numerous benefits starting with cost reduction, increased functionality, productivity, efficiency and ending up with satisfied users of logistics products in the hospitality industry.

Research by Morosan (2018) presents that mobile technology and its associated business ecosystem, characterized by ubiquity (ability to use a smartphone anywhere), personalization (making something identifiable as belonging to a particular person), portability (ability to be easily carried or moved anywhere) and convenience (being useful, easy, or suitable for someone). M-commerce can uniquely and comprehensively mediate the consumer-firm experience and thus extend the traditional interactions between consumer-firms to spheres that are not feasibly replicated outside m-commerce (Morosan, 2018). Research by Ozturk et al (2016)

argues that mobile devices have introduced both convenience and easiness to contemporary travellers and highlight that, with this technology, it is possible to complete a variety of transactions including shopping on-the-go for travel-related products or services. The fact that today's increasingly technology-savvy hotel guests travel with various technologies, such as smartphones, mobile phones, tablets and laptops, and they use them to pre-check into their hotel rooms, browse the internet and purchase hotel products and services during their stays (DeFranco, Morosan and Hua, 2017), suggests that m-commerce overcame some of the limitations associated with e-commerce.

Smartphones have increasingly become the most popular mobile device among users around the world, and mobile technologies have become indispensable components of people's daily lives, altering the way people communicate and interact with one another (Kim and Law, 2015). Smartphones have multiple information and communication technology functions (or apps) that are comparable to those of computers. Mobile applications are one of the newest and most effective channels of communication with the market (Car, Pilepic and Simunic, 2014). They are specially developed programs adapted for use on mobile devices, with the aim of functionality of the web service, computer applications, as well as making original ideas available to users of mobile devices. Consumers' choice of m-commerce—and the applications they use it for—has always been associated with the convenience it offers (Okazaki and Mendez, 2013). Mobile applications consist of software/set of programs that runs on a mobile device and performs certain tasks for the user. It is a new and fast developing segment of the global Information and Communication Technology. Since the number of smartphone users will exceed 2.8 billion worldwide by 2020, a number representing more than one-third of the global population; shows that more than a third of global population will now be a mobile app user, highlighting the importance of mobile applications for any organization including the ones in the hospitality industry. An average adult spends over four hours per day using his or her smartphone, along with the related apps for social networking and communications (Law, Chan and Wang, 2018). Among the apps, mobile instant messaging apps (such as WhatsApp, LINE, Instagram and Facebook Messenger) are highly popular and widely used, with statistics showing that in 2016 these apps had 1.58 billion users, and estimating that

this figure is rising to 2.48 billion users in 2017 (Tseng et al, 2018), also to show the frequency of use of mobile applications.

Combining the virtues of mobility and ICTs, mobile technologies, such as smartphones, tablets, and mobile applications (apps), have become the primary devices for users to access the Internet and have thus become an indispensable part of consumers' daily lives (Law, Chan and Wang, 2018). Examples of place convenience in tourism and hospitality include life insurance in airline terminals, drive-it-yourself automobile rental services, and the planned shopping centre (Okazaki and Mendez, 2013); all served in mobile apps. As time passed, the concept of convenience became increasingly important to consumers, especially in a context of information and communication technology (ICT) adoption. Travellers have a need to be online before, during as well as after a trip. Thus, mobile device adoption is growing with activities usually associated with PCs, such as booking hotels, finding nearby restaurants, or simply browsing the internet to now become a mobile device activity. Travel applications have become the seventh most downloaded applications, with 60% of mobile device users across the globe downloading travel applications onto their devices and 45% of them utilising these applications frequently to organise trips (Douglas, 2019). This is to show the importance of mobile applications for a tourism and hospitality organization. Indeed, in response to the huge potential market of electronic and mobile commerce, most tourism suppliers have established business Web sites and/or smartphone applications to publicize and distribute their products/services to consumers (Law, Leung and Fong, 2014).

Moreover, mobile technologies have significantly influenced modern management by enhancing the effectiveness of the execution of marketing activities (Kim and Law, 2015). Mobile marketing involves the two-way or multiple-way communication and promotion between an organization and its customer through mobile devices (Kim and Law, 2015). The hotel app makes m-commerce unique relative to other commercial ecosystems, as it is capable of fostering rich consumer-firm interactions, leading to the transformation of generic value propositions into valuable personalized experiences (Morosan and DeFranco, 2016), through the data collection provided by the usual interaction with the system. To support the importance of personalized experience for hotels and m-commerce, research by Morosan (2018) found that a highly interactive,

prone to personalization hotel m-commerce environment is likely to stimulate guests' involvement in co-creative activities using mobile devices.

Gamification is a tool to help the relationship between the organization and the user enlarging the personalization offered by the organization. Many well-known companies have already adopted gamification to increase customer engagement, gain customer loyalty, improve employee performance or gain competitive advantages. Study developed by the Pew Research Center's Internet & American Life Project, in which participated 1021 technology stakeholders and critics, supports that the market expenditures on gamification solutions will reach $2.8 billion, with 53% of the respondents agreed that by 2020 there will have been significant advances in the adoption and use of gamification (Negrusa et. al. 2015). Some of the technologies that influenced the development of gamification are mobile technologies (mobile applications), cloud computing, Web 2.0 and Augmented Reality (Negrusa et. al. 2015). Knowing that by 2030 half of the world population will be online and mobile, it becomes vital for the tourism and hospitality industry to integrate Information and Communication Technologies (ICT) in their services such as mobile applications.

This mobile "superstorm" has dramatically changed tourist behaviours and business processes in the field of hospitality and tourism, thus ascribing a revolutionized meaning to the latter (Law, Chan and Wang, 2018). Mobile devices assist in searching for information, making on-site choices and sharing experiences. This allows travellers to delay choices until after they start their trip, and not having to plan everything beforehand (Douglas, 2019). In addition, it offers mobile recommendations, which can change the tourist experiences completely altering behaviours, information requirements, decision-making, sharing and documenting. Since application functionality is based on the needs of users to provide a requested service or to be used for a better flow of information (Car, Pilepic and Simunic, 2014), highlights the importance of understanding the needs of the user to enhance the usability of the system. Carlsson, Carlsson and Walden (2005), mention that the accommodation service providers will be expected to personalise their services with constant precision to each individual customer in the near future. Today there are very few personally tailored hospitality services that would be attainable in each market segment.

ICT (such as mobile applications) provide strategic tools for sustainable tourism development, creating opportunities to enhance the positive effects of tourism and to reduce its negative impacts at destination (Touray and Jung, 2010). Furthermore, it is mentioned by Negrusa et al (2010), that there is a synergy between gamification and sustainability, based on the fact that both focus on emotional responses. They further state that game mechanisms have the capacity to create positive experiences in tourism (fun, excitement, arousal, pleasure, sense of achievement) and to provide tourists with both entertainment and information. Furthermore, there are good chances that tourists will adopt a more sustainable behaviour if provided with: a way to measure their progress and reasons to move on, collect points to obtain discount vouchers, goals to achieve, new levels for new facilities, the opportunity to compete with other tourists and leaderboards and special rewards for the best scores. These factors demonstrate the uniqueness of a mobile application with the characteristics of gamification and the importance of understanding the motivational variables of using such a software.

According to Ozturk et al (2016), it is expected that the mobile platform will play a key role not only in the distribution of the rooms, but also in establishing and strengthening customer relationships and brand loyalty, highlighting the effect of mobile channels on customer loyalty and listing the impact of mobile web solutions and app experiences on customer loyalty. Mobile apps have a central role in m-commerce, so understanding how consumers develop intentions to use hotel apps to access products, services and information in hotels becomes critical to the advancement of marketing, and is instrumental in developing superior m-commerce practices (Morosan and DeFranco, 2016). However, despite the wide adoption of smartphones by both tourism marketers and travellers, tourists' perception of smartphones and their influence on the adoption of smartphones have yet to be clearly understood (Kim and Law, 2015). Moreover, the relationships between the increasing use of smartphones and tourists' decision-making need to be clearly identified (Kim and Law, 2015).

Mobile commerce growth

The four characteristics associated with the business ecosystem (ubiquity, personalization, portability and convenience) highlight the conceptual significance of mobile commerce. Factors that have significant importance in the m-commerce market

are: the evolution of wireless devices such as mobile phones, smartphones (Stair, Reynolds and Chesney, 2008), and the growth of wireless networks to connect these devices to the web (Laudon and Traver, 2008). The increasing value of mobility and the on-the-go apps developed (Lu, Ting and Hsu, 2017) allow users to consume services anytime and 'any place'.

To get a better understanding of m-commerce, the technological growth of these components is investigated further.

Factors that have significant importance in the m-commerce market are:	
1. Evolution of wireless networks	
Mobile technology has gone through many different evolutions to get to where it is now.	The majority of networks around the world use:
Today people can use the internet to compete with, and contribute to, other people, empowered by high-speed internet access, making the world seem smaller. Wireless systems allow mobile networks to be efficient, allowing consumers to access the internet anywhere and anytime, therefore enabling new marketing tools to develop.	GSM (Global System for Mobile communications) GRPS (General Packet Radio Service) or GPRS EDGE (Enhanced Data rates for GSM Evolution), for 2G data and UMTS (Universal Mobile Telecommunication System), or HSDPA (High-Speed Downlink Packet Access) for 3G. CDMA (Code Division Multiple Access) and its 2.5 hybrid CDMA2000, offering greater coverage than its more widely adopted rival. GPRS and UMTS introduce third generation (3G) mobile services, empowering multimedia communication on mobile devices. WLAN (Wireless Local Area Networks) allow connectivity of portable devices through wireless-radio connections (Wi-Fi). Bluetooth connects devices over short distances.
2. Evolution of mobile devices	
The list of devices that can make use of Wi-Fi hotspots includes:	The growing number of smartphone users appears to have a significant effect on tourism.
Computers, laptops, tablets, mobile phones, mobile game consoles and pocket PCs. The biggest slice of the device pie is mobile phones, reaching the number of 3.6 billion in use around the world. The rising popularity of smartphones implies that the number is only getting higher.	Many tourists choose to book hotels or purchase flight tickets through their smartphones. The rising popularity of smartphones and tablets contributes to the development and diffusion of apps, making the market for apps one of the fastest-growing in the history of consumer technology. Almost 40 percent of leisure travellers look for travel information using smartphones, and approximately 25 percent of these customers make reservations via their smartphones. Hence, in order to stay competitive and increase

	booking revenues, hospitality practitioners need to focus on m-commerce.
3. Value of mobility	
The convergence of the two fastest growing communication technologies of all time (mobile phones and the internet) makes possible all kinds of new services, and creates a vast new market. Wireless networks utilize newly available bandwidth and communication protocols to connect mobile users to the internet. Through m-commerce companies can reach individual consumers to establish one-to-one marketing relationships and communicate whenever, anytime and anywhere.	
Sources: Gay, Charlesworth and Esen (2007); Stair, Reynolds and Chesney (2008); Kim and Law (2015); Laudon and Traver (2008); Fling (2009); Buhalis and O'Connor (2005); Chen, Murphy and Knecht (2016); Lu, Ting and Hsu (2017); Ozturk et al (2016)	

The major advantage of m-commerce is that it provides internet access to everyone, anytime and anywhere, using wireless devices (Laudon and Traver, 2008). The key technologies to do so are 3G (third generation wireless), 4G (fourth generation wireless), Wi-Fi (wireless local area networks) and Bluetooth (short-range frequency web devices) (Laudon and Traver, 2008). Mobile devices are used for instant marketing research or location-based promotion, transforming mobile phones into a multi-functional device incorporating phone, text and video as standard on new phones, providing yet more marketing opportunities (Gay, Charlsworth and Esen, 2007). This constant interaction between the user and the platform provides constant data collection of the individuals based on previous preferences and activities. This provides numerous opportunities for the provider to analyse previous behaviour and segment the market based on previous activities making future use more efficient. For example, the widespread use of smartphones and the accessibility of information services change the entire travel experience by altering the nature and role of planning one's travel, thus revolutionizing the very meaning of tourism and transforming both tourists and places (Kim and Law, 2015).

This also mean that the user is exposed to less privacy since their preferences and previous activities are registered in a third-party system. In January 2012, the European Commission set out plans for data protection reform across the European Union in order to make Europe 'fit for the digital age'. One of the key components of the reforms is the introduction of the General Data Protection Regulation (GDPR). This new EU framework applies to organisations in all member-states and has implications for businesses and individuals across Europe. At its core, GDPR is a new set of rules

designed to give EU citizens more control over their personal data. It aims to simplify the regulatory environment for business so both citizens and businesses in the European Union can fully benefit from the digital economy (Palmer, 2019). The types of data considered personal under the existing legislation include name, address, and photos. GDPR extends the definition of personal data so that something like an IP address can be personal data. It also includes sensitive personal data such as genetic data, and biometric data which could be processed to uniquely identify an individual (Palmer, 2019). For mobile applications to compliance under the GDPR, mobile app users can request the erasure of their personal data without unnecessary delay if their personal data is no longer needed for the express purpose for which it was originally collected or processed (Petrequin, 2018). Users also may withdraw their consent to use their data if they object to the processing of their data or find that their data is being unlawfully processed (Petrequin, 2018). It is also needed to ask for informed consent to collect and use personal data. This means using a "clickwrap" method for obtaining consent, such as an opt-in checkbox or button that is not pre-selected (Petrequin, 2018). Using these steps mobile applications comply with the GDPR.

Mobile devices have introduced both convenience and easiness to contemporary travellers, making it possible to complete a variety of transactions including shopping on-the-go for travel related products and services (Ozturk et al, 2016). Smartphones enable tourists to instantly access travel websites to obtain several types of information such as the weather, accommodation, attractions and transportation wherever they are (Kim and Law, 2015), highlighting the importance of on-the-go functions nowadays for tourists. Technological advancements have made more and more consumers within the hotel industry turn to 'on-the-go' technology, turning to the use of smartphones and their related apps to book hotel reservations from anywhere in the world (Lu, Ting and Hsu, 2017). First generation hotel mobile sites provided hotel information such as location, amenities and facilities, whereas new hotel mobile sites and mobile applications (apps) not only allow travellers to access hotel information and services, but also enable travellers to book their room on-the-go (Ozturk et al, 2016).

Nevertheless, as more technologies become more accessible, adopting such technologies alone will not lead to a competitive advantage (Kim and Law, 2015). For

a marketing organization to succeed, the planning and implementation of their marketing strategies must make full use of information technology (Kim and Law, 2015). The hotel industry gains a lot from mobile apps, and therefore there is continual research in analysis and information concerning the advancements made and how these platforms can be tapped in order to enhance their marketing strategies (Lu, Ting and Hsu, 2017).

2.1.2 Summary

Following their rapid development and widespread adoption, mobile technologies have found a place in marketing (Yilmaz and Olgac, 2016). Mobile communication tools have become indispensable in people's lives; therefore, marketing experts consider these technologies as presenting new opportunities and a new field in marketing (Yilmaz and Olgac, 2016). The proliferation of smart phones and tables has empowered mobile gaming and is changing the gaming experience (Xu et al, 2016). This chapter has highlighted the evolution of information and communication technologies, leading to the development of m-commerce. The developments in mobile communication technologies, along with the increase in mobile devices and internet usage, have led the tourism and hospitality industry to utilize these technologies. Hotels, for example, have developed mobile applications to advertise their brands, to market their products and services to consumers, and to increase their sales (Yilmaz and Olgac, 2016). Adopting such technologies alone will not lead to a competitive advantage (Kim and Law, 2015). This means that the investment of hotels in m-commerce needs to ensure engagement with the users. The following section aims to investigate the concept of games and game design elements, in order to identify the characteristics that lead to successful engagement with their audience.

2.2 Section 2: Games and motivation in gaming

Introduction

This section focuses on overview and strength of games as well as examining motivational factors influencing gamers' decisions. Gamification uses elements, mechanics and aesthetics derived from the gaming industry to produce a new engaging strategy. Before examining factors that explains the gamification effectiveness process, the concept of games is examined, what defines success in the gaming industry and what is the link to the gamers' motivational factors that provide that success. That understanding of the gamers' behaviour, contributing towards engagement with games, will be beneficial for building a sustainable gamified application for hotels.

2.2.1 Overview of mobile games

The previous section focused on the evolution and development of technology and the opportunities emerging for the market today. However, as mobile apps become even more available they do not ensure competitive advantage or customer engagement. Nonetheless, the advances in the digital era and the increased coverage of the internet help electronic games succeed and increase (da Silva Brito et al, 2018). Games are overflowing the traditional boundaries in which they were traditionally confined (Rapp, 2018). As the mobile game industry enjoys continual and rapid growth in the market, it becomes a major sector of the service industry (Kim et al, 2010). It is important to examine the features that make mobile games so attractive and keep players coming back for more. This section focuses on the evolution of games (video games), and their power and ability to retain engagement with the users. There has been some academic interest in mobile gaming during the last decade, yet the e-literature has adopted either social media or game design perspectives, hence lacking a holistic view of the recent developments in mobile gaming (Feijoo et al, 2012). The popularity of video games in the past decade, empowered by the rapid development of smart mobile devices, allowing mobile experiences and vibrant on-site communication, has made gaming popular and attractive to a broader group of players (Xu, Buhalis and Weber, 2017). For example, 95% of Australian adolescents have access to at least one game-equipped device in their home such as a tablet, smartphone or personal

computer (PC) (Smith, Gradisar and King, 2015). Reports in the UK show that mobile gaming markets and the mobile device app market have seen strong growth in recent years, and are still expecting to grow by 35% by 2018 and to reach 39% in 2023 (Mintel, 2018). This suggests that technological advances and access have helped towards spreading the popularity of gaming. An emerging trend in video gaming is the movement towards device-agnostic games. Account-based gameplay means titles increasingly allow users to pick up where they left off on any device, and there is also now support for cross-platform gameplay interactions with users on other platforms (Mintel, 2018), allowing play at any time.

The average video game player has been playing games for over 12 years, and more and more people at all ages are playing games (Kapp, 2012). For example, Kapp (2012) presents that, in 2012, 26% of people used to playing games were over 50, which is a mere 9% increase from 1999. In their research, Smith, Gradisar and King (2015) found that Australian adolescents play computer games anywhere between 2 and 18 hours per week. Yet video games are not only for adolescents. Other research by Rogers (2017) showed that 183 million people, or 49% of American adults, play video games. This means that video games attract and engage individuals at any stage of their life. Gaming can be very addictive as players are motivated to reach a higher goal, to score points against each other, and gain either material or non-material gains such as inclusion to a hall of honour (Xu, Buhalis and Weber, 2017). In 2011, people were already spending an average of three billion hours a week gaming and this number has only increased (da Silva et al, 2018). Nearly 62 million U.S. internet users, or 27% of the online audience, play at least one game on a social network monthly, making social gaming a billion-dollar-a-year business (Kapp, 2012).

Power of games

Mobile gaming possibilities changed in 2006-2007 with the introduction of the first wave of smartphones, and the availability of broadband connections with flat data fees (Feijoo et al, 2012). Video games have become a multi-billion-dollar media industry, reporting profits of more than the movie and music industries combined (Bowman, Kowert and Cohen, 2015). Video games are a growing reality of modern age. Round about 97% teen in USA play video games and gaming industry has a revenue of $12 billion per year (Sajid et al, 2018).

In the United States, computer and video game software sales generate over $10.5bn a year (Kapp, 2012). Additionally, Cox (2013 compares video game revenue with other well-known features of the entertainment industries (such as movie and book industries). Cox (2013), revealed that the blockbuster movie of "Harry Potter and the Deathly Hallows" set a box office record by earning $169m in revenue during its opening weekend in 2011, and the book "Harry Potter and the Deathly Hallows" generated $220m in the first 24 hours of release. In the same year, a game called "Call of Duty: Modern Warfare 3" eclipsed these records, raising $400m in revenue on the first day. The video game generated $1bn in revenue within the first 16 days, narrowly overcoming the previous entertainment record set in 2009 by the film "Avatar" within the first 17 days of release (Cox, 2013). Additional information by Kapp (2012) with regard to regional spending shows that the United Kingdom is spending $270m and France $220m just on MMORPGs games, whereas in Japan, spending on consoles and handheld devices reaches approximately $2.2bn per year.

Definition of Games

Definition	Source
"A system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome"	Salen and Zimmerman (2004:80)
"A game is a problem-solving activity, approached with a playful attitude"	Schell (20010:37)
"Games are, generally, entertainment activities in which players make choices constrained by rules in pursuit of objective goals that they have a fair chance of achieving"	McGuire and Jenkins (2009:12)
"A player gets caught up in playing a game because the instant feedback and constant interaction are related to the challenge of the game, which is defined by rules, which all work within the system to provoke an emotional reaction and, finally, result in a quantifiable outcome within an abstract version of a larger system"	Kapp (2012:9)

These definitions suggest that key traits appear repeatedly in identical or similar ways. Traits such as entertainment, playfulness and emotional reactions are repeated, emplacing the emotional element that the games promote. Traits such as rules, goals and problem solving are repeated, emplacing on the mechanics that they promote. Hence, it is interesting to see how the combination of the two may be a result of encouraging feelings of achieving and interactions and whether this leads to engagement. It is argued that video game players typically exemplify intense

behaviour and are goal-directed (Hoffman and Nadelson, 2009). Gamers exhibit adaptive motivation towards the gaming tasks in which they engage, and ardent gamers have been described as intrinsically motivated, engaged and focused (Hoffman and Nadelson, 2009). For the purpose of this research the concept of motivation is further explored as it leads to engagement with the medium.

Motivation and engagement in games

Games people return to online game playing if their previous experience has been optimal (Kim et al, 2010). Game developers are driven by financial risk-aversion, necessitating game designs that are similar to successful games from the past, and by creative and innovative necessity (Sellers, 2009). There is pressure in game development to create products that have more usable user interfaces, better graphics and sound in order to provide overall a more appealing and satisfying gameplay experience than their competitors (Sellers, 2009), showing that in a technological layer the gaming industry is improving rapidly. At a technological level, the gaming industry is forced to adapt and create aesthetically attractive content to create engagement with the players.

In industrial terms, as video games exhibit progressively expansive game environments, there has been growing interest in employing generative computational algorithms to mitigate the cost of authoring game content (Sorenson, Pasquier and DiPaola, 2011). These computational techniques promise to reduce the involvement of a human designer, thereby enabling smaller development teams to create more content than would otherwise be possible. Since algorithmically generated content is not as fixed content as content authored by hand, it is more readily adapted to the unique preferences of the individual player (Sorenson, Pasquier and DiPaola, 2011). These individual preferences lead to more engagement and sustainability. For example, Hasting et al (2009) evolved weapons for a space-themed video game. The fitness of a given weapon design is inferred from the behaviour of the player during the game progress; if the player uses a weapon frequently, similar weapons are made available, and where a weapon is left unused, it appears less frequently (Sorenson, Pasquier and DiPaola, 2011). This means that the user is more likely to be engaged with the system as they recognise their preferences and problem-solving mechanics in the game. The success of this example lies on the fact that the user is continually

using the system giving more and more information to the platform. This can only be achieved if the user is attached to the system providing data to the system to be recognised in future activities and tasks. This example highlights the importance of engagement between the user and the system through the successful data collection games can achieve.

Engagement is related to achievement, motivation and task persistence, as well as meaningful processing on achievement measures (Hoffman and Nadelson, 2010). The entertainment that individuals get when they buy and play video games is different from the content they get when they buy a movie ticket, DVD or CD (Smith, 2006). Hoffman and Nadelson (2010) explain that the depth of processing and the activation of problem solving strategies are positively correlated with engagement. Although games share many aesthetic features with movies and music, games add the element of control, which is missing from other media (Smith, 2006). As Smith (2006) describes, the element of control in a game can cause a user to identify with a mediated character to a greater degree than is possible with characters portrayed in other media, because the user is the protagonist in the game. Due to this element of control that the games provide, the user is engaged by the problem solving activities leading to being entertained and engaged by them.

Professional game designers often take it for granted that people just want to play their games, rarely examining the psychology of their gaming audience (Klug and Schell, 2006). Game players process information provided by the medium, but they also contribute to the quality and progress of the media product itself, with their decisions and actions determining how a game looks, develops and ends (Klimmt and Hartmann, 2006). Most theoretical work on the enjoyment of playing video games has focused on the issue of interactivity and player action during game play (Klimmt and Hartmann, 2006), but rarely does the game industry examine what truly motivates players (Klug and Schell, 2006). Therefore, for the scope of this research motivations of playing video games are examined.

2.2.2 Motivational factors and gamer types

To highlight the importance of motives for individuals, Killian (2013) argues that even though it is within human nature to like games, not everyone likes the same kind or

style of games. Furthermore, Marczewski (2014) argues that it is possible to design games, serious games or gamified systems without knowing who the target players and users are, but it is more likely to create a more engaging experience when the target players are identified first. For non-entertainment worlds, the answer could be easy and as clear as "because they were told to" (Bartle, 2004). However, in the case of games, McGuire and Jenkins (2009) clarify that players are not required to play the game, meaning that their first decision is whether to play at all, and even throughout the game, they would continually re-evaluate whether to keep playing. Thus, since participation is voluntary, the players must expect to get something out of their experience (Bartle, 2004). The absence of consequence-related action motivations is intrinsic motivation (Ryan and Deci, 2000). With regard to the game design, Klug and Schell (2006) argue that game designers look at what evidence the marketplace has given and then try to emulate that success, adding in a little bit of a twist. Bartle (2004) argues that the answer to the question of 'Why do people play?' sounds obvious at a superficial level, since people are playing games for fun, but what creates the fun? The section below discusses four elements found to lead to engagement between games and gamers.

The element of fun

Fun is desirable in nearly every game, although sometimes fun defies analysis (Schell, 2010). It is manifest in many diverse and often contradictory ways (Zemliansky and Wilcox, 2010). Davis (2014) mentions that fun is an elusive concept, defining it as expectations, engagement and endurability, by comprising challenge, fantasy and curiosity. Fun is difficult to describe within a game, as it offers a special intrinsic satisfaction to the player, leading ultimately to the purchase of further games, more than simply being amused in a detached way, or more even than being enhanced by a digital system (Davis, 2014). Recreation or fun is the expenditure of time in a manner designed for therapeutic refreshment of an individual's body or mind in the form of play activity (Zemliansky and Wilcox, 2010). In terms of the relationship of play and games, Salen and Zimmerman (2004) identify that there is a complex relationship, depending on the way it is framed. According to Schell (2010, play refers to those activities which are accompanied by a state of comparative pleasure, exhilaration, power and the feeling of self-initiative, and other characteristics such as imagination, competition and problem solving. This means that the meaning of play in the context of gaming will

lead to an overall sense of fun. Within play, players explore games as systems of experience and pleasure; all systems of meaning and narrative play (Salen and Zimmerman, 2004).

The psychological and anthropological study of play has resulted in a range of definitions. For this research the definition of play comes from Salen and Zimmerman (2004:302), who refer to play in games as *"those activities which are accompanied by a state of comparative pleasure, exhilaration and power"*. This shows that the notion of play in games is related with the sense of fun contributing on the development of the sense. The notion of play is better viewed as an internal predisposition. The relationship between play and personality was explored by Freud, who regarded a child's play as expressive of a personality pattern and internal desires (Barnett, 1990). More recent theorizing has focussed on the child's internal state, or on the child's internal abilities in concordance with those of their external environment (Csikszentmihalyi, 1975). While the notion that play is best viewed as an internal personality trait is not new, it has received relatively little empirical investigation (Barnett, 1990).

In summary, the element of fun appears to be important when developing a game, even though it is argued that it is difficult to describe it within a game, as it offers a special intrinsic satisfaction to the player (Davis, 2014). This leads to the purchase of further games, more than simply being amused in a detached way, or more even than being enhanced by a digital system (Davis, 2014). However, it is understood that the notion of play is important in developing the sense of fun in a game. Recreation or fun is the expenditure of time in a manner designed for therapeutic refreshment of an individual's body or mind in the form of play activity (Zemliansky and Wilcox, 2010).

The element of Immersion

Many people play games in part to escape from their real world, similar to any form of popular entertainment (Klug and Schell, 2006). However, in this medium, rather than simply escape as they do when they read a novel or when they watch a movie, games allow players to become actively involved in the world they escape into (Klug and Schell, 2006). Gaming or electronic games (often simply called 'games') provide players an immersive and interactive entertainment experience often through dynamic and real time interaction with their context, local organisations and fellow players (Xu

et al, 2016). Sometimes, players experience such a degree of engagement in a game that they ignore other things, or sometimes unconsciously imagine a role of themselves in the game (Roohi and Forouzandeh, 2019; Jennett et al, 2008). Such experience of playing is defined as immersion (Roohi and Forouzandeh, 2019). Immersion can be defined as a sensation of being surrounded by a completely different other reality taking over all of an individual's attention (Kiili et al, 2012; McMahan, 2003). Immersion is critical to game enjoyment, being the outcome of a good gaming experience (Jennett et al, 2008). Computer game design involves a move away from 2-D level design in games like *Prince of Persia* (1992), or from isometric design in games like *Warcraft*, to 3-D design and a first-person point of view (McMahan, 2003). This change increases the sense of immersion by replicating the aesthetic approaches of first-person shooter games in other types of games, such as adventure games, role-playing games, and even strategy games, which previously used 2-D levels or isometric views (McMahan, 2003).

Jennett et al (2008) pointed out that, although there seems to be a broad understanding of immersion in the gaming community, it is still not clear what exactly is causing it. Research by Kiili et al (2012) and Roohi and Forouzandeh (2019) tried to address this issue. Kiili et al (2012) divided immersion into three components: sensory (related to the audio-visual execution of games with the help of amazing graphics and powerful sounds); challenge-based (concentrates on the interaction between the game and the player, enhancing the feeling when the player can achieve a balance between challenges and abilities); and imaginative immersion (reflecting the possibility of using imagination and enjoying the fantasy of the game). Roohi and Forouzandeh (2019) explored the factors that make a computer game immersive. For example, a player's point of view is investigated as an effective factor in developing immersive games as well as sound and game music, pointing out that regardless of the element that causes the sense of immersion, studies show that there is a relationship between gameplay experience and immersion (Roohi and Forouzandeh, 2019).

Jorgensen (2016) explains how games develop virtual environments enhancing immersion, highlighting its importance towards the engagement with the players. Gameworlds are not simply game rules in fictional worlds, but world environments

designed for gameplay, with this environment developed as a complex world construct that draws on conventions from fictional media as well as interactive systems, often in combination, and where players must employ different kinds of imaginative processes simultaneously (Jorgensen, 2016). As world representations, gameworlds contextualize and make the game system understandable. This contextualization is based on recognizable tropes from fiction and narratives, making the gameworlds not only a stage for contest, but also a fictional world of imaginary characters and powerful narratives (Jorgensen, 2016). This duality in terms of representation is made evident and strengthened through the fact that gameworlds combine two kinds of semiotic systems. Signs point to the fictional reality of the game, presenting a world environment with more or less recognizable topography, landscape, objects and inhabitants. Other signs point directly to the game system hidden under the hood, using features that users do not recognize from their interaction with natural ecology such as blinking arrows above character heads, health and ammo bars, mini-maps and inventories (Jorgensen, 2016). Most scholars and scientists seem to agree that total photo and audio realism is not necessary for a virtual reality environment to produce in the viewer a sense of immersion (McMahan, 2003). Jorgensen's (2016) presentation of gameworlds actually justify this sense, since it appears that the virtual environment is a combination of fictional media as well as realistic systems.

Summarising, the element of immersion appears to be important when developing a game, and is viewed as critical to game enjoyment (Jennett et al, 2008). Jorgensen (2016) shows an example of how the gaming industry achieves the feeling of immersion to the players due to its complex design. Successful computer games all have one important element in common: they have the ability to draw people in, providing an appealing distraction from everyday worries and concerns (Jennett, 2008).

The element of social interaction

Even though playing video games is often stereotypically conceptualised as a solo and socially isolating activity (Kaye and Bryce, 2012; de Kort, IJsselsteijn and Poels, 2007), it is however an increasingly social activity which facilitates online and offline interactions amongst existing and new friends (Kaye and Bryce, 2012). Video games that encourage positive social interaction among players are beneficial to children's

social skill development and socialisation (Maitland et al, 2018). Many video games have social components, with a study by Rogers (2017) mentioning that more than half of teenagers are playing video games, with games often leading to socialising outside of the game. Socialising is thus one of the key motivations for playing video games, which are, broadly, played in a social context (Rogers, 2017). Existing electronic gaming frameworks have identified social interaction as a crucial factor in enjoyment, motivation to play, and game design (Maitland et al, 2018). It is argued that video games can provide opportunities for positive social interactions with other players, through team formation and in-game collaboration (Maitland et al, 2018; de Kort, IJsselsteijn and Poels, 2007).

The importance of such interactions to shaping the gaming experience is testified by the overwhelming participation in virtual communities (such as Active Worlds) and massively multiplayer online games (such as World of Warcraft), and the personal relevance of these communities to those intensively involved in such games (de Kort, IJsselsteijn and Poels, 2007). Massively multiplayer online role-playing games appear as an optimal object of study, since they are both games and communities developing a large number of social dynamics (Rapp, 2018), which might be insightful for the design of social relationships even outside the game context. Rapp (2018) also identifies that gamification could not build on players' experiences, leaving apart their subjectivity (for example how they feel, perceive, and understand the game they are playing), therefore it is necessary to look at the video games and how they are able to engage, enjoy and "glue" their players to the screen, to create novel and more effective gamified systems, emphasizing the social game elements that a massively multiplayer online game such as World of Warcraft produces. World of Warcraft has been able to create engagement with millions of players since 2004 - by gaining experience points, players progress, exploring an imaginary fantasy world, and due to the game's open-ended nature, players aim at bettering their character and accomplishing the hardest battles provided by the game (Rapp, 2018). In his findings, Rapp (2018) highlights that social dynamics in World of Warcraft are strongly influenced by design, which actually shapes how players interact with each other and favours the emergence the specific types of social structures.

Massively multiplayer online games have been under research by Tan et al (2017) as they were recognized as a leisure activity with a strong interaction element as well. Tan et al (2017) also identify that players within these games are required to collaborate and form relationships with many players in a virtual world to achieve virtual goals. Through these interactions, individuals could possibly form a social network with positive effective bonds, and build as well as maintain social capital. Social capital is the basis for collective action, that represents a form of advantages and opportunities obtained by belonging to a certain community, such as the social support one can obtain in times of need (Tan et al, 2017). In their study, Tan et al (2017) applied the concept of negotiation process to understand how massively multiplayer online games' players cope with constraints and continue to play the game in the future, showing that many of the relationships between constructs could be explained by the strong social interaction elements of such games.

Summarising the element of social interaction appears to be important when developing a game (Rapp, 2018). Evidence is provided that people can feel connected to one another when playing a video game (Rogers, 2017). Gaming is often as much about social interaction as it is about interaction with the game content (de Kort, IJsselsteijn and Poels, 2007).

The element of aesthetics

Digital games exist in the realm of art and aesthetic experience (Niedenthal, 2009). The recursive quality of computer games appears to be a central element of its aesthetics that permeates the level of the algorithmic game system, as well as that of the text (Lauteren, 2002). Game designers must decide how to focus limited resources on various aspects of their games. Aesthetic elements such as music, sound effects and animations, for example, are believed to be crucial components of the video game experience (Andersen et al, 2011). It is argued that good aesthetics can make the player more likely to tolerate imperfections in game design and draw a player into a game they might otherwise have ignored (Andersen et al, 2011). Plot animations and pictures, which are used as rewards following important events such as the defeat of a major enemy, clearing a level, or ending a game have as a purpose the motivation of players to advance game stories (Wang and Sun, 2011). This game aesthetic provides a sense of fun in at least two ways: the animations and pictures are visually

attractive and they serve as milestones marking player achievement (Wang and Sun, 2011).

In their study, Andersen et al (2011) evaluate the importance of aesthetic quality in two games (Refraction and Hello Worlds). After Andersen et al (2011) identified that the exact effect that aesthetic quality has on how long players play games is unknown, they argued that discovering this information would be of considerable use to game designers, in order to focus their effort on the areas of their games with the greatest impact. In their findings it was found that animations caused users to play more; surprisingly though, music and sound had little effect on player behaviour (Andersen et al, 2011). It was also found that a minor gameplay modification affected players' retention more than aesthetic variations (Andersen et al, 2011), although understanding the reasons for these effects and how they generalise to other games and genres requires further research. However, this study shows that, for the player, the priority is the functionality of the game rather than the aesthetic part.

The difference between games and other entertainment products (such as books and movies) is that their consumption is relatively unpredictable, specifically the string of events that occur during gameplay and the outcome of those events at the time the product is finished (Hunicke, LeBlanc and Zubek, 2004). Hunicke, LeBlanc and Zubek (2004) created a framework which formalizes the consumption of games by breaking them into their distinct components. One of them, aesthetics, is described as the desirable emotional responses evoked in the players when they interact with the game system (Hunicke, LeBlanc and Zubek, 2004). Using our aesthetic vocabulary like a compass enables the definition of models that help in describing gameplay dynamics and mechanics (Hunicke, LeBlanc and Zubek, 2004). For example, games like Charades and Quake are both competitive, and they succeed when the various teams or players in the games are emotionally invested in defeating each other. This requires the players to have opponents and that all parties want to win. It is easy to see that supporting adversarial play and clear feedback about who is winning are essential to competitive games, due to the fact that if the player does not see a clear winning condition, or feels like they cannot possibly win, the game is suddenly losing interest (Hunicke, LeBlanc and Zubek, 2004).

In summary, the element of aesthetics appears to be important when developing a game (Lauteren, 2002). Niedenthal (2009) presents the quote "aesthetic trapping", trying to share a meaning of the term explaining that the word "trapping" carries with it associations of décor that may attract attention and provide fleeting motivation, but otherwise serves as a less important part of the experience of playing. This shows the importance of appealing aesthetics when designing a game.

2.2.3 Gamer profiling

Even though these four elements have been found to influence engagement between games and gamers, they still differ per individual when deciding to play specific games. Previous research has recognized different categorizations, with Bartle (1996) one of the first to distinguish player types based on their approaches to playing an MUD game (Poels et al, 2012). The section below identifies several studies that have categorized players based on their motives to play games.

Klug and Schell types

Play theorists have identified a number of types of players, each with a different need that gets met by the type of game play (Klug and Schell, 2006). In the current game industry products are delivered that meet some of these needs. The play of a game only occurs as players experience the rules of the game in motions (Salen and Zimmerman, 2004). Enjoyment is generated by action processes and/or action results, and therefore it is most promising to model the complex cognitive and emotional responses and interactive operations related to enjoyment in basic psychological categories of action (Klimmt and Hartmann, 2006). Some more prominent types are identified as: the competitor, the explorer, the collector, the achiever, the joker, the director, the storyteller, the performer and the craftsman.

The Competitor is a player who plays to be better than other players

The Explorer plays to experience the boundaries of the play world. These players play to discover first what others do not know yet

The Collector plays to acquire the most stuff through the game

The Achiever plays to not only be better now, but also better in rankings over time. These players play to attain the most championships over time

The Joker plays just for the fun and enjoys the social aspect of that

The Director plays for the thrill of being in charge. This type of player wants to orchestrate the event

The Storyteller plays to create or live in an alternate world and build narrative out of that world

The Performer plays for the show they can put on

The Craftsman plays to build, solve puzzles and engineer constructs

Klug and Schell (2006) explain that most players are a combination of two or more types, the motivations meshing together in various combinations, often changing emphasis depending on what game they are playing. This means that player types should not be seen in a generic form, as users will change behaviour based on the game design. These play types influence in various ways a particular player's desire to play any game (Klug and Schell, 2006).

Leblanc's taxonomy of game pleasure

Age and gender are ways to group potential players (Schell, 2008). Still, when grouping people by external factors (age, gender, ethnicity, income), something internal is sought: what each group finds pleasurable. Therefore, it is a more direct approach to focus less on how players appear on the outside and more on how they think on the inside (Schell, 2008). This is called psychographics. This is important, for ultimately, the motivation for every human action can be traced back to some kind of pleasure seeking. Even though there are many kinds of pleasures in the world, and no one seeks only one kind, it is recognised that people have their pleasure preferences (Schell, 2008). Game designer Marc LeBlanc proposed a list of eight pleasures that he considers the primary "game pleasures".

Sensation is a pleasure of involving players' senses. Seeing something beautiful, hearing music, and smelling or tasting delicious food are all pleasures of sensation. It is primarily the aesthetics of the game that will deliver these pleasures.

Fantasy is the pleasure of the narrative of the imaginary world, and the pleasure of imagining being something you are not.

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Narrative is the pleasure of narrative, which is not the direct telling of a prescribed linear story, but instead a dramatic unfolding of a sequence of events, however it happens.

Challenge can be considered one of the core pleasures of gameplay, since every game, at its heart, has a problem to solve. For some players this pleasure is enough, but others need more.

Fellowship refers to everything enjoyable about friendship, cooperation and community. Without a doubt, for some players, this is the main attraction of playing games.

Discovery is the pleasure that at any time the player can find something new. Sometimes this is the exploration of the game world, and sometimes it is the discovery of a secret feature or clever strategy. Discovering new things in a game is a key game pleasure.

Expression is the pleasure of expressing yourself and creating things. In the past this is the pleasure that was generally neglected in game design. Nowadays, games allow players to design their own characters, and build and share their own levels. Often the 'expression' that takes place in a game does little to achieve the goal of the game. Although designing new outfits for the characters does not help the player to advance in most of the games, for some players it may be a reason to play.

Submission is the pleasure of entering the magic circle, of leaving the real world behind and entering a new and more enjoyable set of rules and meaning. In a sense, all games involve the pleasure of submission, but some game worlds are simply more pleasing and interesting to enter than others.

Schell (2008), explains that it is useful to examine these different pleasures, because different individuals place different values on each one. Game designer Richard Bartle observes that players fall into four main groups in terms of their game pleasure preferences. These four groups are described below.

Bartle types

In the context of games, Richard Bartle (1996) has conducted research in the areas of game design and game development, also exploring players' personality types for massively-multiplayer online games, and he is best known for his theory on game participant psychology, which classifies players based on their gaming preference. Bartle (1996) identified and described four approaches to playing MUDs (multiplayer online games). Abstracting the various points that had been raised, a pattern emerged: that individuals habitually found the same kinds of thing about the game and that was the element of "fun". Indeed, the most important factor that the designer should identify when starting to work on a game is what will be the fun element for the player (Moore, 2011), and since fun is subjective there are so many different features that must go into a game to make it fun (Dunniway and Novak, 2008).

Bartle (1996) identified four characteristics of individuals (as gamers), suggesting that the element of fun seemed to have different meaning in the game, based on players' profile. These four activities are: achieving, exploring, socialising and imposing upon others. Most individuals leaned at least a little at all four, but each tended to have some particular overall preference (Bartle, 1996). Research by Moore (2011) agrees with this clarification, mentioning that there are actions that players perform in a game which are considered fun and these are the actions the player wants to do more often. Unluckily, other actions are not as much fun, but they are necessary as precursors to the fun actions. In detail, Bartle (1996) identified four sub-groups (achievers, explorers, socialisers and killers), where individuals (as gamers) seemed to prefer different factions within the MUDs and their behaviour regarding the fun element appears to differ.

Achievers are players who give themselves game-related goals and vigorously set out to achieve them (Bartle, 1996). According to Bartle (1996) this group of players are often accumulating and disposing of large quantities of high-value treasure, or cutting a swathe through hordes of mobiles. For achievers, the main goal is to gather points and rise in levels, and all is ultimately subservient to this.

Explorers are players that would try to find out as much as they can about the virtual world. Even though initially this means mapping its topology, later it advances to

experimentation with its physics. According to Bartle (1996), explorers are delighted in having the game expose its internal machinations to them.

Socialisers are players that would use the game as a communicative facility and apply the role-playing that these engender as a context in which to converse (and interact) with other players (Bartle, 1996). Socialisers are interested in people and what they have to say. For socialisers the game is just a backdrop, a common ground where things happen to players. Inter-player activities are very important: empathising with people, joking, listening, sympathising, entertaining; even merely observing people play can be rewarding, seeing them grow as individuals and maturing over time.

Killers are players who use the tools provided by the game to cause distress to other players. Where permitted, this usually involves acquiring some weapon and applying it enthusiastically to the persona of another player in the game world. Killers get their kick from imposing themselves on others. Killers attack other players with a view of killing off their personae (characters) and the greater the distressed caused, the greater the killer's joy at having caused it.

Yee's components

An empirical model of player motivations in online games provides the foundation to understand and assess how players differ from one another and how motivations of play relate to in-game behaviour (Yee, 2006). In his research, Yee (2006) used a factor analytic approach to create an empirical model of player motivations. This research was based on an online environment called Massively-Multiplayer Online Role-Playing Games (MMORPGs). Over the last few years there has been an increasing interest in this type of game, which represents the latest internet-only computer gaming experience, consisting of a multi-player universe with an advanced and detailed world (Chappell et at, 2006). The analysis revealed ten motivation subcomponents that are grouped into three overarching components (achievement, social and immersion).
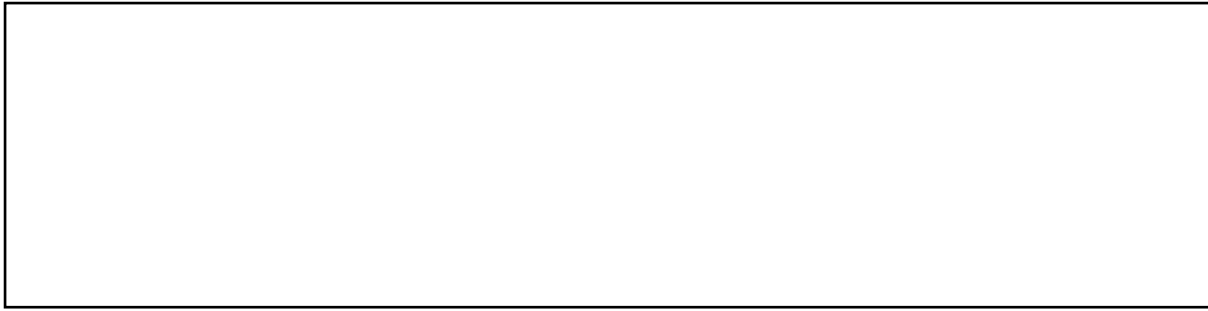
Figure 1 Content removed due to copyright reasons.

MMORPGs allows a range of identities to be explored by playing a character created by the player, such choices directly influencing the style of play and the reception of the character to the game (Chappell et at, 2006). Yee's (2006) study was an attempt to articulate the myriad of motivations of play among MMO players, and to explore how these motivational factors can provide game designers with analytical tools to describe and understand the preference for and effects of gameplay for different kinds of players. Interestingly, the factor analysis in Yee (2006) revealed that play motivations in MMORPGs do not suppress each other as Bartle suggested, meaning that if a player scored highly on the achievement component, it did not mean scoring low on the social component.

2.2.4 Summary

Having an overview on the concept of games revealed factors of the success of the industry. The concept of 'game' was examined, and gamers' motivational factors that provide that success. Research on computer games has been conducted from two standpoints, either technological or psychological (Kim et al, 2010). From a technological standpoint, studies have explored the ways in which computer games are made more realistic (Kim et al, 2010). These technological advances are seen from the element of an aesthetic point of view, providing a sense of fun in at least two ways: the animations and pictures are visually attractive, and they serve as milestones marking player achievement (Wang and Sun, 2011).

From the psychological standpoint, the concept of perceived enjoyment and fun are seen as the most important and necessary factors in game playing (Kim et al, 2010). That understanding of the gamers' behaviour contributing towards engagement with games will be beneficial for building a sustainable gamified application for hotels, since

gamification uses elements, mechanics and aesthetics derived from the gaming industry to produce a new engaging strategy. Although there has been much research on computer games (Yee, 2006; Bartle, 1996; Klug and Schell, 2006), most of it has been focused on games online, and less attention has been given to its mobile counterparts (Kim et al, 2010). Hence, the next section aims to understand and adapt those elements that would be effective when designing a hotel's gamified application.

2.3 Section 3: Gamification and motivation in gamification

Introduction

This section examines the origins of gamification, by examining several definitions of the phenomenon and comparing it with similar terminologies. This is followed by a classification of the phenomenon from a psychological standpoint (game thinking), by examining intrinsic motivational theories and the extrinsic motivational factor of rewards, as it could be influencing engagement between hotel gamified applications and the user. It is then followed by a technological standpoint (game mechanics), examining several mechanics. It is believed that understanding the gamers' behaviour towards games will be beneficial when designing a sustainable gamified application for hotels. Finally, this section discusses several examples of gamification in the hospitality industry.

2.3.1 Overview of Gamification

Firms spent about a quarter of their digital budget on mobile, contributing nearly a quarter of all digital revenues back in 2015 (Venkatesh, 2016). Hofacker et al (2016) points out that the annual global mobile retail purchases are expected to surpass $700 billion and account for 30% of online purchases in 2018. In parallel with the growth of mobile marketing, interest in gamification has emerged (Hofacker et al, 2016). The gamification trend is growing, with no signs of slowing down (Kapp, 2012). During recent years, the enhancement of software via design features borrowed from video games has become a notable development in many software engineering projects (Morschheuser et al, 2018).

Despite the rapid surge of mobile marketing in recent years, several important questions are raised with regard to marketing communication and shopper response, with the relevance of gamification in the mobile environment being one of them (Venkatesh, 2016). Research by Morschheuser et al (2018) mentions that, even though business analysts suggest that more than half of all organizations would have had gamified parts of their organizational software and internal practices by 2015, it has been predicted that a majority of these gamification implementations are doomed to fail due to the poor understanding of the gamification design process.

Mobile communication is most effective when shoppers, consumers and users are most engaged, with gamification being the most powerful way to increase engagement (Venkatesh, 2016). New technologies have been created to inspire people's motivation and help them to develop beneficial behaviour, both individually and collectively, with gamification being the most popular trend in this respect (da Silva Brito et al, 2018). Gamification aims to increase users' motivations towards activities or use of technology, thereafter increasing the quality and quantity of these activities (Morschheuser et al, 2018). To achieve this, gamification uses a range of elements derived from games such as: points, leaderboards, badges, virtual currency, narratives and avatars (da Silva Brito et al, 2018).

Definition of gamification

The concept of gamification is considered as a modern trend (BBVA Innovation Edge, 2012; Yagelski, 2014; Buhalis and Law 2014). Marczewski (2013) argues that gamification is one of those words that seems to be getting a lot of use at the moment, and Al-Zaidi (2012) adds that gamification is a buzzword that keeps popping up among advertising and marketing professionals today. As the trend gains popularity, many definitions have emerged (Kirsh, 2014).

Definition	Source
'Taking game mechanics and applying them to other web properties to increase engagement'	Huotari and Hamari (2012)
'Gamification is the use of game design elements in a non-game context'	Deterding et al (2011); Kirsh (2014); Harbert (2014); Huotari and Hamari (2012); Epstein (2013); Killian (2013).
"The use of game design elements and mechanisms in non-game contexts to create a sense of playfulness […] so that the participation becomes enjoyable and desirable"	Maedche, Botzenhardt and Neer (2012: 186)
"Gamification is a careful and considered application of game thinking to solving problems and encourage learning using all the elements of games that are appropriate"	Kapp (2012:15)
"Gamification is using game-based mechanics aesthetics and game thinking to engage people, motivate action, promote learning and solve problems"	Kirsh (2014: 63)
"The use of technologies engaged in promoting intrinsic motivations by using diverse characteristics of games in other domains outside the entertainment industry, such as education, marketing, public administration, politics and health. It is an emerging trend derived from the huge popularity of games	da Silva Brito et al (2018)

and their intrinsic ability for call to action to solve problems or enable learning in different fields and in people's lives"	

Considering the definitions, it is seen that gamification not only refers to applying a game mechanic in a non-game context, but it includes a much more complex process of understanding human behaviour to encourage activities such as motivation and problem solving. Based on the definitions, there seems to be an inherent and ongoing discussion between two schools of thought: those who focus on game mechanics (such as points, badges and incentives), and those who focus on internal motivation (such as game thinking and motivational design) (Marczewski, 2013). This dichotomy has also been underlined by Zichermann (2010), who defines gamification as the process of using game thinking and mechanics to engage audiences and solve problems. It appears that one school of thought is focusing on the technological advantages that the phenomenon can promote (such as the game design through the points, badges and incentives), with the other focusing on the motivation behind action.

As seen earlier, at a technological level the gaming industry is forced to adapt and create aesthetically attractive content to create engagement with the players, proving that at a technological level the gaming industry is improving rapidly. As Sellers (2009) explains, there is intense pressure in game development to create products that have more usable user interfaces, and better graphics and sound in order to provide overall a more appealing and satisfying gameplay experience than their competitors. However, there is also the psychological layer to consider. In the context of games, people return to online game playing if their previous experience has been optimal (Kim et al, 2010). Nonetheless, professional game designers often take it for granted that people just want to play their games, rarely examining the psychology of their gaming audience (Klug and Schell, 2006). Game players actively process information provided by the medium, but they also contribute substantially to the quality and progress of the media product itself, with their decisions and actions determining how a game looks, how it develops and how it ends (Klimmt and Hartmann, 2006). Consequently, most theoretical work on the enjoyment of playing video games has focused on the issue of interactivity and player action during game play (Klimmt and

Hartmann, 2006), but rarely does the game industry examine what truly motivates players (Klug and Schell, 2006).

It is possible that the same issue is happening in gamified systems. For example, it is argued that gamification is defined restrictively, focusing only on the motivational power of competitiveness and achievement such as the introduction of rewards, challenges and contests (Warmelink, 2014), meaning that it is lacking on promoting motivational factors for users with different characteristics. This led many gamification enthusiasts to introduce scoring systems, badges and leaderboards among customers (marketing efforts) (Warmelink, 2014), showing limited understanding of common characteristics of games. Choo (2014) highlights that gamification is not just about points, badges and leaderboards, so further understanding of users' characteristics when using the system should be clarified. Adding to that, Al-Zaidi (2012) argues that brands are trying to engage individuals by rewarding them with points and badges, while this is not enough to successfully keep individuals hooked (take in consideration platforms like Foursquare). Instead, Al-Zaidi (2012) mentions the successful example of Nike+, highlighting the characteristics of the system. For example, the system promotes mechanics such as sharing individuals' faster runs and gaining acknowledgment and the feeling that someone "likes" that rendered photo on Instagram. The first example seems to agree with Baglow's (2014) opinion that this kind of gamification looks a lot like any other reward system, whereas the second example promotes the feeling of acknowledgment and socialization of the individual.

Dredge (2012) argues that many gamified applications are going to fail due to the poor game design that they promote. Organizations are focusing on the obvious game mechanics such as points, badges and leader boards, rather than the more subtle and important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Dredge, 2012). This shows the lack of engagement gamification is developing with the user, unlike the successful engagement that games develop with the gamer. Although the gaming industry appeared to focus mainly on the development of the technological layer, still some studies have been done to identify the motivational factors affecting the engagement of the player with the game. As presented in the previous chapter, these gamers' taxonomies are: Klug and Schell types, Bartle gamers' types and Leblanc's taxonomy

of game pleasure. Bartle (2004) mentions that the answer to the question of 'Why do people play?' sounds obvious at a superficial level, since people are playing games for fun. Klimmt and Hartmann (2006) describe that consequences such as earning money or social status outside of the game situations are not intended by players. However, this is not the case in a gamified system as the user is not just using it for the element of fun, since there is a tangible outcome expected.

2.3.2 Related terminologies to gamification

Games

There is often confusion between the terms of games and gamification (Post, 2014). While the primary purpose of games is to entertain, gamification seeks to motivate people to change behaviours, develop new skills or engage in innovation (Post, 2014). Video games fundamentally present a continuous process of learning to users, as they are constantly evolving and progressing their knowledge and skills (Zichermann, 2011). Kim (2011) highlights the importance of learning in gamified systems, and argues that learning, fun and mastery for a game are fundamental. However, these important characteristics are not always applied to gamified systems, as users don't always learn something new or different (neither a cognitive nor a perceptual skill).

Serious games

The term serious games, which has become increasingly popular during the last decade, refers to games with a set of cognitive properties, that provide individuals with a new way of thinking, getting and transmitting knowledge and socialising (Ghanabri, Simila and Markkula, 2015). Many scholars and practitioners have recognised and embraced serious games because of their great potential for learning by predominantly referring to the dynamic, responsive and visualised nature of games, which produces high motivations, strong involvement and penetrating learning experiences (Westera, 2019). Due to their similarities, serious games and gamification are two strategies that can cause some confusion, as they have similar aims. It is suggested that serious games (similarly to gamification), often used to collect information about brand consumers, determine behaviour patterns, thought processes, priorities and interests, and use gaming technologies and methodologies

to engage users, learners and tourists at a deeper level in order to help them conceptualise and improve their experience (Xu et al, 2016). Furthermore, both serious games and gamification aim to apply fun, entertainment, and interactivity. Even though they are similar and have similar uses, they are distinctly different. Serious games, as a type of persuasive technology, are computer/video games with a set of cognitive design properties to focus on changing user behaviour and transferring knowledge, instead of the mere entertainment function of traditional games (Xu, Buhalis and Weber, 2017). Serious games are games that have been designed for a primary purpose other than pure entertainment, whereas on the other hand gamification is the application of typically game-like elements to other areas of activity such as marketing or training in order to increase engagement and effectiveness. Serious games follow the typical game structure, with some form of training value, where users must overcome a series of in-game obstacles to build the desired skills, which is not related to gamification literature.

Advergaming

Advergames are different from advertisements inserted in games, since they are designed specifically for a company or a product/service inherent within the gaming experience (Vashisht, Royne and Sreejesh, 2019). The term derives from the words 'advertisement' and 'game', and is defined as a mobile video game advertising the product or service of a company (Yilmaz and Olgac, 2016). These games are defined as digital games specifically designed for the primary purpose of advertising of an organization's product, service or brand, played via the internet or on a compatible medium via a game disc or digital download (Vashisht, Royne and Sreejesh, 2019). As they are interactive, entertaining, funny and free of charge, one can play them repeatedly, thus stimulating players about the product or the brand (Vashisht, Royne and Sreejesh, 2019). Gamification seeks to make any activity more attractive and exciting, by developing desired behaviours rather than build on a gaming experience. Advergames insert advertising into video games to capture the attention of potential customers by generating a mark of a product or brand happening while the user is enjoying a gaming experience. Even though some similarities within the two marketing tools are apparent (incorporating the elements of fun and interactivity), gamification is different in philosophy since its main objective is to apply game techniques outside

their contexts, usually with the aim of encouraging a certain behaviour for specific actions on the user. Since the smartphone users prefer to play games on their smartphones rather than reading books or newspapers in airports, train stations or bus terminals, companies attempt to change consumer behaviour through the integrated use of advertisements and computer games (Yilmaz and Olgac, 2016), and by promoting a brand message. Advergames are rather simple in design, meaning that they have no complex rules and a short playing time (Vashisht, Royne and Sreejesh, 2019). On the other hand, gamification, by using some techniques, elements and dynamics of games to enhance motivation for solving problems and reaching goals, is more complex in rules with longer engagement time between the user and the system.

Pointsification

It is argued that gamification can be used to encourage behaviour through badge and reward systems (an aspect of gamification also known as "pointsification") (Hanus and Fox, 2015). The term "pointsification" has been suggested as a label for gamification systems that add nothing more than a scoring system to a non-game activity. Strohmeyer (2013) warns against confusing gamification with "pointsification" and suggests that an individual is not going to do something that he or she is not willing to do by giving them points and badges, but rather it is important to think of gamification as a way of amplifying an existing signal. It does not make the individual do anything that they were not already doing or did not want to do, but it has to be a part of something that they already have an underlying, intrinsic interest in doing (Strohmeyer, 2013).

2.3.3 Gamification and motivation

Effective gamification is dependent on internal or external motivation (Post, 2014). Gamification is the application of gaming metaphors to real life tasks to influence behaviour, improve motivation and enhance engagement (Marczewski, 2013). Modern video games are using sophisticated psychology and neurochemistry to determine what motivates players and keeps them coming back for more (Post, 2014). In a recent blog post, Michael Wu, Ph.D., Principal Scientist of Analytics at Lithium, discusses the science and psychology behind gamification. The goal of game dynamics, according to Dr. Wu, is to drive a user-desired behaviour predictably (Wu, 2018). Hence, it is necessary to understand how humans behave in order to understand game dynamics

(Wu, 2018). Killian (2018) argues that, even though it is within human nature to like games, not everyone likes the same kind or style of games. Furthermore, Marczewski (2013) adds that, although it is possible to design games, serious games or gamified systems without knowing who the target players and users are, it is more likely to create a more engaging experience when the target players are identified first.

To understand how gamification works relates to a basic understanding of what happens in the brain when the individual is motivated, hence the need to talk about dopamine, which is the chemical signal that gets passed from one neuron to the next (Klosowski, 2014). Klosowski (2014) explains that dopamine and motivation relate to each other, and the basic premise of it is simple: the body releases dopamine when it experiences pleasure. This pleasure includes all kinds of things, including rewards. Post (2014) argues that is the golden age of scientific and neurological research, leading to the understanding of psychology, self-determination theory and intrinsic motivators that drive behaviour change. Klosowski (2014) further explains that, basically, dopamine is the brain's version of a carrot (considering carrot and stick motivation theory); therefore, the more goals an individual achieves, the more dopamine the brain releases, and the easier it is for the individual to stay motivated. Similarly, gamification tries to tap into this by offering the individual rewards for the completion of small goals (Klosowski, 2014). Gamification can only be successful in helping people to achieve their own goals, and when individuals' goals are aligned with organizational goals, everyone wins. It could be argued that for a gamified application to be successful, the personal goals of the individual should be identified in the first place. It is identified that gamification can be effective only when players' interests are put first; therefore, elements like reward points, achievements and badges do not automatically mean sustained engagement, and it all comes down to motivation of the individual (Post, 2014). The research will therefore explore motivational theories and their uses by the gaming industry, trying to then apply this in the gamification context.

2.3.4 Gamification and game thinking

Gamification is the application of gaming metaphors to real life tasks to influence behaviour, improve motivation and enhance engagement (Marczewski, 2013). Modern video games are using sophisticated psychology and neurochemistry to determine

what motivates players to keep returning to the game (Post, 2014). For example, a well-structured recognition system based on feedback, friends and a fun model, could create a Las Vegas-style atmosphere in a worker's limbic system (Strohmeyer, 2013).

Discussing the science and psychology behind gamification, Wu (2011) suggested that the goal of game dynamics is to drive a user-desired behaviour predictably. Hence, it is necessary to understand how humans behave in order to understand game dynamics. According to Choo (2014), a very important factor of gamification is the "Human-Focused Design" as opposed to the "Function-Focused Design". Human-Focused Design maintains that people in the system have feelings, insecurities, and reasons why they want or do not want to do things, therefore optimizing for their feelings, motivations, and engagement. Good gamification design does not start with good game elements (mechanics), but it starts with core drives. The gamification framework called Octalysis analysed eight core drives that motivate individuals to do what they do (Choo, 2014). These eight core drives are:

Core Drive	Description
Epic Meaning and Calling	Keeps the individual motivated because it makes him or her feel that they are something bigger than themselves. (For example, a game gives the individual the opportunity to be the last man standing to save the world when it comes close to an end).
Development and Accomplishment	Suggests that individuals are motivated because they feel that they are improving, levelling up or achieving mastery. (For example, Nike+ shows to the individual short-term accomplishments - such as this week improvement on running one more extra mile than last week - providing the individual the indication that she or he is getting better).
Empowerment of Creativity and Feedback	It gives to users the basic building blocks so it is up to him or her to use and utilize their creativity, to try different combinations and strategies, see feedback and adjust, leading to a very engaging process. This core drive is very similar to Lego.
Ownership and Possession	Suggests that as an individual feels he or she owns something, they want to improve it, protect it and multiply it. It is a core drive that motivates people to accumulate wealth.
Social Influence and Relatedness	Based on motives of social influence, it is argued that one of the best ways to change people's behaviour is to show them how others are doing.
Scarcity and Impatience	Based on the notion that people want something just because they cannot have it. (For example, lastminute.com uses the element of rush - when the consumer has the opportunity for the number of rooms available in a specific category (special offers), then the sense of urgency is increased).
Unpredictability and Curiosity	Based on the element of the unknown; as the individual does not know what is coming next, he or she is always thinking about it. This core drive is mostly applied in the gambling industry, but it is the same core drive that leads people to want to finish a book, or watch a movie. (For example, Speed Camera Lottery is a reward system where drivers who keep to the speed limit have the chance to win money from the other drivers, who

	have over-exceeded the speed limit. Speed Camera Lottery successfully reduces the speed by 20%, because drivers are willing to slow down (even though their chances of winning are very low), in case they are actually the winners of the Lottery).
Loss and Avoidance	Is about doing something to avoid the loss. People do not want bad things to happen. An example of this core drive is zombies Run. Unlike Nike+ (which motivates individuals to exercise, to feel accomplished, improving and growing), Zombies Run makes people run and exercise because they do not want to be eaten by zombies. In this instance, people are motivated to run in order to avoid the loss.

Motivation plays an important part in gameplay, be it intrinsic or extrinsic. Understanding the motivation of players is an area in need of further research (Ryan, Rigby and Przybylski, 2006). Considering the fact that motivation is a central topic within gamification, and gamified systems are designed to influence behaviour for wanted and desirable activities, gamification tries to address this intrinsic motivation by applying game design thinking in order to engage people into meaningful and effective activities (Weber, Xu and Buhalis, 2014). It is therefore important when using game elements and game mechanics to identify whether individuals would be motivated to play the game. Examining the above relationship of gamification and motivation further, motivation theories are going to be discussed in order to understand motivational factors of individuals' behaviour.

2.3.4.1 Gamification and intrinsic motivation

Intrinsic motivation is the self-desire to do something because it is inherently interesting (Siemens et al, 2015). In video games, motivation is effective as it mostly deals with fun, a potent source of intrinsic motivation (Denis and Jouvelot, 2005). With limited research examining intrinsic motivation in relation to gamification and hotel gamified applications, this research seeks a deeper understanding of users' motivations to continue using the system. This section aims to understand how motivation elements influence gamers; motivational aspects of gaming behaviour are explored and how it provides a foundation for the creation of hotel gamified application engagement.

Self-Determination Theory

Recent theorizing has suggested that video games can be used to gratify the needs of players (Rogers, 2017). Self-Determination theory (SDT) is a macro theory of

human motivation that is essentially concerned with the potential social contexts to provide satisfying experiences (Siemens et al, 2015). It proposes that the satisfaction of three basic psychological needs during activity engagement will result in greater intrinsic motivation and overall enjoyment of the activity (Mills et al, 2018). Self-determination theory defines these needs as competence, autonomy and relatedness (Rogers, 2017; Denis and Jouvelot, 2005; Ryan, Rigby and Przybylski, 2006). In its early development the focus of SDT was on intrinsic motivation, or motivation based in the inherent satisfaction derived from action, clearly a type of motivation relevant to computer games, since players do not derive extra game-based rewards or approval (Ryan, Rigby and Przybylski, 2006). Broadly, the argument suggests that the more the video game gratifies the needs of SDT, the more enjoyable the experience will be for the player (Rogers, 2017).

The three basic psychological needs comprise competence (processing adequate knowledge or skill), relatedness (feeling a sense of belonging) and autonomy (perceiving ownership of one's decisions) (Mills et al, 2018). Mills et al (2018) explain that video games have the potential to satisfy these three needs, which in turn contributes to users spending more time gaming and reporting greater enjoyment in these video games. Peng et al (2002) agree, arguing that being entertained and enjoying media may lead to significant positive outcomes, and from the perspective of SDT, enjoyment is the indicator of satisfaction of the three intrinsic needs, which have been linked to psychological well-being.

Looking at these three needs in more detail, autonomy concerns a sense of volition or willingness when doing a task (Ryan, Rigby and Przybylski, 2006; Peng et al, 2002). Perceived autonomy is high when there are choices provided to individuals or when individuals engage in activities for personal interest and value (Peng et al, 2002). When activities are done for interest or personal value, perceived autonomy is high, and provisions for choice, use of rewards as information feedback (rather than controlling behaviour), and non-controlling instructions have all been shown to enhance autonomy and in turn enhance intrinsic motivation (Ryan, Rigby and Przybylski, 2006). As participation in games outside experimental settings is nearly always voluntary, player autonomy for play would typically be high (Ryan, Rigby and Przybylski, 2006). Nonetheless, people's willingness to play any particular game will

vary as a function of personal appeal, design and content, hence game designers differ in the autonomy afforded within the game, such as the degree of choice the player has over the sequence of actions, or the tasks and goals undertaken (Ryan, Rigby and Przybylski, 2006). Considering that a hotel's gamified application would be a voluntary system for the individual to use, the autonomy of the behaviour would typically be high, similarly to games. However, users' willingness to download and use any particular hotel gamified application would have to vary as a function of personal appeal, design and content. Identical to game designers, hotel gamified application designers and hoteliers should focus on differentiating the autonomy afforded within the system, such as the degree of choice the player has over the sequence of actions, or the tasks and goals undertaken. This also means that users should have a variety of choices when making future holiday plans, choosing a destination, or booking a room with the brand. Multiple choices in offers would enhance the feeling of autonomy.

With regard to competence it reflects the need that people have to be able to effectively produce their wanted outcomes and avoid undesired events (Peng et al, 2002). It is a need for challenge and feelings of effectance (Peng et al, 2002). Factors that enhance the experience of competence, such as opportunities to acquire new skills or abilities, to be optimally challenged, or to receive positive feedback enhance perceived competence and in turn intrinsic motivation (Ryan, Rigby and Przybylski, 2006). Perceived competence would thus be enhanced in gaming contexts where game controls are intuitive and readily mastered, and tasks within the game provide ongoing optimal challenges and opportunities for positive feedback (Ryan, Rigby and Przybylski, 2006). The need for satisfaction of competence may be accomplished in games by allowing players to easily learn new skills, and by providing challenges with increased difficulty as the game progressed (Peng et al, 2002). It is argued by Peng et al (2002) that satisfying the need of competence is one of the most important predictors of a satisfying game experience as indicated by enjoyment, motivation for future play and recommendation intention. Considering that a hotel's gamified application would be a game-like system, it is advisable to incorporate the element of competence to increase the engagement with the user. For example, tasks that lead to the acquisition of new skills and abilities related to traveling behaviour would enhance the experience of competence, and receiving positive feedback would in turn enhance intrinsic motivation, developing engagement with the system.

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The third psychological need within SDT is relatedness, which enhances well-being and intrinsic motivation when this need is satisfied (Peng et al, 2002). Relatedness is experienced when a person feels connected with others (Ryan, Rigby and Przybylski, 2006). It focuses on the need of being connected to others as well as being involved in a social environment (Peng et al, 2002). In gaming environments, particularly within multiplayer games which allow interactions between real players, the feeling of relatedness is expected to be relevant (Ryan, Rigby and Przybylski, 2006). Peng et al (2002) present that, within the video game arena, a lab experiment found that playing video games with another player rather than playing alone contributed to need satisfaction of relatedness, which led to enjoyment of gameplay. Furthermore, a survey of massive multiplayer online game players also showed that need satisfaction of relatedness was positively associated with players' game enjoyment and motivation for future play (Peng et al, 2002). It is suggested that hotels' gamified applications should allow users to be connected with others as well as being involved in a social environment. For example, mechanics that allow users to chat with each other or tasks which allow collaboration would lead to enjoyment of the system.

In summary, Self-Determination Theory provides a valuable framework for understanding intrinsic motivation as it relates to video games (Siemens et al, 2015). As the essence of fun conveys the permanent evolution of the player's own pleasure, desire and abilities (Denis and Jouvelot, 2005), Self-Determination Theory helps towards the understanding of gaming motivations (Ryan, Rigby and Przybylski, 2006). The three components of the theory have been explained and their use in the gaming industry have been explored. Furthermore, their application for hotels' gamified application systems has been suggested.

Cognitive Evaluation Theory

Cognitive evaluation theory (CET, a sub-theory of SDT) has guided research on intrinsic motivation in several fields (Siemens et al, 2015), such as sports, education and leisure domains (Przybylski, Rigby and Ryan, 2010). This theory focuses on experiences of competence and autonomy during an activity (Cruz et al, 2017). The body of research based on cognitive evaluation theory supports the idea that specifically psychologically-accepted goals are necessary for activities to be experienced as enjoyable or fun and thus positively affect intrinsic motivation

(Siemens et al, 2015). Siemens et al (2015) in their paper present that CET-based research suggests that activities foster greater intrinsic motivation when they provide goal-oriented tasks and effortful challenge. In order to become meaningfully engaged and motivated during game play, a gamer requires focused goals, challenging tasks, clear and compelling standards, protection from failure, affirmation, novelty, choice, authenticity and affiliation with others (Dickey, 2015). The body of research based on CET shows that specific psychological nourishments present in activities are necessary for activities to be experienced as inherently enjoyable or fun, and it is these elements that influence the effects the activities have on motivation and well-being (Przybylski, Rigby and Ryan, 2010).

Cruz et al (2017) define cognitive evaluation theory as the extent to which rewards affect the user's intrinsic motivation depending on whether the reward is perceived as controlling or informational (Cruz et al, 2017). Feedback or rewards that are considered controlling undermine intrinsic motivation as the recipients believe they are being coached to perform particular behaviours, whereas on the other hand informational feedback can enhance intrinsic motivation, provided it is relevant to the task and individuals perceive their participation in the behaviour as driven by the self (Cruz et al, 2017). In their research, Cruz et al (2017) argue that it is unknown whether badge systems for video games are perceived as informational or controlling, influencing players' intrinsic motivation.

Flow theory

The concept of flow was developed by Csikszentmihalyi, based on his observations of the immersion and high levels of enjoyment experienced by a group of artists (Kaye and Bryce, 2012). Flow is a highly enjoyable psychological state that refers to the holistic sensation people feel when they act with total involvement in an activity (Kowal and Fortier, 1999). While in this state, individuals become completely immersed in the activity to the point of losing awareness of time, their surroundings, and all other things except the activity itself (Kowal and Fortier, 1999). Flow theory represents a suitable theoretical framework for examining the process underlying the enjoyable experiences derived from gaming, as the activity is largely intrinsically motivated (Kaye and Bryce, 2012). Nine characteristics have been identified within the flow state: (1) the existence of a balance between the perceived skills of an individual and the perceived challenges

of a situation, (2) the merge of action and awareness, (3) the presence of clear goals, (4) the presence of unambiguous feedback, (5) the concentration on the task at hand, (6) the sense of control over oneself and the environment, (7) the loss of self-consciousness, (8) the transformation of time, and (9) the enjoyable nature of the experience (Kowal and Fortier, 1999).

In online games, continuous scoring, promotion, immediate feedback, and achievement of self-satisfaction have become the channels for upgrading individual self-esteem of the internet generation (Wan and Chiou, 2006). However, to maintain flow, flow theory suggests that the player may oscillate between anxiety and boredom; it poses the banal problem that the standard illustration suggests a smooth increase in difficulty over time (Juul, 2009). The most central condition for flow experiences to occur is that the individual uses a high level of skill to meet a significant challenge (Hamari et al, 2016). The activity is therefore not too easy for one's skills, nor is it impossibly difficult. Reaching the goal is doable: one has a reasonable chance of success with sincere and concerted effort. Typically, the challenge and skill are high and in balanced individuals stretch their skills to their limits in pursuit of a challenging goal (Hamari et al, 2016).

According to the flow theory, when individuals are in the state of flow, they want to maintain the state (Choi and Kim, 2004). When entering the flow state while playing an online game, this means that whoever is interested in playing the game, is curious about the game, has full control over the game, and is focused on playing the game with no other distraction (Choi and Kim, 2004). The key element is that the activity must be intrinsically rewarding and autotelic (Sweetser and Wyeth, 2005). This is obvious in games as people play games for the experience itself, as there is no external reward (Sweetser and Wyeth, 2005). Gamification differs from entertainment-oriented games in that, while they are often also enjoyable, they are designed for primary end purposes other than entertainment and leisure (Hamari et al, 2016). Research on flow has found that utilizing high degrees of skills in challenging tasks results in deep concentration, absorption, or immersion (Hamari et al, 2016). In the game-based learning and gamification contexts specifically, studies predict that learning and gamified curricula will become more and more commonplace as a method to invoke engagement and flow in students (Hamari et al, 2016). Furthermore,

studies have found these technologies do indeed invoke flow experiences and have the potential to affect consequent learning outcomes (Hamari et al, 2016). However, there are no relevant studies in the context of hospitality and tourism to prove the potential to affect intention to use a hotel's gamified application.

2.3.4.2 Gamification and Rewards

Gamification could also potentially reduce intrinsic motivation, since external rewards are known to reduce intrinsic motivation (Zuckerman and Gal-Oz, 2014). Playing a game is voluntary and free of consequences, two characteristics that enhance perceived autonomy, which is intrinsically motivating (Zuckerman and Gal-Oz, 2014). Using a gamified system that offers virtual rewards or public social comparison is not necessarily voluntary or free of consequence (Zuckerman and Gal-Oz, 2014), affecting autonomy and thereafter intrinsic motivation. Prior research on games focused on fun, enjoyment and flow as core components of game play (Richter, Raban and Rafaeli, 2015), yet understanding how to promote motivation by carefully crafted achievements and rewards functions should be revisited. Moreover, the idea of using game mechanics and dynamics to drive participation and engagement mostly by using extrinsic motivation is worth examination, because research suggests that using an extrinsic reward may have a significant negative effect on motivation by undermining free-choice and self-reported interest in the given task (Richter, Raban and Rafaeli, 2015).

It is argued that reward-based gamification is suitable for some situations such as looking for immediate and short-term change (Nicholson, 2015). Many reward-based gamified systems create an immediate spike in engagement as users strive to explore this new system, as long as the organization is willing to continue supplying rewards (Nicholson, 2015). However, if the rewards stop, then the behaviour can stop with it. The issue of supplying the users with rewards constantly is highlighted by Zichermann and Cunningham (2011), stating that once the organization starts giving someone a reward, then they have to provide that reward loop forever. Although it is said to be reliable, the associated desired behaviour often ceases as soon as the external factors are removed (Thiebes, Lins and Basten, 2014). In games, bonuses typically take the form of funny bonus levels or additional game functions. To apply bonuses in gamification, they must fit to the underlying reward system, with bonus points

rewarded after successful completion of a special task or achievement and bonus mini games after a completion of a series of tiring tasks, aiming to re-establish concentration and motivation (Thiebes, Lins and Basten, 2014).

2.3.5 Marczewski's Player and User Types

Not all research about digital games can be applied directly to the gamification of other applications (Dixon, 2011). Considering that games are just for fun and entertainment, whereas gamification has a certain purpose, without any gameplay (Lombriser and van der Valk, 2011), these differences possibly lead to the different player profiles between gamers and gamification users.

Taking Bartle's Player Types as examples, Marczewski (2013) suggested that it may not translate well to other non-game related systems such as gamified systems. Therefore, starting from the perspective of intrinsic motivation, he chose to use ideas from Edward Deci and Richard Ryan's Self Determination Theory and Daniel Pink's three motivational Drives to look at a more gamification-specific taxonomy for user types. Combining these two theories, he settled on four motivations: Relatedness (the desire to socialise), Autonomy (the urge that an individual has to direct his or her own life), Mastery (the desire to get better and better in something that matters) and Purpose (the force to do an activity in the service of something with bigger meaning). These four intrinsic motivations were used to describe four intrinsically motivated user types: Socialisers, Free Spirits, Achievers and Philanthropists, respectively. Afterwards, a fifth type was suggested; an extrinsically motivated type: The Player, who is actually motivated by the reward. Players are happy to "play" the game, where points and rewards are up for collection. Finally, and much later on, a sixth type was included, the Disruptor. The six types of gamified system users are described below.

Name	Motivation	Description
Socialiser	Relatedness	They want to interact with others and create social connections (identical to Bartle's type of players: socializer) (Marczewski, 2014). They are interested in parts of the system that enable them to accomplish this, and they promote and evangelize the internal social network. This group values the social engagement of cooperation. Cooperative verbs include: join, share, help, gift exchange and trade. Suggested design elements for this group are: guilds or teams, social networks, social comparison, social competition and social discovery (Kim, 2011).

Free Spirits	**Autonomy**	They want to create and explore (Marczewski, 2014). Choo (2014) adds that these individuals are not willing to be restricted in how they go through their personal journey. They are the most creative users having the fanciest avatar; they create the most personal content, but they often find the defects of the system. Free spirits have identical characteristics with explorers (as they are identified by Bartle), since they have an intrinsic need of self-expression by exploring the game in order to get the most from the system for their own enjoyment. Exploration verbs include: view, read, search, collect, complete and curate. Suggested design elements for this group are: exploratory tasks, Easter eggs, unlockable content, creativity tools and customization (Kim, 2011).
Achievers	**Mastery**	They are looking to learn new things and improve themselves by overcoming challenges. These individuals want to be perfect on the internal learning system. Even though they do this for their own satisfaction, they do not mind showing off. The difference from achiever, as has been presented by Bartle (1996), is that achievers' main goal is to gather points and rise in levels and all is ultimately subservient to this. However, they are not interested in showing off and only interact with killers in case of rewarding themselves with more points. Achievers in Marczewski's categorisation may also be motivated by status as a result of their personal achievement. Suggested design elements for this group are: challenges, certificates, learning new skills, quests, levels or progression and epic challenges.
Philanthropists	**Purpose and Meaning**	They are altruistic, wanting to give to other people and enrich the lives of others in some way, with no expectation of reward (Marczewski, 2014). Philanthropists feel that they are part of something greater and want to give back to others. They offer selfless dedication for "the cause" because they enjoy helping. Suggested design elements for this group are collection and trading, gifting, knowledge sharing and administrative roles.
Players	**Rewards**	They do what is needed of them in order to collect rewards from the system (Marczewski, 2014). They are in it for themselves. The difference of players compared with any other category (achievers, philanthropists, free spirits and socialisers) is the fact that they are extrinsically motivated by the rewards and not by any other intrinsic motivation such as relatedness, autonomy, mastery or purpose. This group of individuals like to get the achievements in the system and have their names in the leaderboards. The fact that they want to achieve in the system is not the result of the intrinsic motivation of mastery, but the reward itself. They are happy to take advantage of "loop holes" to gain an edge. This is the only group of individuals in gamified systems that are willing to play the game for extrinsic factors (rewards). This is the most likely group of players to be attracted and engaged in a hospitality and tourism gamified system (Choo, 2014). Suggested design elements for this group are: points, rewards, or prizes, leaderboards, badges or achievements, virtual economy and lotteries or games of chance.
Disruptors	**Change**	They want to disrupt the system, either directly or through other users to force positive or negative change (Marczewski, 2014). This group of people seems to have some identical behaviour with killers from Bartle's typology. This category of players likes to compete. As Kim (2011) identifies competitive verbs include: win, beat, brag, taunt,

challenge, pass and fight. A large number of users from this category would mostly have a negative impact on the system, in interaction with others, rather than positive. In the case of games, killers are indirectly important for the game. Even though they represent a very small number of players (1% according to Zichermann, 2011), they are quite important for socialisers (the biggest group), because without the killers, socialisers would have little to talk about. In the same line of thought, for a gamified system, disruptors can indirectly benefit the system as they could give socialisers something to talk about or philanthropists something to give back to others.

A gamified system should be balanced for all users. Choo (2014) describing a balanced gamified system, suggests that it should exclude the sixth user type *(Disruptor)* and simplify the approach by using the five user types *(Player, Philanthropist, Achiever, Socialiser and Free Spirit).* Furthermore, the system should be appealing to the four basic intrinsic motivations as categorised by Bartle *(exploring, achieving, socialising and imposing upon others)* and user types (make it social and meaningful) and also give freedom to the users. Once this structure is established, a thoughtful system of rewards can be integrated, although it should not be dependent on the rewards to function effectively. It is also imperative for the system not to have too many users with extrinsic behaviour (rewards the only important element), as the system will run the risk of devaluation. In contrast, Philanthropists and Achievers could both help a system thrive. Philanthropists try to help everyone, contributing to it in any way possible, with achievers possibly acting similarly depending on the situation, demonstrating their abilities rather than actually helping others (Marczewski, 2014). Socializers do not offer as much as other types with respect to internal contribution, although they are effective for evangelizing and bringing others to the system (Marczewski, 2014). Therefore, the point of the gamification user types is to provide a better understanding of why and how people would use a system, but also how it could create better engagement with them (Marczewski, 2014).

There are significant differences in profiling individuals from playing a game to being gamified application users. In a gamified situation, individuals will not necessarily be able to have the same freedom to "play" and "explore" the game. This occurs because games and gamification are designed from different perspectives. There has been some confusion about games and gamification, but they are two very different entities (Post, 2014). The primary purpose of games is to entertain, whereas gamification

seeks to motivate people to change behaviours, develop new skills or engage in innovation. Therefore, individuals want different things out of gamification and games (Post, 2014). Hence, as gamification applications differ from ordinary games, thus the game mechanics used should be carefully chosen and adapted for the purpose.

2.3.6 Gamers' Lifecycles

Player types have been recognized and divided according to their preferences in either playing a game or being gamification users, based on the needs of individuals from a game or gamified application. Kim (2011), however, looked into player lifecycle. For Kim (2011), players have to be approached with different techniques in each stage of the game, based on the frequency they visit the game. The first stage is called boarding for newbies and it is the stage where the game successfully introduces the gameplay to gamers. The second stage, habit-building, is the phase that builds all the elements that would make the game a daily or weekly habit. Finally, stage three is called mastery and is based on the exclusivity that the players get from the game. The issue is that gamers have different needs in different stages. Similarly organizations have to think about these stages when designing a gamified application so as to build a sustainable social system.

Kim (2011) highlights the importance of learning for the lifecycle stages of gamers, as each one of them has a different focus of learning. For example, newbies need to learn the basics, so as to encourage individuals not only to think about their first visit, but the first couple of months of experience. They get the feeling that they know how the game works and how to move on. Then regulars are people who have learned the basics and they are engaged, but they have to keep being engaged. The most important thing is to introduce new content activities or challenges so they need something to keep them coming back. For example, that could be other people (in the case of socializers), or it could be new challenges (in the case of achievers). Even though points and levels help individuals to come back for more, it is a series of innovations that keeps individuals coming back. Lastly, enthusiasts or experts need something that it is exclusive to them, a form of recognition and impact that they could have in the world (Kim, 2011).

Gamers' lifecycles may include different stages and characteristics as illustrated by two examples elaborated below. These two examples explain how the context and

type of game yield different types of users' behaviour. The examples are drawn from some of the most popular types of games, namely MMORPGs (Massively Multi-Player Online Role-Playing Games) and RTS (Real Time-Strategy).

Jiang (2008) identified four stages in players' lifecycles after doing research into two MMORPGs games (Mir II and World of Warcraft). MMORPGs (Massively Multi-Player Online Role-Playing Games) are a little different from purely action games as they usually add a dimension to what would otherwise be a game involving little more than wandering around shooting things (Lecky-Thompson, 2009). There is a sense of travel and progression that is not necessary prevalent in adventure or combat games and is generally a result of the role-play aspect of the game, in part because actions taken 'ex-game' are almost as important as those as taken in-game (for example customizing the player and interactions that occur in the player forums) (Lecky-Thompson, 2009). Key points from the players' point of view include ownership (of objects or locations), levelling up (to improve capabilities), revenue model (advertising and upgrades) and in-game currency economy; therefore, unlike in a pure arcade-style gaming model, players are generally encouraged to empathise more with their persona. With regard to revenue model, they tend to be long term, ranging from requiring payment to keep a player's account in good standing, to pushing players to buy expansion packs and client upgrades (Lecky-Thompson, 2009).

Gamers' lifecycles can be therefore divided into four stages: Confusion, Excitement, Involvement and Boredom (Jiang, 2008). Confusion (0-1 months) is the stage where new players get detailed information. If they receive proper guidance during this period, gamers will stay and enter the next period, otherwise they will leave soon (Jiang, 2008). Excitement (2-4 months) is the period full of enhanced chat, guilds, and rewards for exploring, skills growth and clear growth plans. Involvement (2 months – 4+ years) is the longest period of a gamer's lifecycle, filled with creating social events, massive ability, quests, events and new land. Lastly, Boredom (2-4 months) is the period when, if there is nothing new or exciting after Involvement, the gamers leave. In different stages of gamers' lifecycles, they focus on different characteristics of the game. In the early stages, they focus more on features and entertainment, but later on their interest is more on socialisation and relationships. Hence, gamers' profiles

change depending on the time spent on the game. A gamer might start a game as an achiever and finish it as a socialiser.

Fischer (2014) identified five phases that develops players' lifecycles, and these are Initiation Phase, Competence Phase, Conceptual Mastery, Training Phase and Dominance Phase. Fischer (2014) identified these five phases of players' lifecycles after research into games referred to as real-time strategy games or turn-based games. Real time-strategy (RTS) games are different from other real-time in-action games, in that they are almost turn-by-turn in execution (Lecky-Thompson, 2009). Some of the most popular RTS games tend to strictly be turn-based, which means each round consists of one move per player, with the game unable to progress until all players have made their move (Lecky-Thompson, 2009). Within this game category, players tend to play locally, with other players represented as characters within the local game and only the actions (or even just the results of the actions) of each player are communicated via the server to the clients.

Initiation Phase is the stage where the player learns and internalizes the rule set. Fun, engagement and intellectual value are steadily, however rather slowly, increasing as more and more potential possibilities of interaction are discovered. Competence Phase is the stage where the players learn what "good" and "bad" actions mean in the context of the game's goal, and how to identify them. The player is constantly getting better at mastering challenges and reliably manipulating the system to his own advantage. Fun and intellectual value reach their maximum. Conceptual Mastery is the stage where the player has essentially mastered the system. The ultimate "skill ceiling" (phase 5) is in sight and the necessary steps to get there (phase 4) are already quite clearly perceptible. Training Phase is the stage where the player is, through repeated exercise, approaching the limits of skill in the game. This can for example consist of memorizing optimal actions in specific, already completely solved situations, or perfecting the reliability of the performance in action games. The learning process is less rapid than in phase 2, as getting better takes more effort and the potential value is dwindling. Finally, Dominance Phase is the stage where the player has reached the skill ceiling and thus fully exhausted the game's depth. There's nothing more to discover or to learn. The game is solved and has therefore lost its intellectual value, and with that the ability to provide fun.

The examples of Jiang (2008) and Fischer (2014) highlight that players' lifecycles are different according to game design characteristics. In this line of thought and following Kim's (2011) argument that players have to be approached with different techniques in each stage of the game in order to build a sustainable social system for the organization, the game mechanics have to be carefully chosen according to player profiles and the phase they are at in the game.

2.3.7 Gamification and Game Mechanics

A common implementation of gamification is to take game mechanics, such as the scoring elements of video games like points, levels and achievements, and apply them to a non-gaming context such as work or education (Deterding, et al., 2011). The concept of gamification — focused on the game mechanics in non-game settings — has become a core strategy for countless businesses (O'Brien, 2014). Over the past decade or so, tech-savvy companies have begun exploring, adopting, and refining the principles of game mechanics in increasingly sophisticated ways to get better performances from their employees, but also to encourage desired behaviour from their customers (Strohmeyer, 2013). There are numerous game mechanics that a creative designer could incorporate into a gamified system (Kirsh, 2014), especially since technology has catapulted games beyond the console and into the masses playing games like Angry Birds, Farmville, Pokemon or Words with Friends (Al-Zaidi, 2012).

Feedback in Gamification

Research on the enjoyment of playing video games has repeatedly addressed the role of interactivity facilitating the experience of causal agency; that is, the perception of receiving immediate, direct feedback on one's actions and of influencing the game world (Klimmt, Hartmann and Frey, 2007). Strohmeyer (2013) explains the importance of feedback for gamification by comparing it with the importance of feedback for gamers within the example of Angry Birds. Within the game, individuals have a clear, overarching objective: kill as many pigs as possible by flinging angry little birds at them with a slingshot; with every bird that is flung, the individual gets immediate feedback (Stohmeyer, 2013). For example, the sound of smashing upon impact, and grunting from the pigs, objects are exploding into bits, the sound of angry birds cheering, and

the individual can see points accrue for their various accomplishments (Strohmeyer, 2013). All these pieces of feedback work in concert to stimulate the gamer's subconscious into continuing play and striving to earn more points by constantly improving their talents for bird-flinging and pig-smashing (Strohmeyer, 2013). Similarly, this mechanic could work in an organization (Strohmeyer, 2013). As an example, an employee's overarching goal could be to generate as much revenue as possible in sales-management software. To achieve that goal, a lot of little activities have to be accomplished, such as: calling customers, holding internal meetings and watching training videos about the product line. In a gamified model, the employee would get points for all those things. For example, if the employee has just made a cold call, regardless of the outcome, they would be rewarded with points, or if that was that their hundredth cold call of the week, the employee would earn a badge and finally, if the employee is a cold-calling maniac, everyone on the team but also the boss knows it (Strohmeyer, 2013). Furthermore, it is important that the employee can share that badge so that everyone would know about his or her accomplishment (Strohmeyer, 2013).).

Points in Gamification

Experience points are units of measurement used in many role-playing games to quantify a player's progression through the game (Matera, 2015). They are also frequently used in non-game apps as a way to denote achievement. In games they are generally awarded for the completion of game-related tasks, such as overcoming obstacles or defeating opponents (Matera, 2015). The use of points creates engagement in a website with a game design or even game design elements (Deterding, 2011), and for a website looking for the user to visit more often, points could be used to reward the user for doing so. The use of points will lead to further goals, trophies and badges when the user achieves a certain amount of points and probably to a leaderboard, creating an added element of competition (Deterding, 2011), for more engagement with the user. Points measuring the user's achievements in relation to others is a way to keep the user motivated for the next reward or level. They can even double as action-related currency. Matera (2015) describes a use of experience points in a classroom environment, with students getting points by doing "extra credits" projects, but not grade points. The visibility of points pushes students

to work together as a whole class to ensure everyone is contributing and to know that everyone is contributing towards a greater goal (Matera, 2015). Points provide possibilities for creating an engaged learning environment; however, developers need to be cognizant of the fact that these are really just more numbers given to students, and it is necessary to make sure that the students use these points in conjunction with other game mechanics to ensure they are meaningful and not just a hollow, "gamified" experience (Matera, 2015). This shows the importance of a game mechanic such as points to be a part of a greater gamified experience rather than being used individually in a reward system, otherwise it will be developed into another "pointsification" system with limited engagement with the user.

Badges in Gamification

A very important element of gamification is the badge (Buckner, 2014; Matera, 2015). In Boy Scouts and the Army, badges have long been used in order to celebrate moments, commemorate events and challenge individuals to accomplish particular goals (Buckner, 2014). Boy and Girl Scouts' badges work well as a micro-credentialing system, when a troop member demonstrates that they have developed mastery of a certain task, earning a badge to display this mastery. In teaching, websites such as "Khan Academy" and "Codeacademy" are successfully using badge reward systems to motivate users toward accomplishing tasks (Buckner, 2014). Even though badges have their origins in the physical world, Foursquare popularized the digital variety with its set of real-life merit badges that range from easy (Newbie badges are awarded to users on their first check-in) to very difficult to unlock (it takes 10 movie theatre check-ins to earn the Zoetrope badge). The most effective way to use badges as a reward is to infuse the badges with meaning in a way that the reward offered benefits both the employee or the customer and the company itself (Buckner, 2014). Khan Academy and Codeacademy assign badges to members who have put in the hard work of accomplishing the tasks set before them. Such work may take months, or even years, to finish. The reward itself has zero value, but the satisfaction that an end-user feels after accomplishing such a challenging task, and being publicly celebrated for their achievement, is its own reward. This causes the member to work much harder towards earning the next badge on the list. In the learning industry, Matera (2015) argues that the ability to display knowledge, like a trophy case, is a strong motivator for students.

Each badge represents points within a year-long game, but students do not know that to avoid what is called *jeopardy effect* (when players realise there is no way to win, so they stop trying effectively). If the winner of a game is only based on points, players may get discouraged and stop trying hard. To avoid that, Matera (2015) explains that an easy fix is to give badges hidden point values, that only get totalled in the end of the quarter or the year, so as to add mystery to the game. It is important to create many different kinds of achievements, as this variety adds to the fun and provides opportunities to bond with other game elements. In Matera's (2015) example, students try several side quests with the ultimate goal to all collect three badges of the Roman leaders that made up the triumvirate. Even though they did not know the value of each badge they are motivated to get the triumvirate set. Since not many students would earn all three, this achievement is a huge advantage for both their group and each player individually. Similarly, in a hotel's gamified system, a badge system would increase the users' motivation in completing tasks. Each badge should represent an achievement relevant to mastering traveling, emphasizing the level of commitment. Badges such as *Veteran, Star* or *Governor* when users prove that they have developed mastery of certain tasks are good ideas, as they establish their superiority in the system.

Leaderboards in Gamification

Leaderboards show the standings for players or groups and can report both their local and global rank (Matera, 2015). Leaderboards work in order to motivate and encourage users to become players. For instance, Foursquare started with city-centric leaderboards, but now emphasises ranking users against their friends. Earn a few points for a check-in, and Foursquare will show users which of their friends would be passed on the leaderboard. Matera (2015) describes the use of leaderboards in his gamified course in the learning industry, by providing the game with data necessary for players to make strategic decisions. Students are therefore motivated by the rankings and work to stay at or near the top, or even enjoy setting micro-goals to work their way to higher levels (Matera, 2015). One way of increasing the powerful influence of leaderboards is to increase the information displayed. In Matera's (2015) example students are given several data points displaying their class total, their group total and their individual totals; as such the leaderboard is an ongoing total of points earned

throughout the year. It is argued that some structure leaderboards should only last for the unit and then reset, as a way to reinvigorate with a new goal and a fresh start (Matera, 2015). Another use of leaderboards is to keep track of unit rank scores and then give items or powers based on their previous ranks, so even though their scores do not reset, they are kept excited and keep working hard by displaying the quarter leaderboard (Matera, 2015). This shows both what they have earned in the current quarter and how many places they moved up or down from the last quarter. For instance, Matera (2015) mentions that, during one year's game five students stayed at the top the entire year, with other students feeling that they could not compete with them. However, when they looked at the local and quarter leaderboards, they saw several new students were in the top five for that quarter, so even though surpassing the top five on the overall leaderboard was not possible due to the large number of accumulated points in previous quarters, other students were able to earn more than the top five players during the current quarter, which was a motivator. This shows the complexity that a leaderboard can provide into a gamified system. For example, in a hotel's gamified application one massive leaderboard could be a negative factor for users, since it would be very difficult to reach the top five or ten with the biggest rewards. However, a complex system with local leaderboards at each destination with unique rewards during their visit at a hotel could be better. Furthermore, if reaching the top ten at those local, most easily accessed leaderboards rewards items, that contributes towards a bigger global leaderboard with the biggest rewards and could be an increased motivator.

Levels in Gamification

Most games are divided into levels that represent a discrete change in difficulty (McGuire and Jenkins, 2009). They indicate players' position or rank, or could refer to players' current stage in the game (Matera, 2015). Levels could be a scenario or map, or generally areas of a larger world in games with a strong and primarily linear progression, whereas for games with location-based levels, creating maps that show the layout and the connectivity of the levels indicate major encounters, key items and goals (McGuire and Jenkins, 2009). For example, Zynga uses levels to make the seemingly clear task of tending to crops all the more enticing, and Level Up encourages mobile users to level up and get better discounts for becoming more loyal

patrons. In the game Mario Brothers, the game designers called each level in the game "world", hence the player starts form world one and moved up from there (Matera, 2015), contributing towards the element of immersion created by the game. Indeed, it is mentioned that children would ask each other "what world are you on?" in relation to the Mario Brothers game, with the answer indicating how far they progressed in the game being a badge of honour among friends. Another popular way of using levels is in conjunction with points. Matera (2015) states that gaining points would contribute towards students' levelling up, with each level being named differently so students enjoy gaining level titles and the associated powers. Levels can also identify an entire class or group; hence, once a group or class earns enough points, their group levels up, earning new abilities. Having potential individual levels, plus team levels, supports students' motivation and team building (Matera, 2015). This shows the importance of the game mechanic "level" when building the element of immersion in a gamified system, when it is used appropriately. Level structures should be connected to the relevant content. For example, science students start as primordial ooze and English literature students earn famous awards like Caldecott and Newbery (Matera, 2015). Similarly, in a hotel's gamified application, naming each level as "world" would contribute towards the element of immersion. In a system where levels are mostly attached with points and levelling up, each stage should contribute towards the feeling of achievement in traveling, probably starting from beginner level to levels such as "*the great explorer*" or "*the VIP visitor*".

Challenges or Quests in Gamification

A quest is a mission with an objective. These game mechanics range from simple to complex, and often involve communal activity or group play. For example, Seth Priebatsch gamified his South by Southwest Interactive keynote with a group of challenges that required all attendees to work together in rows. A proffered $10,000 donation to the National Wildlife Foundation was used to make the deal more attractive. Quests form the heart of many games, and it is recommended to label with creative names the quests that follow the overall game's theme and setting (Matera, 2015). Using Matera's (2015) example quests are optional, but students understand that by completing them, they can earn more points and badges. These quests are open-ended, so students discover that if they put in the effort, they can learn just about

anything. Matera (2015) proposes four rules to unleash students' motivations and untethered creativity: (1) all side quest topics must deal with the current unit, (2) each quest can only be turned in once, (3) all quests have to be turned in before the end of the unit and (4) additional requirements will be posted on quest directions if needed. Similarly, a hotel gamified application could follow those four rules when establishing quests for the hotel visitor at the destination point. For example, a quest attached to the history of the destination would motivate the visitor to get involved, but it also promotes the background of the hotel. Each quest can be turned in only once, and before the visitor leaves the destination. These would increase the commitment of the user with the system at the destination, but also make this interaction more interesting. Lastly, the system is advised to use hints in case the user is stuck in the quests in order to avoid frustration.

2.3.8 Examples of Gamification in Hospitality

This section provides examples of gamification within tourism and hospitality contexts. Whilst all examples entail some game mechanics, not all consider internal and external motivations of users, or the typologies of gamers. Tourism destinations as well as hospitality companies use interactive games in their web pages, blogs or social networks (Firoiu and Croitoru, 2014). Tourism and hospitality industries have long been recognized as some of the most "globalized" industries in the service sector (Qi, 2016). Even though the internet has been a key factor in this globalization process, and hotel websites have become indispensable (Qi, 2016), gamifying a website is not a simple thing to do. It is safe to say that gamers do not play a game for collecting points or badges, but because games are challenging, allow them to use their creativity, socialise or even be something more than what they really are in life. Game mechanics are therefore not enough in themselves to attract an individual to play a game; they are only tools to support building it. It is important for the success of the system to focus on the needs of the audience, before applying the appropriate game mechanics.

A gamified strategy based only on game mechanics such as points and leaderboards is Jet off Geneva (JetoffGeneva.com). Jet off Geneva is an online game that gives to the individual (player) the opportunity to play and win by pumping the most litres of water and finishing first at the leaderboard. The system promotes the element of fun

as it includes a gameplay experience, but it is lacking on crucial elements of gamification and game thinking such as: epic meaning and calling, development and accomplishment, empowerment of creativity and feedback, ownership and possession, social influence and relatedness, scarcity and impatience, unpredictability and curiosity, loss and avoidance. Based on the definitions of games, gamification serious games and advergaming this example is mostly falling into the definition of games rather than gamified application. Since games incorporates traits such as entertainment and mechanics such as such as rules, goals are repeated with a clear form of gameplay this application should not be accounted as a hotel gamified application but a game with advertising and promotional purposes. Also, the fact that the game does not aim to promote a specific product or service of the hotel excludes the example from an advergame as well. Considering that this example is not a gamified application makes it different from the main aim of this thesis also indicating several disadvantages of the software. As a hotel mobile application this example should be using game-based mechanics aesthetics and game thinking to engage people, motivate action and solve problems. Even though elements such as competitiveness and achievement are incorporated in the game it is lacking on a more consistent use of the system as well as enhancing the motivation of using it. It also appears to be more focus on pre-visiting the hotel activities rather than during and after. These elements have been taken into consideration when developing a new hotel gamified application for the purposes of this thesis.

Figure 2 Content removed due to copyright reasons.

generated content, reshaping the way tourism-related information is distributed and the way people make plans to travel (Garcia-Pablos, et al, 2016), and thus are used

by organizations to gamify their strategy. For example, Caesars Casino provides the individual with the opportunity to earn reward credits through gaming, but also through social gaming by playing Caesars Interactive Facebook games. Total Rewards Members use the Social Rewards program to engage with the brand on Facebook, Twitter and YouTube to earn even more credits. These twists on the typical points-based approach are making Total Rewards an even more effective loyalty driver. Even though this example is very similar to "Jet off Geneva" and the game mechanic of Leader Board, it also includes other game mechanics such as points and levels, appointments, progress and sharing. Furthermore, Caesars Interactive Facebook and Social Rewards programs give the ability to the individual to socialize. This gamified system offers the individual empowerment of creativity and feedback, social influence, and relatedness. This example is very similar to the "Jet off Geneva", hence falling into the same category of a game instead of a gamified application. For the same reason and as it is not designed for the primary purpose of advertising of an organization's product, service or brand, (but instead reward the user with some kind of offer), even though it is played via the internet it is not qualified as an advergame and that is because it offers a form of continuation of usage instead of a single use. It includes motives such as socialising and competitiveness, however it focuses on a pre-visiting the destination activities. The reward seems to be the main form of motive behind the usage; therefore, it could be assumed that the software is not sustainable. The more rewards are offered to the users, the more rewards will be expected in the future which could make the game not efficient for any organization. Motives such as socialisation and competitiveness and game mechanics such as leaderboards and points and levels have been taken into consideration when designing the hotel mobile application for the purposes of this thesis.

Another system is the InterContinental Hotels Group's (IHG) trivia game (Win It in a Minute). It awards correct answers with free miles and capitalizes on the universal desire to prove how smart we are. It is also proved a smart move because the VP of loyalty programs reported that in the first two weeks of the "Win It in a Minute" promotion IHG has seen 100,000 game plays and has handed out more than 100 million Priority club points. As the platform itself promotes is a game rather that a gamified system, or a serious game. However, since the game aims to promote the brand and simulate the user with it, it falls into the definition of an advergame.

InterContinental Hotels Group's (IHG) trivia game (Win It in a Minute) is interactive, entertaining, funny and free of charge, one can play them repeatedly, thus stimulating players about the product or the brand. It takes into account the need of an individual to prove his, her knowledge, however it is based on a pre-visit activity of the hotel guest rather than during and after the visit and this is due to the fact that the user eventually is interested in winning a prize and an offer to the establishment. For the purposes of this thesis the hotel gamified application will aim to include all phases of the trip as a more consistent and sustainable platform. Tasks such as answer a question for a tangible (discount) or intangible (points) reward could be included within the overall system.
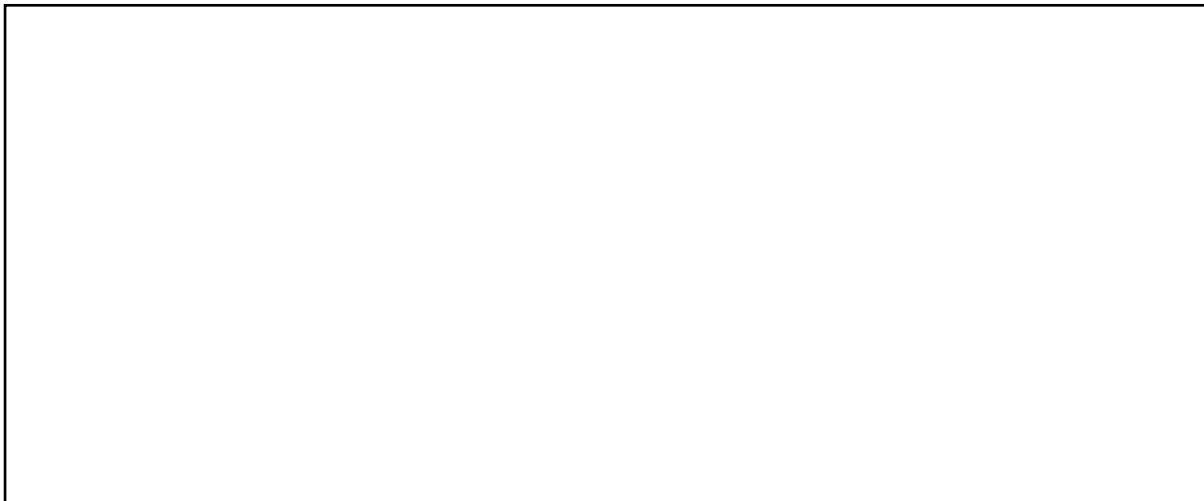
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contexts (Egger and Bulencea, 2015). Gamification during tourists' vacations is associated with learning about the environment. Tourists often want to visit specific Points of Interests (PoIs) such as historical buildings, unique landscapes or even haunted places (Linaza, Guiterez and Garcia, 2014). Gamification in this context can apply game mechanics in order to create fun and learning elements. In such games, tourists not only follow a list of recommendations given by a mobile application, but also learn something about their environment by solving mini-games related to their experience (Linaza, Guiterez and Garcia, 2014). One such example is presented by Linaza, Guiterez and Garcia (2014) within the ExCORA game, which is the battle between the French and Anglo-Portuguese troops that occurred in San Sebastian from 28 June - 8 December 1813. The game takes place in the Urgull Mountain where the fortress was placed, and the players walking around would have to find several relevant locations so that they can interact with different elements. The game starts

outside the walls of the fortress and finishes on the flag located on the top of the Urgull Mountain, and players take the role of English soldiers trying to defeat the French army garrisons in the forest with the experience having six Points of Interest (PoI) and four treasures with different contents, validation methods and related mini-games (Linaza, Guiterez and Garcia, 2014). This platform also falls into the category of a serious game rather than a gamified system, since it offers a gameplay experience instead using game design elements in a non-game context. According to Ghanabri, Simila and Markkula (2015), serious games are games with a set of cognitive properties, that provide individuals with a new way of thinking, getting and transmitting knowledge and socialising. This application aims to offer fun, socialising and innovation at the destination for the tourist, including the history of the destination as an attraction. Unlike the previous examples this platform is focused at during the visit activities rather than before and after. However, for the purposes of this thesis the hotel gamified application aims to include all three phases of a hotel guest instead of one. Still the idea of including the local artefacts within the application as a task will be taken into consideration when developing the first phase of data collection.

Figure 4 Content removed due to copyright reasons.

"Stockholm Sounds". The application is being launched in order to offer tourists unique experiences that usually could not be found in guidebooks. According to Swedania (2013), tourists are challenged to discover Stockholm through game missions, interactive experiences and visits to exciting places based on the sounds and music of the city. In particular, when passengers land at Stockholm Arlanda and open the application, they get suggestions for experiences and a map to help them find the places at the airport. For example, in the baggage hall, people can answer questions

about some of the musicians found in the Stockholm Hall of Fame. Each correct answer and each experience give them one point. Visitors can also share their experiences from different game activities with friends, which creates opportunities for viral spread (Swedania, 2013). This applicatio is promoting the element of fun through a form of gameplay, but also the tourist (as gamer) is getting the opportunity to learn more about Stockholm and music, while at the same time getting the opportunity to win prizes for completing tasks. Indeed, by visiting over 40 locations in Stockholm, tourists earn "points" by completing challenges, history quizzes or gaming sessions, all connected to music or sound experiences; for example, from discovering "the sound of sushi" at Akki Sushi in Södermalm, in a music quiz at popular record store Pet Sounds. Completing the mini tasks unlocks events and rewards including pre-party playlists on Spotify and information about hangouts around the city that are popular with the locals (Liew, 2013). This gamified system includes core drives such as epic meaning and calling, development and accomplishment (by fulfilling the tasks), social influence and relatedness (by sharing activities with friends), and unpredictability and curiosity (by giving the opportunity to the tourist to discover Stockholm within the game application). Considering the explanation of the application it appears to be very similar to the previous example, For the same reasons it falls into the definition of a serious game instead of a gamified application or an advergame. This application aims to include the local culture of the destination to make the visit of the guest there more memorable and innovative. However, it still lacking on the continuation of the platform before and after the visit of the guest at the destination. However, the idea of including the local culture of the destination nearby the hotel is very interesting and will be taken into account when developing first phase's data collection.
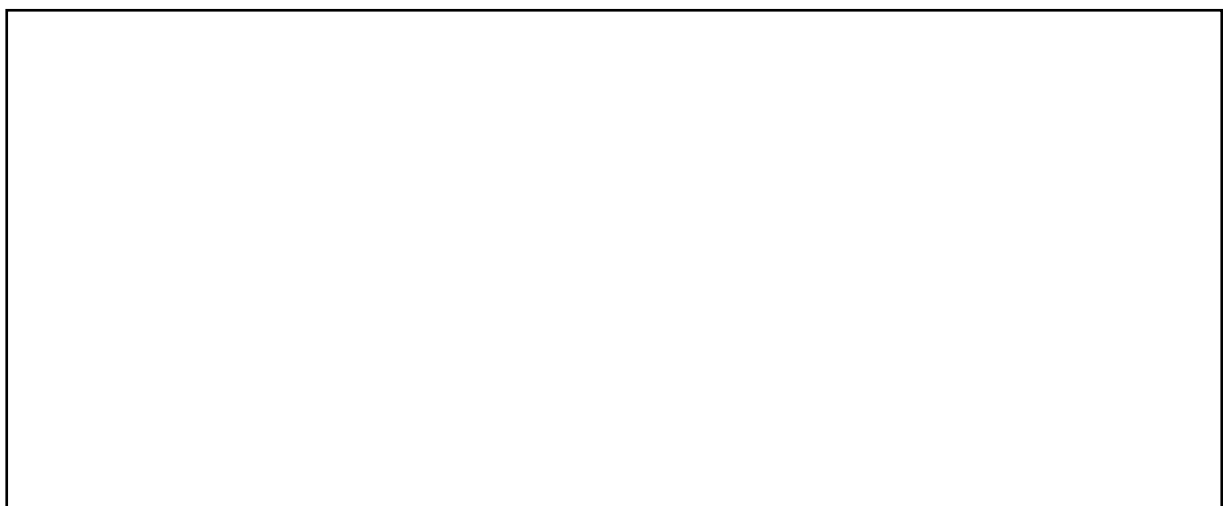
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2.3.9 Summary

Gamification is used by brands to motivate employees, create healthy competition among teams, generate buzz or social proof, and encourage customer loyalty (Stanley, 2014). This has also been evident within the hospitality industry, where gamification has been seen to encourage engagement, enhance tourist experience, improve loyalty and increase brand awareness (Killian, 2013; Weber, Xu and Buhalis, 2014). A tourist is a person who typically has "little or no knowledge of the environment" (McKercher and du Cros, 2003), so using gamified systems allows the tourist to learn more about the local environment, by having fun. Gamification enables destinations and hotels to promote the history of the location and create an emotional experience between the visitor and Point of Interest (PoI) (Xu, Tiang, Buhalis and Weber, 2015). At the same time, gamification could enable hotel visitors as gamers to have a sense of engagement, immediate feedback, feeling of accomplishment and success of striving against a challenge and overcoming it (Kirsh, 2014).

Gamification is implemented with a variety of techniques (some easy to implement, some requiring advanced planning, coding, or technical expertise), so any business uses gamification to get better results, no matter what the goals are (Stanley, 2014). Many gamified applications are failing due to poor game design. Some organizations are focusing on the obvious game mechanics, such as points, badges and leaderboards, rather than the subtler and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Burke, 2013). Gamification is not fundamentally wrong; it just needs to evolve past the hype.

Summarising, gamification is a complex phenomenon, which has only begun to be understood. Further research is required to further conceptualise and comprehend the intricacies inherent in the definitions and meanings currently ascribed to it. In particular, the use of game mechanics and game thinking as they relate to user profiling needs further investigation to uncover the core constructs that affect the intention to use gamified applications. Therefore, this research aims to identify hotel visitors' motives when using a mobile hotel gamified application. It is also considered important to focus on the element of fun and understand what it means for the users. Hence, the purpose of this research is to propose and test a model to clarify the

constructs that motivate hotel visitors to use hotel gamified applications in the field of m-commerce.

2.4 Section 4: Hypothesis development

Introduction

This section focuses on the Technology Acceptance Model and its choice as a core instrument when developing the survey in Phase 2. It should be noted that this chapter was developed after the first phase of data collection, in order to get a better understanding of the themes that arose, as well as to examine their previous use in similar contexts. It also aims to explain the choice of the Technology Acceptance Model, as the research aims to investigate whether these variables (as built from the first phase of data collection) actually have an effect on the intention to use a hotel's gamified application.

2.4.1 Overview of the Technology Acceptance Model

The psychology of action is based on the fundamental assumption that human beings are capable of reflecting on their own psychological status, such as their mood or their behavioural intentions (Klimmt and Hartman, 2006). To explain factors that influence intention to use a particular technology within tourism and hospitality, many studies have used the Technology Acceptance Model (TAM) and relevant models, i.e for use of websites (Herrero and San Martin, 2012; Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012), user generated content (UGC) (Mendes-Filho et al, 2018), hotel self-service kiosks (Kim M and Qu, 2013) and mobile applications (m-apps) (Tan et al, 2014). A TAM-based approach would therefore be appropriate to examine factors that would influence the acceptance of a hotel-gamified application as a new technology. Although TAM-based models have been used in tourism and hospitality contexts in order to predict behaviour towards technology, they have yet to be applied in a gamified applications context.

One of the common denominators between a game and gamified application use is the importance of perceived 'fun' when using the system (Marczewski, 2013; Bartle, 1996). Indeed, one of the most important factors that the designer should identify when starting to work on a game is what will be the fun element for the player during the game (Moore, 2011), and since fun is subjective there are so many different features that must go into a game to make it fun (Dunniway and Novak, 2008). Prior studies incorporated perceived enjoyment in the TAM to achieve a more accurate prediction

of customers' acceptance of a specific product or service (Rodrigues, Oliveira and Costa, 2016). Perceived enjoyment refers to the extent to which the user perceives the activity of using a technology as being enjoyable (Rodrigues, Oliveira and Costa, 2016; Hamari and Koivisto, 2015; Lee et al, 2018), and the degree to which the use of the computer is perceived as pleasant, regardless of all consequences of execution which may be envisaged (Agrebi and Jallais, 2015; Natarajan, Balasubramanian and Kasilngam, 2017; Rouibah, Lowry and Hwang, 2016). For example, studies by Lee et al. (2018), Rouibah, Lowry and Hwang (2016), and Agrebi and Jallais (2015) have all examined the relationship between perceived enjoyment and intention to use an information system, showing the positive effect of the variable towards usage.

The importance of fun has also been acknowledged within tourism and hospitality by Xu, Buhalis, and Weber (2017), who claim that gamification can enhance tourists' experiences by getting tourists immersed into a simulated travel world, which is fantasy and fun in nature. Taking this into consideration, and since a gamified application is an application that uses game design elements in a non-game context, it is important to identify what these elements are that make a game and a gamified application fun and what they mean by it.

2.4.2 Theories applicable to this study

Although previous studies show motives of individuals to either play games or use gamified applications (Marczewski, 2013; Bartle, 1996), and highlight the fact that tourists have diverse profiles (Kellner and Egger, 2016), more research is required to better understand individuals' behaviour when they use a gamified application specifically in the context of the hospitality industry. This research used TAM-relevant constructs (such as perceived enjoyment and perceived ease of use) as identical themes developed from the interview questions during the first phase of data collection. Furthermore, the choice of the Technology Acceptance Model as a core instrument is due to its overall aim of examining the factors contributing to technology acceptance in organizations. As the aim of this research is to examine whether certain variables actually have an effect on the intention to use a hotel's gamified applications, the Technology Acceptance Model is considered as the best model to adapt. The table below aims to explain similar models suitable for the purposes of this research, aiming to further clarify the choice of the Technology Acceptance Model.

Model	Brief Description
Theory of Reasoned Action (TRA)	Fishbein, instead of studying the role of self-esteem, prejudice or any other global disposition, suggested that individuals' direct attention to the particular behaviour of interest and try to identify its determinants (Ajzen, Albarracin and Hornik, 2007, p. 4). It assumes that humans are reasonable animals, who in deciding what action to take, systematically process and utilise the information available to them (Terry et. al, 1993, p. 253). TRA focuses on theoretical constructs concerned with individual motivational factors as determinants of the likelihood of performing a specific behaviour, and assumes that the best predictor of a behaviour is behavioural intention, which in turn is determined by attitude toward the behaviour and social normative perceptions regarding it (Glanz et. al, 2008, p. 67).
Technology Acceptance Model (TAM)	It has been developed by Davis (1985) as a model to predict system usage (Khosrow-Pour, 2002, p. 436). This has been an important area of research in the Information System arena, especially in the last 20 years (Khosrow-Pour, 2006, p. 208). It provided a theoretical base for examining the factors contributing to technology acceptance in organizations (Khosrow-Pour, 2002, p. 436). TAM theorizes that the effects of external variables (such as system characteristics, development process, training) on intention to use are mediated by perceived usefulness and perceived ease of use (Venkatesh and Davis, 2000). The goal is to provide an explanation of the determinants of computer acceptance that is generally capable of explaining user behaviour across a broad range of end-user computing technologies and user population (Van Slyke, 2008, 1039).
Motivational Model (MM)	In 1992 Davis, et. al. proposed the motivational model (MM), that integrates the TAM with two key motivational constructs to investigate factors influencing usage of computers in the workplace: extrinsic motivation and intrinsic motivation (Ackerman, et. al., 2007, p. 212). Motivation has to do with how behaviour gets started, is energized, is sustained, is directed, is stopped, and what kind of subjective reaction is present in the organism when all this is going on (Mowen, 2000). This model is based on a number of motivational factors, which are divided into two main categories: trait variables, or 'permanent' characteristics of an individual, and state variables, or more 'transient' characteristics (de Vicente and Pain, 2002).
Theory of Planned Behaviour (TPB)	The Theory of Planned Behaviour (TPB) is essentially an extension of the Theory of Reasoned Action (TRA) that includes measures of control belief and perceived behavioural control (Armitage and Conner, 2001; Hayden, 2009, p. 23). It was introduced by Ajzen as he extended the theory of reasoned action to include the concept of perceived behavioural control (Brannon and Feist, 2010, p. 48). This theory was developed to both predict and explain behaviours of social relevance that are under a person's volitional control (Hayden, 2009). In this theory (just like TRA) the central variable is intention to perform a behaviour, and it is the immediate determinant of the behaviour (Hayden, 2009, p. 23). Briefly according to TPB, human behaviour is guided by three kinds of considerations: behavioural beliefs (possible consequences or other attributes of the behaviour), normative beliefs (about the normative expectations of other people) and control beliefs (involve the presence of factors that may facilitate or hinder performance of the behaviour) (Feng, 2007, p. 52).
Model of PC Utilisation (MPCU)	This model was introduced by Thompson, Higgins and Howell in 1991 (Horbery, Regan and Stevens, 2014). A rather competing perspective to those presented by TRA and TPB is offered by this model, which draws directly from the theory of interpersonal behaviour (Panagopoulos, 2010, p. 41). The extent to which an individual believes that using a technology can enhance the performance of his and her job (Unhelkar, Ghanbary, Younessi, 2009, p. 182) focused on usage behaviour rather than intention to use (Panagopoulos, 2010, p. 41). This model shows the individual achievements of the participants from the collaborative environment and it provides a similar result to the MM model with almost different representation (Unhelkar, Ghanbary, Younessi, 2009, p. 182).

Innovation Diffusion Theory (IDT)	Originating from sociology, this demonstrates that the main determinant of innovation diffusion is perceived innovation characteristics (Lee and Ishii, 2009, p, 95). It was introduced by Rogers in 1995 (Spil, 2005, p. 2). This model predicts that seven characteristics of innovation are instrumental in explaining why end users adopt a technological innovation (Panagopoulos, 2010, p. 43). It proposes that potential adopters of an innovation must gain some knowledge about the innovation, then be persuaded about its value, decide to adopt and implement it, and confirm the decision to adopt the innovation (Bunker et. al, 2010, p. 181).
Social Cognitive Theory (SCT)	SCT arose from a behavioural psychology perspective (O'Brien, 1998, p. 150). Bandura (1986) incorporated the construct of self-efficacy into a comprehensive theoretical structure with the development of social cognitive theory (Chan, Cardoso and Chronister, 2009, p. 244). This theory represents a widely accepted and empirically validated model of human behaviour that has also been applied in technology acceptance (Panagopoulos, 2010, p. 44). It demonstrates the job-related benefits of the collaborate environment for an individual user of the collaborative technologies (Unhelkar, Ghanbary, Younessi, 2009, p. 182).
Unified Theory of Acceptance and Use of Technology (UTAUT)	In 2003, Venkatesh et al. proposed a new IT acceptance and use model, which aimed to unify eight prominent competing IT acceptance and use models (Kijsanayotin, Pannarunothai and Speedie, 2008). The unification of these models provides UTAUT with eight constructs: Performance expectancy, Effort expectancy, Attitude towards using technology, Social influence, facilitating conditions, Self-efficacy, Anxiety, and Behavioural intention to use the system (Oshlyansky, Cairns and Thimbleby, 2007). The new model successfully integrates all constructs in previous models, and can explain variance in IT behavioural intention and user behaviour better than the previous models (Kijsanayotin, Pannarunothai and Speedie, 2008).
Unified Theory of Acceptance and Use of Technology (UTAUT2)	This theory is an extension of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model, and adds technology characteristics and task characteristics variables (Nelson, Mathews and Blooma, 2013, p. 385). Venkatesh et. al. (2012) adopted an approach that complements the original constructs in UTAUT, UTAUT2, which had integrated hedonic motivation price, value and habit factors into UTAUT, as well as demographic variables (age, gender, and experience – drop voluntariness) which is part of the first UTAUT (Mahendra, et. al., 2014, p. 141). This theoretical model compromises seven main determinants of intention and use: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value and Habit as well as four moderating values: age, gender, voluntariness and experience (Nelson, Mathews and Blooma, 2013, p. 386).

2.4.3 Principles of the Technology Acceptance Model

The following section aims to review literature relevant to the Technology Acceptance Model and constructs that have been used before in similar contexts. However, it focuses on constructs that have been identified from the first phase of data collection.

2.4.3.1 Perceived Usefulness

Perceived usefulness is a core construct of the TAM (Davis, 1989; Sohn 2017) to explain behavioural intention (Natarajan, Balasubramanian, and Kasilngam, 2017). TAM was originally developed to predict users' initial adoption of a new IT (Chiu, C-M, et al 2009), and it theorizes that two key beliefs (Perceived Usefulness and Perceived Ease of Use) determine a person's intention to adopt a new technology (Ashraf, Thongpapanl and Auh, 2014). Perceived usefulness is considered as the utilitarian factor that affects online shopping (Cheema, et al 2013). The predictive power of the TAM enables researchers to apply it to various settings and to analyse and understand different purchase behaviours (Ashraf, Thongpapanl and Auh, 2014).

Usefulness is defined as the degree to which a person believes that using a particular technology will enhance his or her performance (Davis, 1989; Kim and Preis, 2016; Wang, 2011; Natarajan, Balasubramanian and Kasilngam, 2017; Chiu, C-M, et al 2009; Cheema, U et al 2013; Sohn, 2017). A system high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive use-performance relationship (Davis1989). An individual is more likely to form favourable feelings of satisfaction and intent to continued usage when such usage is perceived as useful (Chiu, C-M, et al 2009). With e-shopping, perceived usefulness is the customer's perception that by shopping online his or her performance will be enhanced (Cheema, U et al 2013; Sohn, 2017). A website is useful if it delivers services to a customer, but not if the customer's delivery expectations are not met (Al-maghrabi et al 2011). Furthermore, individuals shape behavioural intentions towards e-shopping, based largely on a cognitive evaluation of how it will improve their shopping performance (Al-maghrabi et al 2011). As gamification describes a number of design principles, processes and systems used to influence, engage and motivate individuals, groups and communities to drive behaviours (intentions) or generate the desired effect (Yang, Asaad and Dwivedi, 2017), it is likely to assume that adding a gamified application in a website would influence individuals' behaviour towards using the website.

This approach clearly is applicable to an online environment, in that many consumers believe that by using the internet to perform transactions, they can improve their results (Izquierdo-Yusta, Martınez-Ruiz and Alvarez-Herranz, 2014). Individuals are more likely to continue using the internet to make purchases when they perceive that the medium is useful, and when consumers already have purchased successfully online, they are more likely to express a strong intention to repurchase on the internet (Izquierdo-Yusta, Martınez-Ruiz and Alvarez-Herranz, 2014). Even though gamification is not a new concept, it is considered as a relatively new term, especially when it is used in relation to the internet (Yang, Asaad and Dwivedi, 2017). Therefore, this research aims to examine the link of perceived usefulness as defined above in regards to individuals' usage of gamified applications in the context of the hospitality industry.

Researchers consider Perceived Usefulness (PU) an important antecedent of a person's adoption of technology in the context of word-processing software, social networking and a combination of different technologies (Ashraf, Thongpapanl and Auh, 2014). As gamification is regarded as a new technology-based system (Yang, Asaad and Dwivedi, 2017), the link between perceived usefulness and a gamified application is going to be examined. Previous studies by Natarajan, Balasubramanian and Kasilngam (2017), Izquierdo-Yusta, Renny, Guritno and Siringoringo (2013), Martınez-Ruiz and Alvarez-Herranz (2014), Wang (2011), Ashraf, Thongpapanl and Spyropoulou (2016) and Sohn (2017) have shown a positive impact of perceived usefulness in intention to use mobile shopping applications or intention to shop online. In addition, a study by Kim and Preis (2016) has shown a positive outcome between perceived usefulness and intention to use mobile devices for tourism-related activities. Furthermore, studies by Chiu, et al. (2009) and Al-maghrabi et al (2011) have shown the positive influence of perceived usefulness and loyalty intention.

A summary of studies linking PU with different types of intention can be found below in Table 2.2.

Author, Year	Title	Journal	Hypothesis	Results
Cheema, U et al. (2013)	The trend of online shopping in the 21st century: Impact of enjoyment in TAM model	Asian Journal of Empirical Research	PU has positive effect on shopping intention	Reject

Chiu, C-M et al. (2009)	Understanding customers' loyalty intentions towards online shopping: An integration of technology acceptance model and fairness theory	Behavioural & Information Technology	PU is positively associated with loyalty intention	Accept
Natarajan, T., Balasubramanian, S.A. and Kasilngam, D.L. (2017)	Understanding the intention to use mobile shopping applications and its influence in price sensitivity	Journal of Retailing and Consumers Services	PU has a positive influence on the intention to use mobile shopping applications	Accept
Renny, Guritno, S, and Siringoringo, H. (2013)	Perceived Usefulness, Ease of Use, and Attitude towards Online shopping Usefulness towards online airline ticket Purchase	Social and Behavioural Sciences	PU has a direct impact on customer attitudes towards usability of service tickets online	Accept
Ashraf, A.R., Thongpapanl, N. and Spyropoulou, S. (2016)	The connection and disconnection between e-commerce business and their customers: Exploring the role of engagement, perceived usefulness and perceived ease of use	Electronic Commerce Research and Applications	The PU stimulated as a result of fit will mediate the effect of regulatory fit on consumers' purchase intention	Accept
Ashraf, A.R., Thongpapanl, N. and Auh, S. (2014)	The application of the technology acceptance model under different cultural contexts: The case of online shopping adoption	Journal of International Marketing	PU has a direct (positive) effect on consumers' intention to shop online	Reject
Wang, T-L. (2011)	An effect of trust and attitude in the initial adoption of online shopping: An empirical study	International Conference on Information Society	PU has a positive effect on intention to use online shopping	Accept
Kim, M. J. and Preis, M. W. (2016)	Why seniors use mobile devices: Applying an extended model of goal-directed behaviour	Journal of Travel and Tourism Marketing	PU of mobile devices has a positive influence on seniors' attitudes toward usage of mobile devices for tourism-related activities	Accept
Izquierdo-Yusta, A., Martınez-Ruiz, M.P. and Alvarez-Herranz, A. (2014)	What differentiates internet shoppers from internet surfers?	The Service Industries Journal	The PU of the internet as a purchasing channel has a positive influence on intentions to purchase on the internet.	Accept
Sohn, S. (2017)	A contextual perspective on consumers' perceived usefulness: The case of mobile online shopping	Journal of Retailing and Consumer Services	An increase in the perceived usefulness of mobile online stores for information search will lead to an increase in the perceptions of usefulness of mobile online stores for purchasing	Accept
Al-maghrabi, T et al (2011)	Determinants of customer continuance intention of online shopping	International Journal of Business Science and Applied Management	PU is positively related to increasing customer Continuance Intention	Accept

Yang, Y., Asaad, Y. and Dwivedi (2017)	Examining the impact of gamification on intention of engagement and brand attitude in the marketing context	Computers in Human Behaviour	PU will have a positive effect on customers' intention to engage in gamification	Accept
Yoo, C. et al. (2017)	Factors affecting the adoption of Gamified Smart Tourism Applications: An integrative approach	Sustainability	The PU of the gamified smart tourism applications (GSTA) will positively affect intention to use (IU)	Accept

Table 2. 1 Studies linking Perceived Usefulness with Intention to Use

On the other hand, there are researches by Cheema, et al (2013) showing a negative impact of Perceived Usefulness on shopping intention. It means that the behavioural intentions of the sample members towards online shopping were not due to its usefulness, but they are attracted towards internet shopping for other reasons. According to Cheema, et al (2013), a reason for this surprising result could be due to its particular region responses (Islamabad, Lahore, Multan, and Bahawalpur), as the population for this research is internet users in Pakistan.

Ashraf, Thongpapanl and Auh (2014) showed a negative impact of Perceived Usefulness and consumers' intention to shop online for Pakistani people. In the case of this study, differences were observed between Pakistan and Canada with regard to attitude toward and intention to adopt e-commerce. It was found that Perceived Usefulness has only indirect significant influence on intention for the Pakistani sample, whereas it has both direct and indirect significant influence for the Canadian sample. According to Ashraf, Thongpapanl and Auh (2014), a possible explanation for this result is that online shopping is a relatively new phenomenon in Pakistan, and customers are still in the trial/experimental stage of adoption. Users' positive feelings of Perceived Usefulness towards shopping online may not immediately translate into intention to shop online. Even though the negative impact of this research is recognized and taken into consideration, it is not relevant for the purposes of this thesis as it is not looking to identify cultural differences for the measurement of Perceived Usefulness and Intention to shop online.

As this research aims to examine perceived usefulness with hotel gamified applications, some proof has been found with regard to perceived usefulness with gamification. Research by Yang, Asaad and Dwivedi (2017) found a positive effect between perceived usefulness and customers' intention to engage in gamification, and research from Yoo, et al (2017) found a positive effect on intention to use Gamified

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Smart Tourism Applications. For the purpose of this thesis, gamification is referred to as a system applying game design elements to a non-game context (such as chain hotels) in order to generate playful experiences and influence users' attitudes and/or behaviour towards a hotel's gamified application. Accordingly, the following hypothesis is proposed:

H1: *Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.2 Perceived Ease of Use

Perceived ease of use (PEOU) is a key component for the TAM (Chang, Hajiyev and Su, 2017; Ozturk et al, 2016; Moslehpour, Amri and Promprasorn, 2017), and it has been used to measure the acceptance of the technology and usage behaviour (Moslehpour, Amri and Promprasorn, 2017). Derived from Ajzen and Fishbein's 1977 theory of reasoned action, the TAM was proposed specifically to explain computer usage but has since been adopted to explain technology use in various contexts such as consumers' online behaviour, mobile service usage (Lu et al. 2015) and online games (Smith et al. 2011). According to the TAM one's actual use of a technology system is influenced directly or indirectly by the user's behavioural intentions, perceived usefulness and perceived ease of use (Yang, Asaad and Dwivedi, 2017). Perceived ease of use is considered to be an important factor that influences people's behavioural intention or attitude (Yoo, C. et al 2017).

Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989; Venkatesh, 2000; Lu et al, 2015; Chinomona, 2013; Ozturk et al, 2016; Smith et al, 2011; Moslehpour, Amri and Promprasorn, 2017). Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible (Davis, 1989). All else being equal, an application perceived to be easier to use than another is more likely to be accepted by users (Davis, 1989). Perceived ease of use is a construct tied to an individual's assessment of the effort involved in the process of using the system (Venkatesh, 2000), and it is a prominent construct in tourism information systems research (Ozturk et al, 2016). In the current study, perceived ease of use refers to the degree to which a mobile gamified application is perceived as easy to understand and operate when a user is partaking in a hotel's gamified application system. Since perceived ease of use

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positively affects the intention to use smartphone apps (Ozturk et al, 2016), it can be expected that the more the users anticipate effortless use of a hotel's gamified application, the more likely they are to use the application.

The less effort a technology requires, the more tendency and intention consumers will feel to use it (Aren, S. et al 2013). It is also suggested that the clearer and more understandable online shopping sites are (which require less mental effort of their users to make a purchase), the more attractive for potential customers they would be (Moslehpour, Amri and Promprasorn, 2017). Perceived ease of use has been seen as the degree of belief that using a particular system, or in other words shopping online, would be effortless (Aren et al. 2013). The easier a system is to use, the higher the possibility it is to be accepted by the users (Davis, 1989). Aren et al. (2013) suggested that a website will receive more visits as it becomes more practical; therefore the less effort a technology requires, the more tendency and intention consumers will feel to use it.

It can be concluded that the main feature of perceived ease of use is "simplicity", whether in comprehension, interaction, accessibility or operation (Yang, Asaad and Dwivedi, 2017), and it represents the degree of complexity of the information technology (Chen and Tsai, 2017). As gamification is regarded as a new technology-based system (Yang, Asaad and Dwivedi, 2017), the link between perceived ease of use and a gamified application is going to be examined. It has been found from previous research such as Smith et al. (2011), Chinomona (2013), Moslehpour (2018), Chen and Tsai (2017), Chang, Hajiyev and Su (2017), Venkatesh (2000) and Lu et al. (2015) that perceived ease of use has a positive effect on technology intention. Furthermore, studies by Aren et al (2013) and Ozturk et al (2016) have shown a positive effect of perceived ease of use on repurchase intention at the same e-shop and loyalty in mobile hotel booking (MHB).

A summary of studies linking PEOU with different types of intention can be found below in Table 2.3.

Author, Year	Title	Journal	Hypothesis	Results
Smith, R. et al. (2011)	Cross-cultural examination of online shopping behaviour: A comparison of Norway, Germany and the United States	Journal of Business Research	PEOU will be positively associated with behavioural intent to use online shopping sites for	Accept

			U.S, Germany and Norwegian consumers	
Ozturk, A.B. et al. (2016)	What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use and perceived convenience	International Journal of Information Management	PEOU has a positive effect on loyalty in MHB	Accept
Moslehpour, M., Amri, K. and Promprasorn, P. (2017)	Factors influencing intention to use smartphone applications in Thailand	IEEE International Conference on Industrial Engineering and Engineering Management	EOU significantly influences IU of smartphone application users	Reject
Chinomona, R. (2013)	The influence of perceived ease of use and perceived usefulness on trust and intention to use mobile social software	African Journal for Physical, Health Education, Recreation and Dance	Perceived ease of use of mobile social software will have a positive effect on the users' intention to use the mobile social software	Accept
Aren, S. et al. (2013)	Factors affecting repurchase intention to shop at the same website	Procedia Social and Behavioural Sciences	The PEOU has a positive effect on repurchase intention at the same e-shop	Accept
Moslehpour, M. (2018)	e-Purchase intention of Taiwanese consumers: Sustainable mediation of perceived usefulness and perceived ease of use	Sustainability	PEOU has positive association with INT	Accept
Chen, C-C. and Tsai, J-L. (2017)	Determinants of behavioural intention to use the Personalized Location-based Mobile Tourism Application: An empirical study by integrating TAM with ISSM	Future Generation Computer Systems	Users' PEOU regarding the PLMTA will positively influence their intention to use the system	Accept
Chang, C-T., Hajiyev, J. and Su, C-R. (2017)	Examining the students' behavioural intention to use e-learning in Azerbaijan? The General Extended Technology Acceptance Model for e-learning approach	Computers and Education	PEOU positively and significantly influences BI to use e-learning	Accept
Venkatesh, V. (2000)	Determinant of Perceived ease of use: Integrating control, Intrinsic motivation and emotion into the Technology Acceptance Model.	Information System Research	PEOU has a direct effect on intention	Accept
Yang, Y., Asaad, Y. and Dwivedi, Y. (2017)	Examining the impact of gamification on intention of engagement and brand attitude in the marketing context	Computers in Human Behaviour	PEOU will have a positive effect on customers' intention to engage in gamification	Accept
Lu, J. et al. (2015)	Goodbye maps, hello apps? Exploring the influential determinants of travel app adoption	Current Issues in Tourism	The PEOU of a travel app has a significant positive effect on the intention to use travel apps	Accept

Yoo, C. et al. (2017)	Factors affecting the adoption of Gamified Smart Tourism Applications: An integrative approach	Sustainability	The PEOU of GSTA will positively affect IU	Accept

Table 2. 2 Studies linking Perceived Ease of Use with Intention to Use

On the other hand, research by Moslehpour, Amri and Promprasorn (2017) on factors influencing intention to use smartphone applications in Thailand has shown a negative impact of perceived ease of use and intention to use smartphones. However, the ease of using the app influences their satisfaction with the app. Users' satisfaction will result in positive comments and a high rating of the app, which in turn will give the app more visibility (Moslehpour, Amri and Promprasorn, 2017). The mediating role of satisfaction in this model is therefore becoming more obvious. Even though in this research the direct effect of Perceived ease of use on intention to use is negative, the importance of the variable is shown indirectly by the positive effect of Perceived ease of use on satisfaction and then intention to use. For the purposes of this thesis, Perceived ease of use and Intention to use are linked directly and not through mediating variables as it has been measured in previous examples.

As this research aims to examine perceived ease of use with hotels' gamified applications, some proof has been found of perceived ease of use with gamification. Research by Yang, Asaad and Dwivedi (2017) found a positive effect between perceived ease of use and customers' intention to engage in gamification, and research from Yoo, et al (2017) found a positive effect on perceived ease of use and intention to use Gamified Smart Tourism Applications. For the purpose of this thesis, gamification is referred as a system applying game design elements to a non-game context (such as chain hotels) in order to generate playful experiences and influence users' attitude and/or behaviour towards a hotel's gamified application. Accordingly, the following hypothesis is proposed:

H2: *Perceived ease of use has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.3 Perceived Enjoyment

Fun is one of the most commonly and frequently used words (Tasci and Ko, 2016). Fun is used both as an adjective and as a noun to describe events, things, situations and states of being with positive qualities in every social and psychological context of

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life (Tasci and Ko, 2016). Fun was also used as a dimension of enjoyment rather than as a concept in itself (Tasci and Ko, 2016). Enjoyment can be defined as the fun or pleasure derived from performing activities either actively or passively, regardless of the quality of the performance attained (Kim and Preis, 2016; Gurtner, Reinhardt and Soyez, 2014). Davis et al (1992) were the first to introduce enjoyment as an important factor to predict usage intention. Other researchers applied the hedonic construct "fun", which is a synonym for enjoyment, and found that it influences attitudes toward usage and intention to use (Gurtner, Reinhardt and Soyez, 2014). Although attributions of fun originally connote free time, leisure, recreation and play, it is also used in the context of mundane obligations, such as work and school, and nowadays is even seen as a requirement in achieving desired results in tasks such as shopping, using technology, learning or even work (Tasci and Ko, 2016). Perceived enjoyment (PE) was one of the core values that extended the TAM across various technologies (Natarajan, Balasubramanian and Kasilingam, 2018) in order to achieve a more accurate prediction of customers' acceptance of a specific product or service (Rodrigues, Oliveira and Costa, 2016).

Perceived enjoyment refers to the extent to which the user perceives the activity of using a technology as being enjoyable (Lee et al. 2018; Hamari and Koivisto, 2015; Rodrigues, Oliveira and Costa, 2016), and the degree to which the use of the computer is perceived as pleasant, regardless of all consequences of execution which may be envisaged (Natarajan, Balasubramanian and Kasilngam, 2017; Agrebik and Jallais, 2015; Venkatesh, 2000; Rodrigues, Oliveira and Costa, 2016). When Davis et al (1992) empirically examined the relationship between perceived enjoyment and behavioural intention, they found that perceived enjoyment had a significant effect on the user's intention to use new technologies in the workplace. The higher the perceived enjoyment is, the higher will be the individual's intention to adopt the system (Chen, 2017).

People tend to engage in activities they find enjoyable, and enjoyment is a predictor of users' attitudes toward technology usage (Kim and Preis, 2016). Perceived enjoyment will play a strong role in explaining the variance of the intention to use mobile commerce in the future (Natarajan, Balasubramanian and Kasilngam, 2017). It has been found that consumers of smartphones who experienced pleasure or joy in

using a technology are more likely to adopt the technology and to use it more extensively than others (Natarajan, Balasubramanian and Kasilingam, 2018).

In the context of games, game-like systems and other systems used for entertainment purposes, the enjoyment of using the system has been shown to be an important factor affecting use intentions (Hamari and Koivisto, 2015). It has been found that one important motive for playing games is to seek pleasure; players who perceive enjoyment in games (gamification) are more likely to play more (Yang, Asaad and Dwivedi, 2017). Moreover, it has been found that the variable of perceived enjoyment is one of the biggest determinants of mobile games adoption, and since mobile gaming can be closely associated with mobile shopping applications as they are similar activities in terms of interaction, information retrieval and processing (Natarajan, Balasubramanian and Kasilingam, 2018), it would be interesting to see if perceived enjoyment influences the decision of the mobile shopping application users in a hotel gamified platform.

Prior studies incorporated perceived enjoyment in the TAM to achieve a more accurate prediction of customers' acceptance of a specific product or service (Rodrigues, Oliveira and Costa, 2016). For example, studies by Chen (2017), Lee et al. (2018), Rouibah, Lowry and Hwang (2016), Natarajan, Balasubramanian and Kasilngam (2017), Natarajan, Balasubramanian and Kasilngam (2018), Agrebik and Jallais (2015) and Gurtner, Reinhardt and Soyez (2014) have all examined the relationship between perceived enjoyment and intention to use an information system, or intention to adopt an information system showing the positive effect of the variable towards behavioural usage. Furthermore, research by Hew et al. (2018) has shown a positive effect of perceived enjoyment and intention to shop online in the context of tourism and mobile social tourism shopping.

A summary of studies linking PE with different types of intention can be found below in Table 2.4.

Author, Year	Title	Journal	Hypothesis	Results
Yoo, C. et al. (2017)	Factors affecting the adoption of Gamified Smart Tourism Applications: An integrative approach	Sustainability	The PE of GSTA will positively affect IU	Accept
Yang, Y., Asaad, Y. and Dwivedi, Y. (2017)	Examining the impact of gamification on intention of	Computers in Human Behaviour	PE will have a positive effect on customers'	Accept

	engagement and brand attitude in the marketing context		intention to engage in gamification	
Chen, C-W. (2017)	Five-star or thumbs-up? The influence of rating system types on users' perceptions of information quality, cognitive effort, enjoyment and continuance intention	Internet Research	PE will be positively associated with intention to continue to use the rating system	Accept
Lee, S. et al. (2018)	Factors affecting tablet computer users' intention to purchase mobile applications	Social Behaviour and Personality	PE will have a positive effect on intention to purchase tablet computer applications	Accept
Rouibah, K., Lowry, P.B. and Hwang, Y. (2016)	The effects of perceived enjoyment and perceived risk on trust formation and intention to use online payment systems: New perspectives from the Arab country	Electronic Commerce Research and Applications	A consumer's PE positively affects the consumer's intention to adopt	Accept
Natarajan, T., Balasubramanian, S.A. and Kasilngam, D.L. (2017)	Understanding the intention to use mobile shopping applications and its influence on price sensitivity	Journal of Retailing and Consumers Services	PE has a significant positive influence on the intention to use mobile shopping applications	Accept
Agrebik, S. and Jallais, J. (2015)	Explain the intention to use smartphones for mobile shopping	Journal of Retailing and Consumer Services	The greater the PE, the greater the intention to use mobile phones for purchases	Accept
Natarajan, T., Balasubramanian, S.A. and Kasilingam, D.L. (2018)	The moderating role of device type and age of users on the intention to use mobile shopping applications	Technology in Society	PE has a significant positive influence on the intention to use mobile shopping applications	Accept
Hew, J-J. et al. (2018)	Mobile social tourism shopping: a dual-stage analysis of a multi-mediation model	Tourism Management	PE has a positive impact on MST shopping intention	Accept
Gurtner, S., Reinhardt, R. and Soyez, K. (2014)	Designing mobile business applications for different age groups	Technological Forecasting & Social Change	PE positively influences intention to use	Accept
Hamari, J. and Koivisto, J. (2015)	Why do people use gamification services?	International Journal of Information Management	PE is positively associated with continue use	Accept
Rodrigues, L.F., Oliveira, A. and Costa, C.J. (2016)	Playing seriously – How gamification and social cues influence bank customers to use gamified e-business applications	Computers in Human Behaviour	The PE of using gamified business applications positively affects the intention to use them	Reject
Rodrigues, L.F., Oliveira, A. and Costa, C.J. (2016)	Does ease-of-use contribute to the perception of enjoyment? A case of gamification in e-banking	Computers in Human Behaviour	The PE positively affects intention to use	Reject

Table 2. 3 Studies linking Perceived Enjoyment with Intention to Use

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There is a reason to assume that, similarly to games, enjoyment will positively influence the use intentions of a gamified service (Hamari and Koivisto, 2015). Research by Yang, Asaad and Dwivedi (2017) has shown a positive effect of perceived enjoyment and customers' intention to engage in gamification, and Hamari and Koivisto (2015) have shown a positive effect of the variable with continued use of gamified services. Research by Yoo et al. (2017) has shown a positive effect of perceived enjoyment and intention to use Gamified Smart Tourism Applications. On the other hand, research by Rodrigues, Oliveira and Costa (2016) and has found a negative effect of perceived enjoyment and intention to use gamified business applications in the context of e-banking. These studies showed that business software and real money are a serious business, and the game software features are not sufficient by themselves to change the bank customers' behaviour to use more e-banking. However, empirical evidence as it has been mentioned above shows that the perceived enjoyment has a strong impact on the users' intentions to use hedonic software.

It is presumed that perceived enjoyment resides in the extent to which a customer thinks that using a gamified business application is pleasant, and that this perceived enjoyment is correlated with an intention to use it again in the future. Therefore, the idea that hotel customers perceived the gamified business application as enjoyable or fun can create an expectation of an internal psychological reward, which can be sufficient to motivate sustained or extensive use. Accordingly, the following hypothesis is proposed:

H3: *Perceived Enjoyment has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.4 Perceived Innovativeness

Researchers have asserted that modifying the TAM to include constructs related to individual difference variables such as personal innovativeness could significantly improve the power of such models to predict user intention to adopt a particular technology (Fagan, Kilmon and Pandey, 2012). There are various definitions of the term "innovation", which derives from the Latin "innovatio" meaning the creation of something new (Farsani et al, 2016). For the innovative enterprise to create pure profit, innovation should generate and maintain a unique competitive advantage in relation

to competitors in the domestic market as well as in international trade (Farsani et al, 2016). Innovative individuals are the ones who could handle uncertainty and also have a better intention to adopt new innovations in IT (Tan et al 2014). However, innovativeness is often (and misleadingly) used synonymously with the term innovation (Binder et al. 2016). This lack of clarity has led to considerable problems with regards to conceptualization and measurement of innovativeness (Binder et al. 2016). Innovativeness is a personality trait that underlies the adoption of innovation, the desire to change, be innovative and try new things (Nirmala and Dewi, 2011).

Personal innovativeness (PI) is defined as the degree of speed as well as willingness of an individual to adopt new ideas in relation to other members of the social system (Natarajan, Balasubramanian and Kasilngam, 2017; Bigne-Alcaniz et al 2007; Hong, Lin and Hsieh, 2017; Madan and Yadav, 2017; Roubah, Lowry and Hwang, 2016; Thakur and Srivastava, 2014). Personal innovativeness is derived from the innovation diffusion theory, which explains that personal innovativeness is a personality trait that does not exist in all individuals and that people react differently when adopting new innovations (Roubah, Lowry and Hwang, 2016). Personal innovativeness can be classified into two different categories (Tan et al 2014; Bigne-Alcaniz et al 2007): the open-processing, which touches on the prediction of general behaviour of innovation adoption, such as an individual's intellectual, attitudinal and perceptual characteristics, and the domain-specific innovation which is the tendency of individuals to seek knowledge on innovation adoption for a particular product (Tan et al 2014).

Innovative consumers typically expect high benefits from innovation, and adopt new products and services more extensively and quickly than others, providing feedback and revenues to companies offering new products and services, making them a valuable market segment (Tussyadiah, 2016). Additionally, studies in marketing suggest that personal innovativeness leads to preference, decision making and brand loyalty, andit is therefore argued that focusing on consumer innovators is the key to successful introduction of new products and services (Tussyadiah, 2016). As competition increases in tourism, it has been noted that innovation and product development are keys to success in tourism (Farsani et al, 2016). Existing studies ignored several important factors that can affect individuals' decisions to purchase from the web and one of the variables has been personal innovativeness, which has

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not been investigated as much despite its importance (Limayem, Khalifa and Frini, 2000).

Understanding personal innovativeness and its relevance in influencing new product adoption behaviour is important to minimize the risk of failure associated with new products or technologies (Madan and Yadav, 2017). As observed, innovators are novelty seekers and they desire to seek out what is new and different, so they need a smaller cognitive effort to comprehend the new product concept and have a higher competence to evaluate alternative products and select the superior one (Thakur and Srivastava, 2014). Exploring the significance of personal innovativeness in the domain of information technology is a very important area of research in the area of technology adoption (Fagan, Kilmon and Pandey, 2012). For example, this individual characteristic might mean that two individuals could have the same perception of an innovation (e.g. its perceived usefulness and ease of use), and yet an individual with a higher degree of personal innovativeness in the domain of information technology might develop more positive perceptions of the innovation and a higher behavioural intention to adopt it (Fagan, Kilmon and Pandey, 2012). Therefore, personal innovativeness has had a huge impact in the success of shopping via the internet (Nirmala and Dewi, 2011).

Studies tested the direct relationship between personal innovativeness and intention to use smartphones for shopping applications (Natarajan, Balasubramanian and Kasilngam, 2017). For example, researches by Limayem, Khalifa and Frini (2000) Natarajan, Balasubramanian and Kasilngam (2017), Natarajan, Balasubramanian and Kasilngam (2018) and Fagan, Kilmon and Pandey (2012) have shown a direct positive effect between personal innovativeness and intention to use new technology, whereas researches by Bigne-Alcaniz et al. (2007), Thakur and Srivastava (2014), Nirmala and Dewi (2011) and Madan and Yadav (2017) have shown a direct positive effect between personal innovativeness and intention to shop online. There are also studies showing the indirect effect of personal innovativeness and intention to use new technology; for example, research by Roubah, Lowry and Hwang (2016) has shown the positive effect of personal innovativeness and intention to use new technology through the variable of trust, and research by Hong, Lin and Hsieh (2017), where the indirect positive effect of the variable has been shown by the variables of utilitarian and hedonic value.

A summary of studies linking PI with different types of intention can be found below Table 2.5.

Author, Year	Title	Journal	Hypothesis	Results
Limayem, M, Khalifa, M. and Frini, A. (2000)	What makes consumers buy from the internet? A longitudinal study of online shopping	IEEE Transactions on Systems, Man, and Cybernetics	There is a positive relationship between PI and IU	Accept
Bigne-Alcaniz, E et al. (2007)	Influence of online shopping information dependency and innovativeness on internet shopping adoption	Online Information Review	PI towards online shopping has a favourable influence on the future online shopping intention	Accept
Natarajan, T., Balasubramanian, S.A. and Kasilngam, D.L. (2017)	Understanding the intention to use mobile shopping applications and its influence on price sensitivity	Journal of Retailing and Consumers Services	PI has a significant positive influence on the IU mobile shopping application	Accept
Thakur, R. and Srivastava, M. (2014)	A study on the impact of consumer risk perception and innovativeness on online shopping in India	International Journal of Retail & Distribution Management	PI has a favourable influence on online shopping intention	Accept
Natarajan, T., Balasubramanian, S.A. and Kasilingam, D.L. (2018)	The moderating role of device type and age of users on the intention to use mobile shopping applications	Technology in Society	PI has a significant positive influence on the IU mobile shopping applications	Accept
Nirmala, R.P. and Dewi, I.J. (2011)	The effects of shopping orientations, consumer innovativeness, purchase experiences and gender on intention to shop for fashion products online	Gadjah Mada International Journal of Business	PI has a positive effect on intention to shop for fashion products online	Accept
Madan, K. and Yadav, R. (2017)	Understanding and predicting antecedents of mobile shopping adoption	Asia Pacific Journal of Marketing and Logistics	Higher PI, higher is the consumers' BI to shop over mobile devices	Accept
Tan, G.W-H. et al. (2014)	Predicting the drivers of behavioural intention to use mobile learning: A hybrid SEM-Neural networks approach	Computers in Human Behaviour	PI has a significant and positive association with intention to adopt m-learning	Reject
Fagan, M., Kilmon, C. and Pandey, V. (2012)	Exploring the adoption of the virtual reality simulation	Campus-Wide Information Systems	PI in the domain of information technology will have a significant positive influence on behavioural intention to use the virtual reality crash cart simulation	Accept
Roubah, K., Lowry, P.B. and Hwang, Y. (2016)	The effects of perceived enjoyment and perceived risks on trust formation and intentions to use online payment systems: New	Electronic Commerce Research and Applications	PI positively affects the consumer's trust/ Consumer trust positively influences consumer intentions to use EPS	Accept/ Accept

	perspectives from an Arab country			
Hong, J-C., Lin, P-H. and Hsieh, P-C. (2017)	The effects of consumer innovativeness on perceived value and continuance intention to use smartwatch	Computers in Human Behaviour	PI is positively correlated to hedonic value/ Hedonic value is positively correlated to continuance intention to use	Accept/ Accept
Hong, J-C., Lin, P-H. and Hsieh, P-C. (2017)	The effects of consumer innovativeness on perceived value and continuance intention to use smartwatch	Computers in Human Behaviour	PI is positively correlated to utilitarian value/ Utilitarian value is positively correlated to continuance intention to use	Accept/ Accept

Table 2. 4 Studies linking Perceived Innovativeness with Intention to Use

On the other hand, research by Tan et al. (2014) has shown a negative effect between personal innovativeness and intention to adopt m-learning. According to Tan et al. (2014), this might be due to the selected sample. As the majority of the respondents were bachelor degree holders, the decision to adopt m-learning is not based on braveness or curiosity, but on rationality and usefulness of m-learning (Tan et al 2014). At this point it should also be mentioned that the above research was focusing on the adoption of students and m-learning in contrast with the existing one, which is focused on hotel visitors and shopping via mobile applications. In this regard, the above study is not enough to discourage the hypothesis.

This variable was incorporated into this study because marketers should understand individuals' (as hotel visitors) willingness to use mobile shopping applications (Natarajan, Balasubramanian and Kasilngam (2018). It was evidenced that frequency of online buying and intent to buy online in the future were predicted by general innovativeness, online buying-specific innovativeness and the role of personal innovativeness' involvement with the internet (Thakur and Srivastava, 2014; Bigne-Alcaniz et al 2007). Therefore, it has been chosen to use a modified TAM to test a number of constructs related to individuals' intention to use a new technology such as hotel gamified applications. Hence, it is necessary for this study to test the direct relationship between innovativeness with intention to use. Accordingly, the following hypothesis is proposed:

H4: *Perceived Innovativeness has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.5 Social Influence

On a general level, human beings inherently long for relatedness and from those near them (Hamari and Koivisto, 2015). The social interaction facilitated within a service may potentially satisfy these needs, such as a sense of recognition, which refers to the social feedback users receive on their behaviour (Hamari and Koivisto, 2015). Previous studies have applied the theory of reasoned action (TRA) and the technology acceptance model (TAM) to understand the factors influencing individual adoption of technology (Watjatrakul, 2013). In the literature surrounding technology adoption, the social aspects are commonly operationalized as social influence (Hamari and Koivisto, 2015). The TRA proposed by Fishbein and Ajzen (1975) is widely used to examine how social norms of compliance, conformity and identification may operate to influence behaviour (Watjatrakul, 2013). In later years, Davis (1989) purposed the TAM to explain the psychological interaction of a user with technology (Watjatrakul, 2013).

Social influence occurs when an individual's behaviour is influenced by those around him or her, and it relates to being frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao, Chen and Wang, 2016). It is defined as the degree to which an individual values the importance of others' persistence that he or she should use the new system (Jeng and Tzeng, 2012; Hamari and Koivisto, 2015). Social influence comes in two forms: subjective norms and informational social influence (Harn et al, 2014). Subjective norms refer to the perceived social pressure on an individual to perform, or not to perform the behaviour, regardless of their beliefs and attitudes toward the behaviour (Harn et al, 2014; Jeng and Tzeng, 2012). On the other hand, informational social group influence is the process by which people determine the successful experience of their social group with an innovation before deciding whether or not to proceed with adoption (Harn et al, 2014). Therefore, the concept of informational social influence describes an influence to accept information obtained from another as evidence about reality (Harn et al, 2014). In this study, social influence is defined as the extent to which individuals believe that others should use a hotel's gamified application as well.

A study by Hsu, Shiue and Sheng (2016) divided social influence into social presence and social norm, showing a positive effect of social presence on continued intention to use e-tutors. However, the social norm did not show a significant effect on intention

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to use. Social presence has been studied by Hew et al (2018) in the context of mobile social tourism (MST) shopping. Under the environment of MST shopping, social presence was found to have no direct influence on MST shopping intention. However, it is indirectly influencing MST shopping intention through perceived usefulness and perceived enjoyment. Similarly, a study by Watjatrakul (2013) has shown the indirect positive effect of social influence on intention to use through perceived usefulness and perceived enjoyment, and a study by Zhao, Chen and Wang (2016) has shown a positive effect on continuance usage through psychological ownership. In a study by Harn et al (2014), informational social influence has been used as a moderating effect but not supported, implying that there is no moderating effect by informational social influence on online purchasing. Perhaps consumers do not rely on other sources of information when making an online purchase (Harn et al, 2014).

A summary of studies linking SI with different types of intention can be found below in Table 2.6.

Author, Year	Title	Journal	Hypothesis	Results
Watjatrakul, B. (2013)	Intention to use a free voluntary service	Journal of Systems and Information Technology	SI has a positive effect on IU a free voluntary service	Accept
Hsu, Y-C., Shiue, Y-M, and Sheng, M-H. (2016)	Continuous intention formation in E-tutoring system: examining the roles of self-determined motivators, social and technological influences	IEEE International Conference on Advanced Materials for Science and Engineering	SN has a positive effect on CI	Reject
Hsu, Y-C., Shiue, Y-M, and Sheng, M-H. (2016)	Continuous intention formation in E-tutoring system: examining the roles of self-determined motivators, social and technological influences	IEEE International Conference on Advanced Materials for Science and Engineering	SI has a positive effect on CI	Accept
Harn, T.C.S. et al. (2014)	Determinants of online group buying behaviour: the moderating role of informational social influence	Journal Pengurusan	SI has a significant moderating effect on factors influencing purchase intention towards online group buying	Reject
Zhao, Q., Chen, C-D. and Wang, J-L. (2016)	The effects of psychological ownership and TAM on social media loyalty: An integrated model	Telematics and Informatics	SI positively affects PO in the context of social media/ PO positively affects continuance usage in the context of social media	Accept/ Accept

Teng, C-I. and Chen, W-W. (2014)	Team participation and online gamer loyalty	Electronic Commerce Research and Applications	Team participation is positively related to social needs satisfaction/ Social needs satisfaction is positively related to online gamer loyalty	Accept/ Accept
Hamari, J. and Koivisto, J. (2015)	Why do people use gamification services?	International Journal of Information Management	SI is positively associated with continuance use	Reject
Hamari, J. and Koivisto, J. (2015)	Why do people use gamification services?	International Journal of Information Management	SI is positively associated with attitude	Accept
Hew, J-J. et al. (2018)	Mobile social tourism shopping: a dual-stage analysis of a multi-mediation model	Tourism Management	SP has a positive impact on MST shopping intention	Reject
Yang, Y., Asaad, Y. and Dwivedi, Y. (2017)	Examining the impact of gamification on intention of engagement and brand attitude in the marketing context	Computers in Human Behaviour	SI will have a positive effect on customers brand attitude	Accept
Jeng, D, J-F. and Tzeng, G-H. (2012)	Social influence on the use of Clinical Decision Support Systems: Revisiting the Unified Theory of Acceptance and Use of Technology by the fuzzy DEMATEL technique	Computers & Industrial Engineering	SI will positively influence IU the CDSS	Reject

Table 2. 5 Studies linking Social Influence with Intention to Use

A study by Jeng and Tzeng (2012) found an insignificant relationship between social influence and the intention of using the Clinical Decision Support Systems (CDSS). This implies medical doctors are trained and skilful professionals who are less likely to be influenced by social norms in their professional field (Jeng and Tzeng, 2012). That is, doctors tend to experience the value of CDSS from their own medical standpoint instead of being influenced socially.

Similarly, to other environments, in the context of gamification, such social influences can be expected to be an important factor affecting attitudes and use intentions (Hamari and Koivisto, 2015). Studies by Yang, Asaad and Dwivedi (2017) and Hamari and Koivisto (2015) both seem to show the positive effect of social influence on brand attitude; however, they were not further associated with either intention of engagement or intentions to continue the use of the gamified service. Social influence is often considered an essential factor in bringing about attitude change, and it is also an important motivation for game players (Yang, Asaad and Dwivedi, 2017). Considering

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the proliferation of smart mobile devices and the current popularity of mobile applications, it is rather common to see social networking tourism sites and online social networks go mobile by developing and offering their own mobile applications (Hew et al, 2018).

Social influence is then likely to reflect the user's perceptions of how other users perceive the use of the service (Hamari and Koivisto, 2015). In social science studies, causal relationship analysis significantly affects the efficiency of decision-making (Jeng and Tzeng, 2012). Based on the TAM, this study aims to identify the relationship and influence among several research constructs (such as social influence) towards the behavioural intention to use a hotel's gamified application. Accordingly, the following hypothesis is proposed:

H5: S*ocial Influence has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.6 Trust

Despite the importance of the TAM several research studies have suggested that the theory should introduce further factors to improve its explanatory power regarding the acceptance of a technological innovation (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012), such as a gamified application. For this reason, and in line with the theoretical foundations defended by Gefen, Karahanna and Straub, (2003) and Pavlou (2003), this study adds the variable of trust in the original TAM (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012). Recent developments in understanding users' behaviour, in commercial and research contexts, led to heightened interest in trust and its determinants within the digital environment (Hansen, Saridakis and Benson, 2018). Trust in websites plays an important role in e-commerce, because consumers are unlikely to shop online if they do not trust the seller's website on which they are shopping (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015; Amaro and Duarte, 2015).

The definition of trust is complicated because it is an abstract and complex factor (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015; Dimitriadis and Kyrezis, 2010). The traditional definition of trust in the TAM was the interpersonal trust between consumers and sales providers or websites (Dieck et al 2017). Trust is defined as the belief that one party will reliably keep its word or promise and fulfil its obligations in an

exchange relationship (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012; Chemingui and Lallouna, 2013; Agag and El Masry, 2016), or as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or irrespective of the ability to monitor or control that other party (Phonthanukitithaworn, Sellitto and Fong, 2016; Amaro and Duarte, 2015; Susanto, Chang and Ha 2016; Dimitriadis and Kyrezis, 2010).

In the e-commerce field, several previous studies have confirmed the relationship between trust and intention to purchase online (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). Trust in online vendors and retail websites has a significant influence on internet purchase intent (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012). In the field of tourism and e-commerce this relationship has also been analysed, and the conclusion has been reached that the influence is significant and positive (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). For example, it has been found that the higher the level of trust in a virtual community, the greater the intention to share information and accept the information provided by other members of the virtual community (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012). If consumers have trust in an online seller, they expend less effort on searching for information about the online seller and on executing the online transaction (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015), also decreasing fears about opportunistic behaviour (Chemingui and Lallouna, 2013).

Trust is the belief that renders consumers vulnerable to the good faith of online sellers after learning of their characteristics (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). In the field of m-commerce it has been found that trust was an important determinant influencing a consumer's intention to use the internet to conduct online transactions and, more generally, a lack of consumer trust may create an impediment to the adoption of any form of electronic payment system, including m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016).

Prior studies consider trust as a key factor of success in the online context (Agag and El Masry, 2016). Consequently, empirical studies have been conducted in order to understand and determine the importance of trust in the online environment (Agag and El Masry, 2016). For example, a study by Agag and El Masry (2016) found consumers'

trust has a direct and positive influence on their intention to purchase travel online; Chimona (2013) found that trust in mobile social software will have a positive effect on the users' intention to use the mobile social software; Amaro and Duarte (2015) found that trust in online travel shopping has a positive influence on intentions to purchase travel online; Phonthanukitithaworn, Sellitto and Fong (2016) found that trust has a positive effect on the behavioural intention to adopt m-payment services; Ponte, Carvajal-Trujillo and Escobar-Rodriguez (2015) found that trust positively affects the online purchase intention; and a study by Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez (2012) found that trust has a positive effect on intention to use Travel 2.0 websites. Interestingly, a study by Hansen, Saridakis and Benson (2018) found a positive effect of trust in the strength of attitude towards using social networking services, but a negative impact of that attitude towards intention to engage in transactions through social network services.

A summary of studies linking Trust with different types of intention can be found below in Table 2.7.

Author, Year	Title	Journal	Hypothesis	Results
Agag, G. and El Masry, A.A. (2016)	Understanding consumer intention to participate in the online travel community and effects on consumer intention to purchase travel online and WOM: An integration of innovation diffusion theory and TAM with trust	Computers in Human Behaviour	Consumers' trust has a direct and positive influence on their intention to purchase travel online	Accept
Dimitriadis, S. and Kyrezis, N. (2010)	Linking Trust to Use Intentions for Technology-Enabled bank channels: the role of trusting intentions	Psychology and Marketing	Trusting intention towards the channel affects positively the use intention for the channel	Accept
Hansen, J.M, Saridakis, G. and Benson, V. (2018)	Risk, trust and the interaction of perceived ease of use and behavioural control in predicting consumers' use of social media for transactions	Computers in Human Behaviour	Increased trust is associated with an increase in the strength of attitude/Increased in positive attitude are associated with increase in behavioural intentions to engage in transactions through SNS	Accept/Reject

Chemingui, H. and Lallouna, H.B. (2013)	Resistance, motivations, trust and intention to use mobile financial services	International Journal of Bank Marketing	Customer trust has a positive impact to use mobile financial services	Reject
Chimona, R. (2013)	The influence of perceived ease of use and perceived usefulness on trust and intention to use mobile social software	African Journal Physical, Health Education, Recreation and Dance	Perceived trust in mobile social software will have a positive effect on the users' intention to use the mobile social software	Accept
Susanto, A., Chang, Y. and Ha, H. (2016)	Determinants of continuance intention to use the smartphone banking services	Industrial Management and Data Systems	Trust significantly influences continuance use intention	Reject
Amaro, S. and Duarte, P. (2015)	An integrative model of consumers' intentions to purchase travel online	Tourism Management	Trust in online travel shopping has a positive influence on intentions to purchase travel online	Accept
Phonthanukitithaworn, C., Sellitto, C. and Fong, M.W.L. (2016)	An investigation of mobile payment (m-payment) services in Thailand	Asian-Pacific Journal of Business Administration	Trust has a positive effect on the behavioural intention to adopt m-payment services	Accept
Ponte, E.B., Carvajal-Trujillo, E. and Escobar-Rodriguez, T. (2015)	Influence of trust and perceived value on the intention to purchase travel online: Investigating the effects of assurance on trust antecedents	Tourism Management	Trust positively affects the online purchase intention	Accept
Munoz-Leiva, F., Hernandez-Mendez, J. and Sanchez-Fernandez, J. (2012)	Generalising user behaviour in online travel sites through the travel2.0 website acceptance model	Online Information Review	Trust has a positive effect on intention to use Travel 2.0 websites	Accept

Table 2. 6 Studies linking Trust with Intention to Use

In the field of financial services, a study by Dimitriadis and Kyrezis (2010) found trusting intention towards the channel affects positively the use intention for the channel. On the other hand, studies by Susanto, Chang and Ha (2016) and Chemingui and Lallouna (2013) both found a negative impact of trust towards continuance use intention of mobile financial services. These results confirm findings in previous studies, which indicated that trust will not always have a positive influence on service use, because trust may positively affect short-term relationships but not long-term relationships (Susanto, Chang and Ha, 2016).

An important body of research has established the significant role of trust in the acceptance of e-technologies in general and e-commerce in particular (Dimitriadis and Kyrezis, 2010). However, a disparity has been observed in the approaches of conceptualisation and measurement of trust as well in the relationship between trust and technology acceptance variables (Dimitriadis and Kyrezis, 2010). An explanation has been given by Dimitriadis and Kyrezis (2010), stating that trust has been measured in different technology-related contexts, such as web sites, e-retailers, e-banking, e-shops of existing, well-known companies versus pure online player, as well as in different product categories reflecting various degrees of involvement and risk, indicating that the influence of trust may be contingent upon the context of e-technology use. For this reason, it is found important to measure the element of trust directly related to a hotel's gamified application. Despite the importance of trust, it is stated that there is a lack of research regarding perceived trust in online shopping for tourism products and services (Amaro and Duarte, 2015). Therefore, it is relevant to include trust since the few studies that have considered trust in online travel shopping have also produced mixed results (Amaro and Duarte, 2015). For example, a study by Wen (2010) claimed that consumers' trust in online shopping had a positive effect on intentions to purchase travel online, while a study by Kamarulzaman (2007) did not find a direct effect on the adoption of online travel shopping (Amaro and Duarte, 2015). To clarify these mixed results, the following hypotheses was set forth:

H6: *Trust has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.7 Extrinsic Motivation-Reward

Motivation has been broadly characterized as one of the more powerful predictors of human behaviour, and it is not a surprise that it appears in a variety of discipline journals, nor that business researchers and managers have great interest in understanding individuals' motivation to use social media and mobile technologies on behalf of business (Hansen and Levin, 2016). Thus, it would be useful to get an understanding of the concept of extrinsic motivation for a hotel's gamified mobile application. Prior research suggests that extrinsic and intrinsic motivators can be the key determinants of system-use behaviour (Wu and Lu, 2013). From a motivational perspective, rewards are among the most widely accepted motivations (Chang, Hsu and Wu, 2015). The current research integrates prior to work to facilitate a better

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understanding of the roles of extrinsic motivators (such as a reward) in the usage of a system (such as a gamified application). Here, the most central and fundamental contention is that, from a motivational perspective, when individuals are extrinsically motivated, they mostly use information systems for travel related purposes.

Extrinsic motivation is defined as the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself (Chang and Chin, 2011; Hansen, and Levin, 2016; Fagan, Neil and Wooldridge, 2008; Ansari, Ali Channar and Syed, 2012). In other words, an individual will engage in behaviour that he or she perceives will eventually lead to valued rewards (Chang, Hsu and Wu, 2015). Outcomes and rewards can be tangible, such as monetary bonuses, certificates, prizes and awards, or intangible such as a skill that is perceived to be more useful or needed in the future or that improves one's special standing (Hansen and Levin, 2016).

Extrinsic motivation pertains to a wide variety of behaviours performed for reasons beyond those inherent in the activity itself. Extrinsically motivated behaviours are thus instrumental and are performed not out of internal interests, but out of external instrumental values such as a prize or a salary increase (Wu and Lu, 2013). Chang, Hsu and Wu, (2015) divide extrinsic rewards into tangible and intangible, whereas Hung et al (2011) suggested that there are three extrinsic motivators (economic reward, reputation feedback and reciprocity). The tangible rewards refer to material or monetary incentives that have substantial cash value, such as pay or fringe benefits, and intangible refer to forms of psychological income such as a feeling of belonging or friendships in the job (Chang, Hsu and Wu, 2015). Economic reward is the tangible reward, and reputation feedback and reciprocity the intangible. The behaviour is no longer performed because it is interesting or fun; instead, it is carried out in pursuit of external rewards (Wu and Lu, 2013).

Research has been done with regard to the importance of rewards for employees' performance. Lai (2009) mentions that, while employees profess to value many types of rewards (such as recognition) more than pay, they behave as if they value money highly. A study by Chang, Hsu and Wu (2015) shows that both tangible and intangible rewards are positively related to a desire to make good decisions in the workplace, agreeing with Fagan, Neil and Wooldridge (2008), who found that extrinsic motivations

have a significant positive relationship with behavioural intention to use computers in the workplace. In the field of education, a study by Fathorrahman (2017) found that a reward system has a positive effect as a moderator variable in determining the impact of organizational commitment on the lecturer's job satisfaction. Interestingly, Taba (2018) found that there is no direct positive effect between extrinsic reward systems toward work satisfaction, but there is an indirect effect between the variables through work performance and organizational commitment. Lastly, Wang and Lai (2014) found that organizational rewards have a positive effect on users' intention to reuse the Knowledge Management Systems.

Little research has been done on the significance of rewards towards intention to use, with the exception of a study by Lai (2009) showing that rewards will have a positive effect on intention to use Knowledge Management Systems There is research showing the relationship between extrinsic motivators and intention to use technology. For example, a study by Hansen and Levin (2016) found that extrinsic motivation has a significant positive effect on a person's intention to use social media technologies on behalf of the business. Wu and Lu (2013) found that extrinsic motivators will more strongly affect behavioural intention and usage in the context of utilitarian systems than in the context of hedonic systems. Finally, Ho (2012) shows that extrinsic motivation developed from individuals' first use of location-based personalized services has a stronger direct effect on individuals' initial behavioural intention than on their subsequent behavioural intention. The above researches all show the importance of extrinsic motivation (such as rewards) towards the intention to use information systems.

A summary of studies linking either extrinsic motivation or rewards with different types of intention can be found below on Table 2.8.

Author, Year	Title	Journal	Hypothesis	Results
Hansen, J.M. and Levin, M.A. (2016)	The effect of apathetic motivation on employees' intention to use social media for business	Journal of Business Research	Extrinsic motivation has a significant positive effect on a person's intention to use social media technologies on behalf of the business	Accept
Ho, S.Y. (2012)	The effects of location personalization on individuals' intention to use mobile services	Decision Support Systems	Extrinsic motivation developed from individuals' first use of location-based personalized services has a stronger direct effect on individuals' initial	Accept

			behavioural intention than on their subsequent behavioural intention	
Wu, J. and Lu, X. (2013)	Effects of extrinsic and intrinsic motivators on using utilitarian, hedonic and dual-purposes information systems, A meta-analysis	Journal of the Association for Information Systems	Extrinsic motivators will more strongly affect behavioural intention in the context of utilitarian systems than in the context of hedonic systems	Accept
Wu, J. and Lu, X. (2013)	Effects of extrinsic and intrinsic motivators on using utilitarian, hedonic and dual-purposes information systems, A meta-analysis	Journal of the Association for Information Systems	Extrinsic motivators will more strongly affect usage in the context of utilitarian systems than in the context of hedonic systems	Accept
Fagan, M.H, Neil, S. and Wooldridge, B.R. (2008)	Exploring the intention to use computers: an empirical investigation of the role of intrinsic motivation, extrinsic motivation and perceived ease of use	Journal of Computer Information Systems	Extrinsic motivation will have a significant positive relationship with behavioural intention to use computers in the workplace	Accept
Taba, M.I. (2018)	Mediating effect of work performance and organizational commitment in the relationship between reward system and employees' work satisfaction	Journal of Management Development	Extrinsic reward system toward work satisfaction	Reject
Fathorrahman, I. (2017)	The impact of job performance and reward system as a mediator and moderator variable between organizational commitment and job satisfaction of lecturers at private colleges in east Java, Indonesia	Russian Journal of Agricultural and Socio-Economic Sciences	Reward system as a moderator variable in determining the impact of organizational commitment on the lecturers' job satisfaction	Accept
Chang, Y-W., Hsu, P-Y. and Wu, Z-Y. (2015)	Exploring managers' intention to use business intelligence: the role of motivations	Behaviour and Information Technology	Tangible rewards are positively related to desire to make good decisions/ Desire to make good decisions is positively related to Intention to read information	Accept/Accept
Chang, Y-W., Hsu, P-Y. and Wu, Z-Y. (2015)	Exploring managers' intention to use business intelligence: the role of motivations	Behaviour and Information Technology	Intangible rewards are positively related to desire to make good decisions/ Desire to make good decisions is positively related to Intention to read information	Accept/Accept

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Lai, J-Y. (2009)	How reward, computer self-efficacy and perceived power security affect knowledge management system success: An empirical investigation in high tech companies	Journal of the American Society for Information Science and Technology	Reward will have a positive effect on intention to use Knowledge Management Systems	Accept
Wang, W-T. and Lai, Y-J. (2014)	Examining the adoption of KMS in organizations from an integrated perspective of technology, individual and organization	Computers in Human Behaviour	Organizational rewards have a positive effect on the users' intention to reuse the Knowledge Management Systems	Accept

Table 2. 7 Studies linking Rewards with Intention to Use

Loyalty programmes comprise integrated systems of marketing actions and communications that aim to increase loyalty, repeat buying and switching costs by providing economical, hedonist, informational, functional and sociological or relational rewards (Meyer-Waarden, Benavent and Casteran, 2013). Since the hospitality industry introduced loyalty programs, frequent-flyer programs and repeat customer programs have become common practices for customer-relationship management (Xie et al, 2015). They are thought of as activities that offer incentives (rewards) to customers, based on evidence of loyalty (purchase frequency or amounts). The goal of such reward programs is to develop a strong base of return customers who maintain loyalty to a particular business and thus secure its market share (Xie et al, 2015). Despite the popularity of such practices, the findings about their effectiveness in generating customer-loyalty behaviour are mixed and inconsistent (Xie et al, 2015). That is, whether loyalty programs actually do succeed in ensuring customer loyalty is questionable (Xie et al, 2015). The fact that "no membership fees" and no "expired points" tactics are adopted by almost all of these programs encourages customers to enrol in multiple programs and shop around (Xie et al, 2015). As discussed earlier, this study believes that a positive expectancy of reward will intensify individuals' (as hotel visitors) intention to use a hotel's gamified application. Thus, the following hypothesis is proposed:

H7: *Reward has a positive influence on the intention to use hotel gamified mobile applications.*

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2.4.3.8 Self-Efficacy/Autonomy

Recent findings on intrinsic motivation and self-efficacy in social psychology indicate that enjoyment, goal orientation and self-efficacy play important roles in determining a person's behaviour (Yi and Hwang, 2003). Prior research on technology acceptance behaviour examined the effects of self-efficacy and enjoyment on ease of use (Venkatesh, 2000), but did not assess their roles within the full nomological net of the TAM (Yi and Hwang, 2003). Given adequate skills, positive outcome expectations and personally valued outcomes, self-efficacy is perceived to influence the choice and direction of human behaviour (Lee and Mao, 2016).

The theory of self-efficacy is central to social cognitive theory (Lee and Mao, 2016; Adukaite, Zyl and Cantoni, 2016). Self-efficacy is argued as an important determinant of motivation, action and effect (Adukaite, Zyl and Cantoni, 2016). According to social cognitive theory, self-efficacy influences goal choices, the amount of effort spent in achieving a goal, and the level of persistence when encountering difficulties (Lee and Mao, 2016). As individuals complete tasks, they know how well they are doing, which can influence their self-efficacy (Lee and Mao, 2016). Self-efficacy theory assigns conceptual analysis within the framework of intrinsic interest and intrinsic motivation theory (Kim, Lee and Bonn, 2017). Self-efficacy is a kind of intrinsic motivation while engaging in a game (Kim, Lee and Bonn, 2017).

Self-efficacy is defined as an individual's belief in his or her ability to complete a task (Schunk, 1995; Kim, Lee and Bonn, 2017; Adukaite, Zyl and Cantoni, 2016) in a specific situation, which affects the choice of activities, effort and persistence of that individual (Bandura 1982; Lee and Mao, 2016). Consistent with research in the organizational area, researchers have distinguished between specific computer self-efficacy (CSE) and general computer self-efficacy (GCSE) (de Guinea and Webster 2011). Computer self-efficacy refers to self-efficacy beliefs with respect to a specific computer system or application, while general computer self-efficacy is defined as an individual's self-efficacy beliefs across multiple computer-related domains (de Guinea and Webster 2011).

Beliefs about one's skills and abilities to regulate learning activities and master difficult and challenging specific tasks in ICT, computer programming or problem-solving are referred to as computer self-efficacy (CSE) beliefs (Srisupawong et al, 2017).

Computer self-efficacy involves self-assurance in computer-associated awareness and the perception about feeling comfortable and at ease in completing tasks using new technology (Zainab, Bhatti and Alshagawi, 2017). With the growing reliance on computerized systems and increasing rapidity of the introduction of new technologies, user acceptance of technology continues to be an important issue (Yi and Hwang, 2003). Smartphones and tablets are revolutionizing consumers' planning, researching and executing in the decision making process (Park and Huang, 2016). Recently, several scholars in hospitality and tourism have endeavoured to understand the usage of smartphones in information-search behaviours and travel planning processes and ultimately aim to identify the structure of enhancing travel experiences (Park and Huang, 2016).

Findings on intrinsic motivation and self-efficacy indicate that self-efficacy plays important roles in determining a person's behaviour (Yi and Hwang, 2003). For example, research by Lee and Mao (2016) has shown that academic performance is associated with the preferences of learning methods when learning self-efficacy is controlled. Also self-efficacy has an indirect positive effect through perceived behavioural control on the intention to reserve hotel accommodations using a smartphone, as is shown by Park and Huang (2017), and an indirect positive effect on purchase intentions through the flow experience as is shown by Kim, Lee and Bonn (2017). A study by Park and Huang (2017) shows that self-efficacy has a negative indirect effect on the intention to reserve hotel accommodations using a smartphone through anxiety.

A summary of studies linking either self-efficacy or computer self-efficacy with different types of intention can be found below on Table 2.9.

Author, Year	Title	Journal	Hypothesis	Results
Park, S. and Huang, Y. (2017)	Motivators and inhibitors in booking a hotel via smartphones	International Journal of Contemporary Hospitality	Self-Efficacy has a positive effect on perceived behavioural control/perceived behavioural control has a positive effect on the intention to reserve hotel accommodations using a smartphone	Accept/ Accept
Park, S. and Huang, Y. (2017)	Motivators and inhibitors in booking a hotel via smartphones	International Journal of Contemporary Hospitality	Self-Efficacy has a negative effect on anxiety/Anxiety has a negative effect on the intention	Accept/ Accept

			to reserve hotel accommodations using a smartphone	
Kim, M.J.M Lee, C-K. and Bonn, M. (2017)	Obtaining a better understanding about travel-related purchase intentions among senior users of mobile social network sites	International Journal of Information Management	Self-Efficacy has a positive effect on flow experience/ Flow experience has a positive effect on purchase intentions	Accept/ Accept
De Guinea, A.O. and Webster, J. (2011)	Are we talking about the task or the computer? An examination of the associated domains of task-specific and computer self-efficacies	Computers in Human Behaviour	Computer Self-Efficacy positively relates to usefulness	Accept
Ozturk, A.B. et al (2016)	What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use and perceived convenience	International Journal of Information Management	Self-Efficacy has a positive effect on PEOU in Mobile Hotel Booking/ PEOU has a positive effect on loyalty in Mobile Hotel Booking	Reject/ Accept
Lai, J-Y. (2009)	How reward, computer self-efficacy and perceived power security affect knowledge management system success: An empirical investigation in high-tech companies	Journal of the American Society of Information Science and Technology	Computer Self-Efficacy will have a positive effect on PU of Knowledge Management Systems/PU will have a positive effect on intentions to use Knowledge Management Systems	Accept/ Accept
Lai, J-Y. (2009)	How reward, computer self-efficacy and perceived power security affect knowledge management system success: An empirical investigation in high-tech companies	Journal of the American Society of Information Science and Technology	Computer Self-Efficacy will have a positive effect on PEOU of Knowledge Management Systems/PEOU will have a positive effect on intentions to use Knowledge Management Systems	Accept/ Accept
Lee, P.C. and Mao, Z. (2016)	The relation among self-efficacy, learning approaches and academic performance: an exploratory study	Journal of Teaching in Travel and Tourism	Academic performance is associated with the preferences of learning methods when learning self-efficacy is controlled	Accept

Table 2. 8 Studies linking Autonomy with Intention to Use

On the other hand, a study by Ozturk et al (2016) found no significant indirect relationship between self-efficacy and loyalty in mobile hotel booking users through perceived ease of use. Even though the relationship between perceived ease of use and loyalty in mobile hotel booking users was found positive, the relationship between self-efficacy and perceived ease of use was not significant. This finding indicates mobile hotel booking users' perceived ease of use does not differ based on their self-efficacy (Ozturk et al 2016). In other words, users' confidence level in their ability to

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use mobile hotel booking technology does not affect their perception of how easy mobile hotel bookings will be to use. According to Ozturk et al (2016), the result of this study is due to the fact that nearly 78% of the sample are less than 45 years old; a market segment that is tech-savvy and has the knowledge and the skills in mobile hotel booking.

With regard to computer self-efficacy, a study by De Guinea and Webster (2011) has shown a positive direct effect between computer self-efficacy and usefulness, and a study by Lai (2009) has found a positive indirect effect between computer self-efficacy and intentions to use Knowledge Management Systems through perceived usefulness and perceived ease of use.

Online distribution of services, including hotel rooms, flights, travel packages, attraction tickets, cruises and car rentals, has been on the rise due to the benefits that both travellers and companies perceive (Ozturk et al, 2016). Therefore, adopting an effective e-commerce strategy is a key matter for the lodging industry (Ozturk et al, 2016). On the other hand, the shift from e-commerce to mobile commerce (m-commerce) is accelerating as more consumers use their mobile devices to shop online (Ozturk et al, 2016). Consumers with a high level of self-efficacy regard the adoption of purchasing via a smartphone as a challenge; in contrast, those with a low level of self-efficacy consider the technology to be a threat that causes a low cognitive stress and negative feelings, leading to unwillingness to use information technology (Park and Huang, 2017). Drawing upon findings the present research extends the TAM by incorporating the motivational variable of self-efficacy in order to predict the use of Web-based Informational Systems such as a hotel's gamified application. Thus, the following hypothesis is proposed:

H8: *Autonomy has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.9 Openness-Mastery

When done correctly, gamification provides an experience that is inherently engaging (Dale, 2014). The elements of games that make for effective gamification are those of storytelling, which provides a context, challenge, immediate feedback, sense of curiosity, problem-solving, a sense of accomplishment, autonomy and mastery (Dale,

2014). With regard to the element of mastery, it has been explained that a group of players called achievers are motivated by mastery, and thus are looking to learn new things and improve themselves. They want challenges to overcome. Mastery per se has not been used as a construct explaining intention to use technology. However, based on these characteristics a construct defined as openness fits the definition. Individuals described as high on the 'openness to experience' dimension of personality actively seek out new and varied experiences, and value change (Punnoose, 2012).

For many years, the issue of individual characteristics received little attention in the IS literature, with one domain of individual differences receiving limited attention in this area being personality (Devaraj, Easley and Crant, 2008). According to McElroy et al (2007), only recently has research begun to link personality traits to IS adoption and use. Nonetheless, recent advances in personality psychology suggest that a fruitful way to integrate individual traits into IS models and theories would be to adopt the five-factor model (FFM) (Devaraj, Easley and Crant, 2008). The five-factor model of personality, sometimes called the Big Five, is used to describe the most important domains of personality, with Openness to Experience being one of them (Tuten and Bosnjak, 2001; McElroy et al, 2007). Openness is the degree to which an individual is original, curious about many things and incentives (Punnoose, 2012). Openness to experience represents an individual's curiosity and willingness to explore new ideas, and open individuals tend to devise novel ideas, hold unconventional values and willingly question authority (McElroy et al, 2007; Tuten and Bosnjak, 2001; Devaraj et al, 2008). Those individuals high in openness are more likely to hold positive attitudes and cognitions towards accepting job-related technology, in part because of their predisposition to embrace new approaches to work; they are less threatened by the changes implied in adopting technology (Devaraj et al, 2008). Adjectives used to describe openness to experience include imaginative, curious, original, broad-minded and intelligent (Tuten and Bosnjak, 2001).

Limited research has been done with regard to the importance of openness towards intention to use technology. However, Devaraj et al (2008), and McElroy et al (2007) found that there is a significant and positive relationship between openness and intention to use technology. Devaraj et al (2008) mention that, because rapid change and diversity are the norm in business organisations, openness to experience will be increasingly important in explaining work-related behaviour. In their research Devaraj

et al (2008) found a statistically significant and positive relationship between openness and intention to use technology, even though the relationship between openness and usefulness (which also tried to be explained) was not statistically supported. It found evidence that certain aspects of personality might have a more direct impact on intention to use technology (Devaraj et al, 2008). Adding in the importance of openness in relation to technology, research by Tuten and Bosnjak (2001) has shown that openness to experience was positively correlated with entertainment web usage, and product information usage. Lastly, the importance of openness towards continuance intention has been indirectly explored by Wu and Chen (2017), through perceived usefulness and perceived ease of use in the context of eLearning, with mixed results. Wu and Chen (2017) found a significant relationship between openness and perceived ease of use, but the relationship between openness and perceived usefulness was not supported. Although this was unexpected, Wu and Chen (2017) explain that, because of the users' different backgrounds, task differences might have influenced their responses. The perceived usefulness of the MOOCs (Massive Open Online Courses) can vary significantly among individuals with different tasks, which might be reflected in the non-significant relationship between openness and perceived usefulness.

A summary of studies linking either Openness or Mastery with different types of intention can be found below on Table 2.10.

Author, Year	Title	Journal	Hypothesis	Results
Tuten, T.L. and Bosnjak, M. (2001)	Understanding differences in web usage: the role of need for cognition and the Five-Factor model of personality	Social Behaviour and Personality	Openness to experience will be positively related to web usage for entertainment, current events and news and educational purposes	Accept
Devaraj S. et al. (2008)	How does personality matter? Relating the Five-Factor model to technology acceptance and use	Information System Research	Openness is positively associated with intention to use technology	Accept
Punnoose, A.C. (2012)	Determinant of the intention to use eLearning based on the technology acceptance model	Journal of Information Technology Education	Openness has a significant positive direct effect on Behavioural Intention	Partially
McElroy, J.C. et al. (2007)	Dispositional factors in internet use: personality versus cognitive style	MIS Quarterly	Openness is positively associated with intention to use technology	Accept

Wu, B. and Chen, X. (2017)	Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model	Computers in Human Behaviour	Openness has a positive effect on the perceived usefulness of MOOCs	Reject
Wu, B. and Chen, X. (2017)	Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model	Computers in Human Behaviour	Openness has a positive effect on the perceived ease of use of MOOCs	Accept

Table 2. 9 Studies linking Mastery with Intention to Use

The relationship between openness and behavioural intention has been explored by Punnoose (2012) in order to find some predominant factors that determine the intention of students to use eLearning. This research showed a partial relationship between openness and behavioural intention, showing that the effects of individual differences on behaviour are mediated through beliefs despite the suggestion by Devaraj et al (2008) that there might exist a positive relationship between openness and intention to use technology. However, in the same research it was highlighted that the effects of personality traits (such as openness), and computer usage skills on intention are indirect and positive.

It was evidenced that research shows that open people are attracted to online activity to satisfy their curiosity and seek out new forms of adventure (McElroy et al, 2007). Hence, it is necessary for this study to test the direct relationship between openness with intention to use. Accordingly, the following hypothesis is proposed:

H9: *Mastery has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.10 Altruism/Purpose and Meaning

It has been argued that people's time, energy and knowledge are limited such that they eventually consider whether the value of their knowledge contribution is rewarded (either intrinsically or extrinsically in nature) (Hung et al. 2011). Although people can obtain abundant information and knowledge from communities, there is no guarantee that they will share their knowledge without expecting a return (Chang and Chuang, 2011). In many cases, though, individuals help others whether or not they get anything in return, by providing help and achieving a sense of satisfaction from the action itself (Hung et al. 2011). Many authors have used the TAM to explain the behaviour of users

(Chang and Chuang, 2011), but in this case it is decided to apply altruism to explain participation in online social networks, such as a hotel's gamified application could be.

Altruism represents an individual's willingness to benefit the wellbeing of others on a voluntary basis, without the anticipation of any form of return (Chen, Fan and Tsai, 2013; Cheng and Chen, 2011; Teng, Wu and Liu, 2015; Iglesias-Pradas, Hernandez-Garcia and Fernandez-Cardador, 2017; Kim, Lee and Bonn, 2016; Hsu and Lin, 2008), as well as a form of unconditional kindness without the expectation of a return (Hung et al. 2011; Hung, Lai and Chang, 2011). Hoffman (1975) also proposed a concept of empathy, a kind of emotional response that closely resembles the feeling of others.

Virtual tourist communities in which tourists exchange opinions and experiences have been around for many years, but lately an expansion of 2.0 technologies has been seen into tourism (Parra-Lopez et al 2011). Thus, before and during vacation trips, tourists use the internet to obtain information about the trips, share their knowledge and compare services related to the trip (Parra-Lopez et al 2011). Since altruism can be defined as the principle or practice of concern for others, this could be one explanation for why visitors post information and comments on social network sites (Kim, Lee and Bonn, 2016).

Altruism happens because humans tend to help others by natural instinct and it builds upon inter-personal trust (Iglesias-Pradas, Hernandez-Garcia and Fernandez-Cardador, 2017). Direct altruism occurs when an individual helps a person who has helped them, whereas indirect altruism occurs when individuals help those who help others (Kim, Lee and Bonn, 2016). In general, altruistic behaviour in social media manifests itself through knowledge sharing (Kim, Lee and Bonn, 2016). Individuals feel that, if they have previously received information and help in networks, they should now repay that benefit; therefore, they are increasingly motivated to collaboratively participate and contribute in the network (Parra-Lopez et al 2011). In fact, the tendency of this behaviour is constantly increasing, and it is found that it is a factor that motivates a majority of online review writers: helping others by sharing their own positive experiences, since other travel reviews helped them and they want to return the favour and save others from negative experiences by warning them (Parra-Lopez et al 2011).

Empirical hospitality research has shown that altruism is an important motivator for many hotel firms that have been involved in environmental schemes; the Teng, Wu

and Liu (2015) study showed that altruism has a significant and positive influence on customers' intention to choose to visit a green hotel. In the case of Web 2.0 tools, Iglesias-Pradas, Hernandez-Garcia and Fernandez-Cardador (2017) mention that altruism of the participants has a positive influence on the production and distribution of content using wikis, showing that altruism has a positive effect on blog adoption for knowledge sharing purposes. This seems to agree with studies by Iglesias-Pradas, Hernandez-Garcia and Fernandez-Cardador (2017), Parra-Lopez et al (2011), Hung, Lai and Chang (2011) and Chang and Chuang (2011).

Hung et al (2011) found that altruism will increase the perceived level of satisfaction with the meeting in a team setting. Given that the reward for an altruistic person can come as a good feeling about his/her action, this might have been captured by the sense of satisfaction with the meeting or fulfilment of duty in helping to brainstorm ideas about how to increase tourism in the local area. Furthermore, altruism seems to have an indirect positive relationship through common bonds and common identity as it is found by Kim, Lee and Bonn (2016) and through the attitude towards using blogs as found by Hsu and Lin (2008).

A summary of studies linking altruism with different types of intention can be found below in Table 2.11.

Author, Year	Title	Journal	Hypothesis	Results
Cheng, J-H. and Chen, S-W. (2011)	Determinants of behavioural intention to use course blogs	Asia Pacific Management Review	Altruism will be positively related to users' attitudes toward participating in a course blog	Reject
Teng, Y-M., Wu, K-S. and Liu, H-H. (2015)	Integrating altruism and the theory of planned behaviour to predict patronage intention of a Green Hotel	Journal of Hospitality and Tourism Research	Altruism has a significant and positive influence on customers' intention to choose to visit a green hotel	Accept
Iglesias-Pradas, S., Hernandez-Garcia, A. and Fernandez-Cardador, P. (2017)	Acceptance of corporate blogs for collaboration and knowledge sharing	Information Systems Management	Altruism positively predicts the intention to use corporate blogs for collaboration and knowledge sharing	Accept
Parra-Lopez, E. et al (2011)	Intentions to use social media in organizing and taking vacation trips	Computers in Human Behaviour	Altruism incentives have a positive effect on intention of using social media	Accept
Hung, S-Y. et al. (2011)	The influence of intrinsic and extrinsic motivation on individuals' knowledge sharing behaviour	International Journal Human Computer Studies	Altruism will increase the perceived level of satisfaction with the meeting	Accept

Hung, S-Y., Lai, H-M. and Chang, W-W. (2011)	Knowledge-sharing information affecting R&D employees' acceptance of electronic knowledge repository	Behaviour and Information Technology	Altruism will have a positive effect on behavioural intention to use Electronic Knowledge Repository for knowledge-sharing	Accept
Kim, M.J., Lee, C-K. and Bonn, M. (2016)	The effect of social capital and altruism on seniors' revisit intention to social network sites for tourism-related purposes	Tourism Management	Altruism has a positive effect on common bond of senior users in social network sites/Common bond has a positive effect on revisit intention of senior users in social network sites	Accept/ Accept
Kim, M.J., Lee, C-K. and Bonn, M. (2016)	The effect of social capital and altruism on seniors' revisit intention to social network sites for tourism-related purposes	Tourism Management	Altruism has a positive effect on common identity of senior users in social network sites/Common identity has a positive effect on revisit intention of senior users in social network sites	Accept/ Accept
Hsu, C-L., and Lin, J. C-C. (2008)	Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation	Information and Management	Altruism will positively affect users' attitudes toward participating in a blog/ Attitude will positively affect users' intentions to participate in a blog	Accept/ Accept
Chang, H.H. and Chuang, S-S. (2011)	Social capital and individual motivations on knowledge sharing: Participants' involvement as a moderator	Information and Management	Altruism from participation has a positive effect on the quality of knowledge sharing behaviour in a virtual community	Accept
Chang, H.H. and Chuang, S-S. (2011)	Social capital and individual motivations on knowledge sharing: Participants' involvement as a moderator	Information and Management	Altruism from participation has a positive effect on the quantity of knowledge sharing behaviour in a virtual community	Accept
Chen, H.L., Fan, H.L. and Tsai, C.C. (2013)	The role of community trust and altruism in knowledge sharing: An investigation of a virtual community of teacher professionals	Educational Technology and Society	Altruism will moderate the relationship between community trust and knowledge intention in such a way that the higher the frequency of altruism, the more pronounced the positive association between community trust and knowledge sharing information will be	Accept

Table 2. 10 Studies linking Purpose with Intention to Use

On the other hand, a study by Cheng and Chen (2011) found that altruism is not positively related to users' attitudes toward participating in a course blog, enabling a better understanding that altruism does not affect students' attitudes toward using

course blogs. Cheng and Chen (2011) concluded that three factors (reciprocity, reputation and expected association) have an effect on the students' attitudes, while two factors (altruism and trust) have no significant effect. Even though the results of the research have been taken into consideration, altruism still will be taken into measurement as it is not going to be focused on students and students' blogs, but in the field of tourism and hotel visitors. Therefore, to assume that altruism influences behavioural intention under the following hypothesis is reasonable:

H10: *Purpose has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.3.11 Direct Feedback-Interactivity

Websites are the virtual personality of a company and they are evolving in an environment that responds to a variety of activities, including entertainment, exploration, communication and learning (Etemad-Sajadi, 2016). They can bring new customers into the business, strengthen current relationships, or even frustrate and turn away potential customers (Etemad-Sajadi, 2016). One of the main reasons for customer dissatisfaction on the websites is the lack of interaction and humanity (Etemad-Sajadi, 2016).

Most of the various definitions of interactivity used in the literature originate in the social sciences (Pai and Yeh, 2014). The theoretical consensus on the scope and definitions of interactivity seems to be lacking (Kim et al. 2015). Previous studies showed that interactivity cannot be defined as a single dimension, but as a complex mechanism covering multiple process, functions and perceptions (Kim et al. 2015). Heeter (1989) presented six dimensions of interactivity: 1) complexity of choice available, 2) effort that users must exert, 3) responsiveness to the user, 4) monitoring of information use, 5) ease of adding information, and 6) facilitation of interpersonal communication (Kim et al. 2015). Lee et al. (2005) suggested three interactivity dimensions: 1) communication technologies, 2) communication contexts, 3) peoples' perceptions (Kim et al. 2015).

Taking interactivity as a multidimensional construct, Kim et al (2015), studied the link of interactivity's several meanings toward continuance intention. The primary purpose of the study is to validate the effect of multi-dimensional interactivity on satisfaction and continuance intention in the Korean smartphone ecosystem. This study suggests

five factors of interactivity: *network quality* (systematization of service delivery), which refers to the user's perception of the ability of a network to offer real-time interaction; *system quality* (systematization of service delivery), which refers to the user's perception of the characteristics of an interactive smartphone; *content quality* (core service), which refers to the perceived quality of digital services added to a given smartphone medium; *customer support* (social responsibility), which refers to the perceived timely feedback interaction between the user and the mobile service provider; and *compatibility* (core service), which refers to the interactivity required for the personal task and business. The study shows that there is a direct effect between network quality and customer support towards continuance intention, but no direct effect between system quality, contents quality and compatibility towards continuance intention.

Two types of interactivity in computer-mediated environments are most often discussed in the literature, namely human-information interaction and human-interaction (Pai and Yeh, 2014). Human-information interaction refers to users being able to select, classify, control, revise, establish and ignore information (Pai and Yeh, 2014). With messages sent via traditional media, users have various options but control them (Pai and Yeh, 2014). Interactive media, however, allows users to control information, and the interactions that occur on the network can affect users' attitude towards using it (Pai and Yeh, 2014). Human interaction refers to bidirectional communication, joint conversations, feedback, role switching and responses between senders and receivers (Pai and Yeh, 2014). Traditional media delivers one-way messages from the senders to the receiver (Pai and Yeh, 2014). Interactive media, in terms of networks, allows the receiver to respond to messages via a message board or e-mail without any significant cost (Pai and Yeh, 2014). In such interactions, the information contained in the messages sent between sender and receiver can be more effectively and explicitly explained (Pai and Yeh, 2014).

From the viewpoint of interpersonal interactions, the groups and environments available in online social communities create favourable conditions with regard to usability, by allowing for easier interactions among members and making the execution of certain tasks more efficient (Pai and Yeh, 2014). Abbas, Jones and Hussien (2016) have conducted research in order to understand students' acceptance of e-learning as it is considered a major step towards implementing and developing a

successful e-learning environment. Even though e-learning has been increasingly adopted by universities over several decades, some e-learning scholars have argued that only a few universities fully exploit the benefits of e-learning (Abbas, Jones and Hussien, 2016). A good gamification design seeks to examine and align the objectives of a business organization with the motivation of intrinsic customers, and so, using extrinsic rewards and intrinsically satisfying design, move the customers through their financial portfolio management (Rodrigues, Oliveira and Costa, 2016). To do so, the application must incorporate design elements that invoke desire, and provide incentive, challenge, reward and feedback, to create engagement with the new business software (Rodrigues, Oliveira and Costa, 2016).Achieving these elements and enhancing intrinsic motivation communication between the organization and the customer is important, therefore interactivity and feedback seems to be the only way.

With the growth of the market for smart devices, it was estimated that worldwide store revenue for mobile applications will reach almost $200 billion in 2020 (Lee et al, 2018). In a recent market survey by comScore (2016), it was reported that mobile usage now represents 65% of all time spent on digital media, with mobile applications dominating the usage, whereas desktop computer usage has decreased markedly since 2013 (Lee et al, 2018). Taking this into consideration it seems that interactivity between any organization and mobile customers is now easier than ever before.

Abbas, Jones and Hussien (2016) defined platform interactivity as the interaction between students and instructors and among students themselves via the e-learning platform. In their study, the importance of platform interactivity was attempted to be indirectly linked with behaviour intention through perceived usefulness, perceived ease of use and perceived enjoyment. Results shows that platform interactivity had a significant effect on students' perceived usefulness and ease of use, but had no significant effects on the students' perceived enjoyment. Not surprisingly, perceived ease of use, usefulness and enjoyment had a significant effect on behaviour intention. Another study by Pai and Yeh (2014) linked interactivity with attitude toward use towards perceived ease of use and perceived usefulness. A relational model is proposed to examine the intention to use social networking sites. This study shows that there is a positive indirect effect between interactivity and attitude toward use, both through perceived ease of use and perceived usefulness. The findings indicate that, in order to promote the intention to use social networking sites, managers should

work to enhance interactivity and information sharing as well as consider the feelings and attitudes of users (Pai and Yeh, 2014).

Lee, et al (2018) have studied the direct impact of perceived interactivity on intention to purchase. As it is stated by Lee et al (2018), previous researchers did not empirically examine to what extent the perceived functionalities offered by tablet computers can affect users' intention to purchase mobile applications, so in this case it was found that perceived interactivity has a direct positive effect on intention to purchase tablet computer applications.

A summary of studies linking direct feedback with different types of intention can be found below in Table 2.12.

Author, Year	Title	Journal	Hypothesis	Results
Lee, et al. (2018)	Factors affecting tablet computers users' intention to purchase mobile application	Social Behaviour and Personality	Perceived Interactivity will have a positive effect on intention to purchase tablet computer applications	Accept
Pai, F-Y. and Yeh, T-M. (2014)	The effects of information sharing and interactivity on the intention to use social networking websites	Qual Quant	Interactivity has positive effects on PEOU/PEOU has a positive effect on attitude/Attitude has a positive effect on Intention to use	Accept/ Accept/ Accept
Pai, F-Y. and Yeh, T-M. (2014)	The effects of information sharing and interactivity on the intention to use social networking websites	Qual Quant	Interactivity has positive effects on PU/PU has a positive effect on attitude/Attitude has a positive effect on Intention to use	Accept/ Accept/ Accept
Kim, M. et al. (2015)	The effects of service interactivity on the satisfaction and the loyalty of smartphone users	Telematics and Informatics	Interactivity has a significant positive influence on continuance intentions	Accept and Reject
Abbas, T.M., Jones, E. and Hussien, F.M. (2016)	Technological factors influencing university tourism and hospitality students' intention to use e-learning: A comparative analysis of Egypt and the United Kingdom	Journal of Hospitality and Tourism Education	Platform Interactivity positively affects the PU of an e-learning platform/PU positively affects the BI to use an e-learning system	Accept/ Accept
Abbas, T.M., Jones, E. and Hussien, F.M. (2016)	Technological factors influencing university tourism and hospitality students' intention to use e-learning: A comparative analysis of Egypt and the United Kingdom	Journal of Hospitality and Tourism Education	Platform Interactivity positively affects the PEOU of an e-learning platform/PEOU positively affects the BI to use an e-learning system	Accept/ Accept

Abbas, T.M., Jones, E. and Hussien, F.M. (2016)	Technological factors influencing university tourism and hospitality students' intention to use e-learning: A comparative analysis of Egypt and the United Kingdom	Journal of Hospitality and Tourism Education	Platform Interactivity positively affects the PE of an e-learning platform/PE positively affects the BI to use an e-learning system	Reject/ Accept
Etemad-Sajadi, R. (2016)	The impact of online real-time interactivity on patronage intention: the use of avatars	Computers in Human Behaviour	The online real-time interactivity will positively influence users' patronage intention	Accept

Table 2. 11 Studies linking Direct Feedback with Intention to Use

By increasing the interactivity and humanizing the website through the use of an avatar, companies try to improve the customer online experience and at the same time increase the firm's online productivity (Etemad-Sajadi, 2016). However, there is a lack of research about the effect of the avatar's real-time interactivity on patronage intention of current and potential customers (Etemad-Sajadi, 2016). Etemad-Sajadi's 2016 study shows that there is a positive direct effect between online real-time interaction and patronage intention (the likelihood of visiting the company in the future).

Perceived interactivity is an important factor in explaining new media technology adoption (Lee et al. 2018). According to previous research, interactivity is not simply a key factor for gathering users together in computer-mediated environments, but is also vital to generating social relationships within a network (Pai and Yeh, 2014); therefore, establishing an online social connection is an important issue for companies (Etemad-Sajadi, 2016). Consequently, interactivity is considered the primary characteristic of computer-mediated communications (Pai and Yeh, 2014).

H11: *Interactivity has a positive influence on the intention to use hotel gamified mobile applications.*

2.4.4 Summary

This section provided an overview on the Technology Acceptance Model and its choice as a core instrument when developing the survey in Phase 2. It should be noted that this chapter was developed after the first phase of data collection, in order to get a better understanding of the themes that arose, as well as to examine their previous use in similar contexts. It also explains the choice of the Technology Acceptance Model as the research aims to investigate whether these variables (as built from the first phase of data collection) actually have an effect on the intention to use a hotel's gamified application. However, when developing the hypothesis development

framework, it focuses on constructs that have been identified from the first phase of data collection.

Chapter Summary

This chapter reviews key literature relevant to hotel gamified applications from three supporting areas of topics. The first section begins with defining m-commerce and the evolution of the technology, especially for the hospitality industry. The developments in mobile communication technologies, along with the increase in mobile devices and internet usage, have led the tourism and hospitality industry to utilize these technologies and create applications as in many others, resulting in hotels developing mobile applications to advertise their brands, to market their products/services to consumers and to increase their sales (Yilmaz and Olgac, 2016). Still, as more technologies become more accessible, adopting such technologies alone will not lead to a competitive advantage (Kim and Law, 2015).

It is then followed by a section focused on games and the success of the industry with regard to profitability and engagement with the audience. This section provides an overview of the strength of games in the current era, as well as examining motivational factors influencing gamers' decisions. The third section aims to explain the success that hotels' gamified applications could bring to organizations, when identifying the audience characteristics to maximize engagement and thereafter loyalty with the brand. Gamification is implemented with a variety of techniques (some easy to implement, some requiring advanced planning, coding, or technical expertise), so any business uses gamification to get better results, no matter what the goals are (Stanley, 2014). However, it is found that many gamified applications are failing due to the poor game design. Some organizations are focusing on the obvious game mechanics, such as points, badges and leader boards, rather than the subtler and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Burke, 2013). Therefore, this research aims to understand and identify hotel visitors' motives when using a mobile hotel gamified application. It is also found important to focus on understanding what fun means for them. Hence, the purpose of this research is to propose and test a model to clarify the constructs that motivate hotel visitors to use hotel gamified applications in the field of m-commerce.

The final part is a hypothesis development section, built to investigate the results of identical hypotheses in similar contexts. It should be noted that this chapter was developed after the first phase of data collection, in order to get a better understanding of the themes that arose, as well as to examine their previous use in similar contexts.

Chapter 3: Research Methodology

Overview

The previous chapter (Chapter 2: Literature Review) established the context of this research by reviewing the literature on m-commerce, games and gamification. It summarized that gamified applications are seen to be failing due to the poor game design (Burke, 2013; Dredge, 2012). Some organizations are focusing on the obvious game mechanics, such as points, badges and leader boards, rather than the subtler and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Burke, 2013). Therefore, the subject of investigation in this thesis is users' behaviour with regard to the usage of a gamified application in the hospitality industry. This led to the aim of this research to investigate hotel visitors' motives when using a mobile hotel gamified application and to understand what fun means for them. In this chapter, the focus is on the research methodology followed to achieve the aim, which will be discussed for the research's different studies. This chapter attempts to present the theoretical and practical approach chosen to explore the research aim and achieve the research objectives. The chapter begins by detailing the research paradigm to understand the theoretical perspective. Furthermore, it explains why a mix of methods is the preferred methodology, as it was decided to apply a blend of qualitative and quantitative methods in order to get a wider picture of the phenomenon being studied. The chapter discusses the various methods that were used in the research phases.

The aim of this research is:

Following the literature findings, this research aim is investigating hotel visitors' motives when using a mobile hotel gamified application, and understanding what fun means for them. The idea is that if the active ingredients that make games addictive are isolated, then developers can put those ingredients into their digital technologies and make them engaging too. To apply gamification, developers first need a list of game design elements, and then secondly they need to integrate these elements into their intervention. This thesis focuses on gamified systems applied in the context of the hospitality industry and hotels sector, with the use of visual material as a helping point.

The objectives of this research are:

Objectives:

1. Propose a model with factors influencing intention to use a gamified system in the hospitality industry

Sub-Objectives:

a. Understand key motives when playing games
b. Understand key motives when using a hotel's gamified application
c. Measure hotel visitors' motives when using hotel gamified applications
d. Investigate and support the results of the quantitative questionnaire survey

2. Propose a meaning of the term fun for users towards a gamified application in the hospitality industry

Sub-Objectives:

a. Understand the meaning of fun when playing games
b. Understand individuals' perception of fun when using hotels' gamified application

3.1 Research philosophy

Philosophy means the use of abstract ideas and beliefs that inform research (Creswell, 2013). The term research philosophy refers to a system of beliefs and assumptions about the development of knowledge. The researcher accepts certain assumptions about the way the world is observed. These assumptions will give the underpinning or platform from which the research strategy will be launched (Collins, 2010). Philosophy of systems provides context and rationale for choosing systemic and research approaches as opposed to others (Edson, Henning and Sankaran, 2017). Thinking systematically requires an understanding of the world as ever-changing and evolving. Research philosophy often includes many important assumptions, and it is with research philosophy or assumptions that the researchers express the way in which they view the world. It is argued by Saunders, Lewis and Thornhill (2015) that nearly all aspects of research projects are formed through assumptions.

3.1.1 Research paradigm

Research or inquiry is guided by a set of beliefs known as a paradigm (Killam, 2013). A paradigm may be viewed as a set of beliefs that deals with ultimate or first principles and it represents a worldview that defines, for its holder, the nature of the world, the individual's place in it and the range of possible relationships to that world and its parts, as, for example, cosmologies and theologies do (Guba and Linkoln, 1994). A paradigm is essentially a way of viewing the world, but also a framework that researchers use as a basis for everything else they do (Killam, 2013). The theoretical framework, as distinct from a theory (paradigm), influences the way knowledge is studied and interpreted (Mackenzie and Knipe, 2006). Creswell and Clark (2011) argue that a term used synonymously with paradigm is worldview, described as a set of beliefs or assumptions that guide inquiries.

Once the research problem is defined and research questions established, it is then necessary to begin to think about the research paradigm or paradigms to be adopted, including the logic or logics of inquiry (Blaikie and Priest, 2017). The particular paradigm adopted for a research is partly determined by the researcher's assumptions, but it is also influenced by the dominant paradigm in the research area and the nature of the research problem investigated (Collis and Hussey, 2013). Guba and Linkoln (1994) define paradigms as the basic belief systems based on ontological, epistemological and methodological assumptions. Axiology is also recognized as an integral consideration in relation to a paradigm (Killiam, 2013). Researchers can be separated into groups based on their philosophical frameworks, identified by the assumptions they make about the nature of the reality being studied, claims about what can and cannot be known, and the ways theories and findings are utilized (Lodico, Spaulding and Voegtle, 2010). Often, at a less abstract level, these philosophical assumptions inform the choices of theories that guide the research (Creswell, 2013). At every stage in a research a number of types of assumptions will be made (Saunders, Lewis and Thornhill, 2016). These include assumptions about the realities encountered in the research (ontological assumptions), about human knowledge (epistemological assumptions), the extent and ways researchers' own values influence the research process (axiological assumptions) (Saunders, Lewis and Thornhill, 2016) and methodology (the process and procedures of research) (Ponterotto, 2005). Each framework makes assumptions about whether qualitative or

quantitative methods are most appropriate for extending the knowledge. With a better understanding of research philosophy, it is also necessary to know more about these assumptions (ontology, epistemology, axiology and methodology), hence they will be discussed in this chapter.

3.1.1.1 Ontology

Ontology refers to assumptions about the nature of reality (Collins, 2010; Veal, 2011; Saunders, Lewis and Thornhill, 2016) and the study of what things exist (Effingham, 2013). This raises assumptions about the way the world operates and the commitment held to particular views by the researchers. Researchers' ontology therefore determines how they see the world; therefore, the main concern of ontology is to deal with the nature of truth (Saunders, Lewis and Thornhill, 2015). According to Collins (2010) and Saunders, Lewis and Thornhill (2016), two aspects of ontology exist: ***objectivism and subjectivism***.

Objectivism - The important metaphysical position that objectivism makes is that the world is real, that it is structured and that its structure can be modelled for the learner (Jonassen, 1991; Collins, et. al., 1995; Saunders, Lewis and Thornhill, 2016). Knowledge is external to the knower and so can be transferred (communicated) from one person to another (Collins, et. al., 1995). The learner´s role is to remember and reproduce the knowledge that is transmitted by the teacher or professor (Collins, et. al., 1995).

Subjectivism - The subjective paradigm assumes that the reality is a creative process in which people create what is going on, or the reality in which they exist (McMurray, Scott and Pace, 2004). The world and everything in it is unstructured, or at least it operates in ways that do not necessarily make sense or at least it does not make the same sense to different people (McMurray, Scott and Pace, 2004). Researchers who hold a subjective view of the world seek to understand what people do to create their world and how they make sense to them (McMurray, Scott and Pace, 2004).

3.1.1.2 Epistemology

Epistemology concerns assumptions about knowledge, what constitutes acceptable, valid and legitimate knowledge and how knowledge can be communicated to others (Saunders, Lewis and Thornhill, 2016); therefore, it can be defined as processed

knowledge (Aileen, 2008). In a very generic term, then, the basic questions of epistemology will always be derivative of three questions: "What is the nature of the knower?" What is the nature of the means of knowing?" and "What is the nature of the known?" (Fox, 1999). Epistemology refers to the relationship between the researcher and the phenomenon being studied (Veal, 2011). An epistemological issue concerns the question of what is (or should be) regarded as acceptable knowledge in a discipline (Bryman, 2012). The variety of acceptable epistemologies gives a much greater choice of methods than many other academic disciplines would have (Saunders, Lewis and Thornhill, 2016). However, it is very important to understand the implications of different epistemological assumptions in relation to the choice of method or methods, and the strength and limitations of subsequent research findings. Saunders, Lewis and Thornhill (2016) group five major philosophies named: ***positivism, critical realism, interpretivism, postmodernism and pragmatism***; Creswell and Clark (2011) identify four: postpositivist, constructivist, participatory and pragmatist; and Cohen, Manion and Morrison (2018) divide them into two, as normative and interpretive. Starting with Saunders, Lewis and Thornhill (2016), an explanation of the five major philosophies will be presented.

Positivism - Positivism describes the pursuit of "models or laws of behaviour" which researchers working from this stance believe can be derived from observation or measurement of the social world (Sheldon, Davies and Howells, 2011). Positivism relates to the philosophical stance of the natural scientist and entails working with an observable social reality to produce law-like generalisations (Saunders, Lewis and Thornhill, 2016). The positivist paradigm is one that has its roots in physical science and it uses a systematic, scientific approach to research (Albon and Mukherji, 2010). Even though the second phase of data collection in this research has used a positivistic approach to examine a causal relationship and create generalizations, the overall design of the research does not fit the definition of the paradigm. For example, the fact that phases one and three of data collection involved person-to-person interviews suggests that 'feelings' research is part of the data collection process, hence the researcher was part of the data collection by framing the questions to ask and interpreting the respondents' examples.

Critical realism - The philosophy of critical realism focuses on explaining what individuals see and experience, in terms of the underlying structures of reality that shape the observable events (Saunders, Lewis and Thornhill, 2016). Critical realism is a specific form of realism whose manifesto is to recognize the reality of the natural order and the events and discourses of the social world, and holds that people will only be able to understand - and so change - the social world if it first identifies the structures at work that generate those events and discourses (Bryman and Bell, 2011). Critical realism (as first developed) re-asserts the primacy of ontology over epistemology –that is, it asserts the existence of an independent, external world about which the researcher may acquire knowledge, while recognizing the inevitable fallibility and contextual nature of that knowledge (Mingers, 2014). Saunders, Lewis and Thornhill (2016) understand that critical realist research focuses on providing explanations for observable organizational events by looking at the underlying causes and mechanisms through which deep social structures shape everyday organizational life; therefore, much of critical realism takes the form of in-depth historical analysis of organizational and social structures and how they have changed over time, which as a paradigm does not fit the purposes of this research.

Interpretivism - Interpretivism, like critical realism, developed as a critique of positivism, but from a subjectivist perspective (Saunders, Lewis and Thornhill, 2016). Unlike positivism, interpretivism assumes that the "objective" data collected by the researcher can be used to test prior hypotheses or theories (Walsham, 1995). The term subsumes the views of writers who have been critical of the application of the scientific model to the study of the social world and who have been influenced by different intellectual traditions (Bryman, 2012). Interpretivists believe that reality is not objectively determined, but is socially constructed (Kelliher, 2005), emphasizing that humans are different from physical phenomena because they create meanings (Saunders, Lewis and Thornhill, 2016). The purpose of interpretivists focuses on "understanding" rather than "explanation" (Kasi, 2009), and create new, richer understandings and interpretations of social worlds and contexts (Saunders, Lewis and Thornhill, 2016). As interpretivist research is to create new and richer understandings and interpretations of social worlds and contexts (Saunders, Lewis and Thornhill, 2016), it fits two of the three phases of data collection for the purposes of this research. However, interpretivism argues that human beings and their social

worlds cannot be studied in similar ways as physical phenomena, hence social science research needs to be different (Saunders, Lewis and Thornhill, 2016), so the adaptation of a positivistic approach for the purposes of the second phase of data collection indicates that an interpretivistic would not fit the overall purposes of this research.

Postmodernism - The term postmodern has been used by Lyotard to describe the condition of knowledge in occidental developed societies (Howell, 2013). Indeed, Scheurich (2013) calls this latter of engagement, as postmodernism, because in his view this is western civilization's best attempt to critique its own fundamental assumptions, particularly those assumptions that constitute reality, subjectivity, research and knowledge. Postmodernism arose as a fierce and shocking reaction to the positivist orthodoxy ruling in the social sciences: for instance, ''theory neutral observation'' postulated by positivism is promptly rejected by postmodernists that endorse instead ''observation-neutral theory' (Sousa, 2010). Postmodernism emphasises the role of language and of power relations, seeking to question accepted ways of thinking and give voice to alternative marginalised views (Saunders, Lewis and Thornhill, 2016). As postmodernists go further than interpretivists in their critique of positivism and objectivism, attributing even more importance to the role of language (Saunders, Lewis and Thornhill, 2016), it suggests that the paradigm is not suitable for the overall purposes of the research.

Pragmatism - Pragmatism, central to the heritage of symbolic interactionism, is based on the premise that knowledge is an instrument for organizing experience and it is deeply concerned with the union of theory and practice (Klenke, 2008). Pragmatism asserts that concepts are only relevant where they support action (Saunders, Lewis and Thornhill, 2016). It emphasizes the importance of experimenting with new ways of living, searching for alternative and more liberating vocabularies, and opening up an array of possibilities for human action (Klenke, 2008). There are many forms of pragmatism, but for many of them, knowledge claims arise out of actions, situations, and consequences (Creswell, 2003). There is a concern with applications - "what works" - and solutions to problems (Creswell, 2003). Instead of methods being important, the problem is most important, and researchers use all approaches to understand the problem (Creswell, 2003). As a philosophical underpinning for mixed

methods studies, it asserts the importance of focusing on the research design problem in social science research and then using pluralistic approaches to derive knowledge about the problem (Creswell, 2003). Pluralistic approaches to research adopt the view that human experience is multi-dimensional and multi-ontological, that its exploration can be better served by combining methods to address the research question in many ways, and that by embracing the differences that different paradigms bring, the complexities of human experience and interaction can be better understood.

Reality matters to pragmatists as practical effects of ideas, and knowledge is valued for enabling actions to be carried out successfully (Saunders, Lewis and Thornhill, 2016). From this perspective, the methods and theories of empirical science or any other discipline (e.g., theology) are not capable of describing truth once and for all. Pragmatists deny there is a single reality and see no way for scientists or others to determine whether their theories are closer to the truth than are their colleagues' (Giacobbi, Poczwardowski and Hager, 2005). Hence, pragmatists have abandoned discussions that concern the correspondence of theory and reality in favour of dialogues where the value of different types of knowledge are viewed as tools for helping us cope with and thrive within our environment (Giacobbi, Poczwardowski and Hager, 2005).

3.1.1.3 Axiology

Axiology addresses the nature of ethical behaviour (Killiam, 2013). It refers to the role of values and ethics within the research process (Saunders, Lewis and Thornhill, 2016), reflecting either the personal beliefs or the feelings of the researcher (Bryman, 2012). Axiology represents an attempt to bring the disparate discussion of values under a single heading, covering a wide area of critical analysis and debate that includes truth, utility, goodness, right conduct and obligation (Given, 2008). The beliefs and values are made explicit by the researcher so that respondents of research know the context in which the research was conducted and have been exposed to critical examination. The researcher's own values play a significant role in all stages of the research process and there is great importance if research results are to be credible (Saunders, Lewis and Thornhill, 2016). The table below summarises the five research philosophies.

Table 3. 1 Research Philosophies

	Positivism	Critical Realism	Interpretivism	Postmodernism	Pragmatism
Ontology	Real, external Independent One true reality	Stratified/Layered External, independent Objective structures Causal mechanisms	Complex, rich Socially constructed through culture and language Multiple meanings, interpretations	Nominal, complex, rich Socially constructed through power relations Some meanings interpretations, realities are dominated and silenced by others	Complex, rich, external 'Reality' is the practical consequences of ideas
Epistemology	Scientific method Observable and measurable facts Law-like generalisations Numbers	Epistemological relativism Knowledge historically situated and transient Facts are social constructions	Theories and concepts too simplistic Focus on narratives, stories, perceptions and interpretations New understandings	What counts as 'truth' and 'knowledge' is decided by dominant ideologies Focus on absences, silences and oppressed/ interpretations and voices	Practical meaning of knowledge in specific contexts 'True' theories and knowledge are those that enable successful action
Axiology	Value-free research Researcher is detached, neutral and independent of what is researched Researcher maintains objective stance	Value-laden research Researcher acknowledges bias by world views, cultural experience and upbringing Researcher tries to minimise bias and errors Researcher is as objective as possible	Value-bound research Researchers are part of what is researched, subjective Researchers interpretations key to contribution Researcher reflexive	Value-constituted research Researcher and research embedded in power relations Some research narratives are repressed and silenced at the expense of others	Value-driven research Research initiated and sustained by researcher's doubts and beliefs Researcher reflexive

Adapted by Saunders, Lewis and Thornhill (2016)

On the other hand, Creswell and Clark (2011) identify four philosophical assumptions based in mix methods research under the name worldview: postpositivist, constructivist, participatory and pragmatist. It is therefore considered important to examine those paradigms as well. Creswell and Clark (2011) inform that these worldviews provide a general philosophical orientation to research and can be combined or used individually.

Postpositivism – is most often associated with quantitative approaches, and the researchers understand knowledge based on (a) determinism or cause-and-effect thinking; (b) narrowing and focusing on selected variables to interrelate; (c) detailed observation and measures of variables; (d) the testing of theories that are continually refined (Creswell and Clark, 2011). This approach has been used for the second phase of data collection, but as an overall philosophical assumption it does not fit the purposes of this research.

Constructionism – typically associated with qualitative approaches and the understanding or meaning of phenomena, formed through participants and their subjective views to make up this worldview (Creswell and Clark, 2011). When participants provide their understandings, they speak from meaning shaped by social interaction with others and from their own personal histories (Creswell and Clark, 2011). This approach has been used for the first and third phases of data collection, but not as a philosophical assumption for the overall design of the research.

Participatory – influenced by political concerns and more often associated with qualitative approaches than quantitative approaches, even though it does not always have this association (Creswell and Clark, 2011). The need for society to be improved and those in it characterizes these views (Creswell and Clark, 2011). Issues such as empowerment, marginalization, hegemony, patriarchy and other issues affecting marginalized groups need to be addressed by the collaboration of researchers with individuals experiencing these injustices, to plan for the social world to be changed for the better, so that individuals feel less marginalised (Creswell and Clark, 2011). The fact that this philosophical approach is influenced by political concerns suggests that it is not suitable for the purposes of this research.

Pragmatism – is typically associated with mixed methods and the focus is on the consequences of research, on the primary importance of the question asked rather than the method (Creswell and Clark, 2011). As seen by Saunders, Lewis and Thornhill (2016), Creswell and Clark (2011) also mention that the use of multiple methods of data collection inform the problem under study, and thus it is pluralistic and oriented towards "what works" in practice.

Table 3. 2 Basic Characteristics of Four Worldviews Used in Research

Postpositivist Worldview	Constructivist Worldview	Participatory Worldview	Pragmatist Worldview
Determination	Understanding	Political	Consequences of actions
Reductionism	Multiple Participant meanings	Empowerment and issue oriented	Problem centred
Empirical observation and measurement	Social and historical construction	Collaborative	Pluralistic

Theory verification	Theory generation	Change oriented	Real-world practice oriented

Adapted by Creswell and Clark (2011)

Finally, Cohen, Manion and Morrison (2018) provide two paradigms worth looking at, named normative and interpretive. The normative paradigm contains two major orienting ideas: firstly, that human behaviour is essentially rule-governed; and secondly it should be investigated by the methods of natural science (Cohen, Manion and Morrison, 2018). Therefore, normative studies are positivistic with the same characteristics as seen by Creswell and Clark (2011) and Saunders, Lewis and Thornhill (2016). The interpretive paradigm is characterized by a concern for the individual and tends to be anti-positivist (Cohen, Manion and Morrison, 2018). The main aim in the context of the interpretive paradigm is to understand the subjective world of human experience, thereafter to retain the integrity of the phenomena being investigated, efforts are made to get inside the person and to understand from within as also seen by Saunders, Lewis and Thornhill (2016). However, Cohen, Manion and Morrison (2018) further clarify that the interpretive paradigm could be seen in four significant traditions named *phenomenology, ethnomethodology, symbolic interactionism and constructionism*.

Phenomenology – is a theoretical point of view that advocates the study of direct experience taken at face value and which sees behaviour as determined by the phenomena of experience rather than by external, objective and physically described reality (Cohen, Manion and Morrison, 2018). Bryman (2012) adds that two points are particularly noteworthy in phenomenology: the fact that it asserts that there is a fundamental difference between the subject matter of the natural sciences and the social sciences, and that an epistemology is required that will reflect and capitalize upon the difference. The fundamental difference resides in the fact that social reality has a meaning for human beings, and therefore human actions are meaningful (Bryman, 2012). Phenomenology as an interpretive philosophy has been applied in the first and third phases of data collection, but not as an overall philosophy in this thesis. The fact that the second phase adopted a deductive approach determines that phenomenology is not appropriate for the purposes of this thesis.

Ethnomethodology – is concerned with the world of everyday life, studying participants' circumstances, thoughts and commonplace daily lives as worthy of

empirical study (Cohen, Manion and Morrison, 2018). Hence, ethnomethodology is concerned with how people make sense of the everyday world, directed at the mechanisms by which participants achieve and sustain interaction in a social encounter by the assumptions they make, the conventions they utilize and the practices they adopt (Cohen, Manion and Morrison, 2018). According to Bryman (2012), in an ethnomethodological stance, social order is seen not as a pre-existing force constraining individual action, but as something that is worked at and accomplished through interaction. Similarly, to phenomenology, ethnomethodology is an interpretive philosophy, which suits the first and third phases of data collection, but not the overall philosophy of the research.

Symbolic interactionism – the term does not represent a unified perspective in that it does not embrace a common set of assumptions and concepts accepted by all who subscribe to the approach (Cohen, Manion and Morrison, 2018). However, Cohen, Manion and Morrison (2018) explain three basic postulates as follows: firstly, human beings act towards things on the basis of the meanings they have for them. Humans inhabit two different worlds, one called 'natural' wherein they are organisms of drives and instincts and where the external world exists independently of them, and the social world where the existence of symbols, like language, enables them to give meanings to objects (Cohen, Manion and Morrison, 2018). This attribution to meanings is what makes them distinctively human and social. Second, this attribution of meaning to objects through symbols is a continuous process and the individual constructs, modifies, weighs up the pros and cons, and bargains (Cohen, Manion and Morrison, 2018). Finally, this process takes place in a social context, hence individuals align their actions to those of others. Cohen, Manion and Morrison (2018) argue that, instead of focusing on the individual, then his or her personality characteristics, or on how the social structure or situation causes individual behaviour, symbolic interactionists direct their attention to the nature of interaction and the dynamic activities taking place between people. Bryman (2012) explains this approach is more consistent with a natural science approach than has typically been recognized; however, the general tendency has been as a similar intellectual space to the phenomenological tradition and so a broadly interpretive approach.

Constructionism (constructivism) – in contrast to the argument that external objects and factors determine, shape and impress themselves onto passive recipients, people actively seek out, select and contrast their own views, worlds and learning, and these processes are rooted in sociocultural contexts and interactions (Cohen, Manion and Morrison, 2018). Bryman (2012) explains that constructionism is an ontological position that asserts that social phenomena and their meanings are continually being accomplished by social actors, implying that social phenomena and categories are not only produced through social interaction, but they are in a state of revision. The term has also come to include the notion that the researcher always presents a specific version of social reality, rather than one that can be regarded as definite (Bryman, 2012). As mentioned earlier in Creswell and Clark (2011)'s paradigms, constructionism (constructivism) has been used for the first and third phase of data collection, but not as a philosophical assumption for the overall design of the research.

3.1.1.4 The current research

This study is falling within the pragmatism paradigm, since the focus is on the research question itself, rather than on one particular research philosophy. In this way, the question determines the ontology, epistemology and axiology adopted. In this research, the question does not lend itself unambiguously to either a positivist or interpretivist philosophy, confirming its pragmatist's position, which maintains that it is perfectly possible to have variations in the ontology, epistemology and axiology. Mixed methods, both qualitative and quantitative, can be beneficial within one piece of research (Saunders, Lewis and Thornhill, 2016). This research aims to understand the user intent to use a mobile gamified system, to identify hotel visitors' motives when using a mobile hotel gamified application and to understand what fun means for them. For the purposes of this research two research designs are developed; qualitative (phase 1 and 3) and quantitative (phase 2).

3.2 Research approach

Methodological theory is about method (what lies behind the approaches and methods of inquiry used in a piece of research) (Punch, 2014). Bryman (2016) characterises that the link between theory and research is by no means straightforward, identifying that two stand out in particular. Firstly, there is the question of what form of theory one is talking about, and secondly, there is the matter of whether data are collected to test

or to build theories (Bryman, 2016). Research approaches are plans and the procedures for research that link the steps from broad assumptions, to detailed methods of data collection, analysis, and interpretation. The extent to which a researcher is clear about the theory at the beginning of the research raises an important question concerning the research project, which is often portrayed by three approaches to the reasoning adopted (**deductive, inductive and abductive**) (Saunders, Lewis and Thornhill, 2016).

3.2.1 Deductive approach

The deductive approach is concerned with logic and mathematics and is normally better suited with the positivistic paradigm (Curwin and Slater, 2008). It is more theory-driven, built upon previously developed categories and codes derived from earlier studies (Ulhoi and Neergaard, 2007). It involves deduction, where process is based on prior logical reasoning or the research literature resulting in a hypothesis to be tested. In the case of deductive reasoning, a top-down approach of knowing is used (Lodico, Spaulding and Voegtle, 2006). Research may use one aspect of deductive reasoning by first making a general statement and then seeking specific evidence that would support or disconfirm that statement (Lodico, Spaulding, and Voegtle, 2006). Once the literature has been reviewed, the deductive researcher will be in a position to develop the theoretical framework that informs and helps to structure and guide the remainder of the research process (Brotherton, 2015). The final stage in a deductive research is generalization, whereby the researcher needs to determine that the sample is of a sufficient size to ensure that inferences can be made about a more general population (Collins, 2010).

In a deductive approach the research needs to be independent of what is being observed, meaning that both the researcher and the research needs to be objective (Collins, 2010). The feelings and the personal view of the researcher about the world should not enter into the research and the research needs to be operationalised so that the facts can be measured (Collins, 2010). A theory of proposition can be built upon accepted truths (Curwin and Slater, 2008). It occurs when the conclusion is derived logically from a set of premises, the conclusion being true when all the premises are true (Saunders, Lewis and Thornhill, 2016). Deduction involves developing a theory that is tested and presents more of a scientific approach to

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research (Collins, 2010). Even though a deductive approach has been used during the second phase of this research it does not fit the overall approach of the study. The second phase of data collection has used a deductive approach to generalise the results of phase one and test the hypothesis; however, the research is not based on a positivistic paradigm, theory-driven, built upon previously developed categories and codes derived from earlier studies in an overall design.

3.2.2 Inductive approach

An inductive approach means that data will be collected and a theory developed as a result of the data analysis; this is normally better suited to an interpretive paradigm (Collins, 2010). It is based on the collection of empirical evidence in a specific situation and then making a general statement to cover all situations (Curwin and Slater, 2008). The explanation is induced from the data; the data come first and the explanation later. The strength of an inductive reasoning lies in understanding the context - within which the research takes place and not focusing on a cause-and-effect relationship (Collins, 2010). It is often referred to as a "bottom-up" approach to knowing, in which the researcher uses particular observations to build an abstraction or to describe a picture of the phenomenon that is being studied (Lodico, Spaulding, and Voegtle, 2006).

A research project using an inductive approach is more likely to be concerned with the context in which the events are taking place, and might mean that a small sample is more appropriate than a large sample, and it is more likely to use qualitative data and a variety of methods in order to establish different views of the situation within an inductive approach (Collins, 2010). Inductive coding begins with close readings of the text and consideration of the multiple meanings that are inherent in the text (Thomas, 2011). The starting point in this reasoning to conducting research is the identification of the problem or question to be addressed (Brotherton, 2015). The evaluator then identifies text segments that contain meaningful units and creates a label for a new category to which the text segment is assigned (Thomas, 2011). Additional text segments are added to the categories to which they are relevant (Thomas, 2011). At some stage, the evaluator may develop an initial description of the meaning of a category and write a memo about the category (e.g., associations, links and implications) (Thomas, 2011). The category may also be linked to other categories in various relationships, such as a network, a hierarchy of categories, or a causal

sequence (Thomas, 2011). This research has used an inductive approach during phases one and three of data collection. In phases one and three data will be collected and a theory will be developed as a result of the data analysis. However, the use of a deductive approach in phase two shows that the research is not following a traditional interpretive paradigm, hence the following abductive approach would better fit the objectives of this research.

3.2.3 Abductive approach

This approach, instead of moving from theory to data (deduction) or data to theory (induction), moves back and forth, in effect combining the two (Saunders, Lewis and Thornhill, 2016). The abductive approach stems from the insight that most great advances in science neither followed the pattern of pure deduction nor of pure induction (Kovacs and Spens, 2005). Most sources quote Charles Sanders "Santiago" Peirce for coining the term "abduction" (Kovacs and Spens, 2005). Abduction begins with the observation of a 'surprising' fact; it then works out a plausible theory of how this could have occurred (Saunders, Lewis and Thornhill, 2016). Some plausible theories can account for what is observed better than others, and it is these theories that will help uncover more 'surprising facts' (Saunders, Lewis and Thornhill, 2016). A knowledge-based system that uses a single abductive method is restricted to using the knowledge required by that method (Josephson and Josephson, 1996). This restriction makes the system brittle because the single fixed method can respond appropriately only in a limited range of situations, and can make use of only a subset of the potentially relevant knowledge (Josephson and Josephson, 1996). The table below summarises the reasoning behind the three approaches adapted by Saunders, Lewis and Thornhill (2016).

	Deduction	**Induction**	**Abduction**
Logic	When the premises are true, the conclusion must also be true	Known premises are used to generate untested conclusions	Known premises are used to generate testable conclusions
Generalisability	Generalising from the general to specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or	Data collection is used to explore a phenomenon, identify themes and	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual

	hypothesis related to an existing theory	patterns and create a conceptual framework	framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new theory or modify existing theory

Adapted by Saunders, Lewis and Thornhill (2016)

Saunders, Lewis and Thornhill (2016) highlight that if the research starts with theory from a reading of the academic literature and designing a research strategy to test the theory then a deductive approach is used, whereas if the research starts by collecting data to explore a phenomenon and generate or build theory then an inductive approach is used. Lastly, where the researcher collects data to explore a phenomenon, identify themes and explain patterns, to generate a new or modify an existing theory which subsequently is tested through additional data collection, then an abductive approach is used (Saunders, Lewis and Thornhill, 2016). Considering the pragmatist paradigm adopted by this research (since the focus is on the research question itself, rather than on one particular research philosophy), the abductive approach and its back and forth nature are recognised as the most appropriate methodology for the current research. The question does not lend itself unambiguously to either a positivist or interpretivist philosophy, confirming its pragmatist's position, highlighting the fact that mixed methods (both qualitative and quantitative) can be beneficial within one piece of research (Saunders, Lewis and Thornhill, 2016). The researcher is provided with two main research designs (within three phases of data collection) that include qualitative (in phases one and three) and quantitative (in phase two).

In the field of information technologies and systems, the two approaches are used to explore dimensions of ICT; still, reliance on one method may produce insufficient results due to its missing elements. For example, if qualitative research is adopted it would only be limited on inductive reasoning for hotel visitors' motives towards intention to use hotel gamified applications. Pure reliance on subjectivity may diminish effectiveness and reliability of the research findings due to the likelihood of bias errors. On the other hand, the researcher may choose a quantitative method to quantify the impact of each identified factor on the hotel visitors' intentions to use hotel gamified

applications. Combining two or more research methods is also known as triangulation. According to Bryman (2012), triangulation entails using more than one method or source of data in the study of social phenomena. It implies that the results of an investigation employing a method associated with one research strategy are crosschecked against the results of using a method associated with the other research strategy (Bryman, 2012). This facilitates the validation of the findings, assists in explaining diverging results and compensates for the limitations inherent in a single research method.

3.3 Research methods

A good research design is justifiable in terms of the research question (Vogt, Gardner and Haeffele, 2012). It is the general plan of how the research question or questions will be answered. Much leisure and tourism research involves the collection, analysis and presentation of statistical information (Veal, 2011). Sometimes the information is innately quantitative and sometimes the information is qualitative (Veal, 2011). Researchers have long debated the relative value of qualitative and quantitative inquiry (Hoepfl, 1997). Phenomenological inquiry, or qualitative research, uses a naturalistic approach that seeks to understand phenomena in context-specific settings, whereas logical positivism, or quantitative research, uses experimental methods and quantitative measures to test hypothetical generalizations. Each represents a fundamentally different inquiry paradigm, and researcher actions are based on the underlying assumptions of each paradigm (Hoepfl, 1997). The aim of this section is to describe the three research designs, identifying which is the most appropriate for the purposes of this research and why.

3.3.1 Quantitative methods

Quantitative research focuses attention on measurement and amounts of the characteristics displayed by the people and events that the researcher studies (Thomas, 2003). It examines relationships between variables, which are measured numerically and analysed using a range of statistical and graphical techniques (Saunders, Lewis and Thornhill, 2016); it abstracts from particular instances to seek general description or to test causal hypotheses (Thomas, 2003). Therefore, it is usually associated with a deductive approach, where the focus is on using data to test theory. In quantitative research, some historical precedent exists for viewing a theory

as a scientific prediction or explanation (Creswell, 2009). In this definition, a theory is an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (Creswell, 2009). A theory might appear in a research study as an argument, a discussion or a rationale, and it helps to explain (or predict) phenomena that occur in the world. Quantitative researchers seek explanations and predictions that will generalize to other persons and places (Thomas, 2003).

In quantitative research, the researchers observe and measure, and care is taken to keep the researchers from "contaminating" the data through personal involvement with the research subjects (Thomas, 2003). Hence, it is generally associated with positivism, especially when used with predetermined and highly structured data collection techniques (Saunders, Lewis and Thornhill, 2016). Careful sampling strategies and experimental designs are aspects of quantitative methods aimed at producing generalizable results (Thomas, 2003). Because data are collected in a standard manner, it is important to ensure that questions are expressed clearly so they are understood in the same way by each participant (Saunders, Lewis and Thornhill, 2016). Equally important, the selection procedures make it possible to determine the statistical significance of differences between subgroups (Bamberger, 2000). Quantitative research is extremely important to administer a survey according to a standard protocol (Bamberger, 2000). In quantitative research, information usually collected and pre-coded either numerically or in the form of pre-coded categories (Bamberger, 2000). The principal advantage of such surveys is that they can be administered to large numbers of individuals, organizations or households, using standardized methods (Bamberger, 2000). Measurements and statistics are central to quantitative research because they are the connections between empirical observation and mathematical expressions of relations (Hoy, 2010). An essential characteristic of that is a random selection of subjects so that each subject has an equal or known probability of selection (Bamberger, 2000). This makes it possible to generalize from the sample to the total population (Bamberger, 2000).

3.3.2 Qualitative methods

Qualitative methods involve a researcher describing kinds of characteristics of people and events without comparing events in terms of measurements or amounts (Thomas,

2003). It focuses on an in-depth understanding of social and human behaviour and the reasons behind such behaviour, hence researchers are interested in understanding, exploring new ideas, and discovering patterns of behaviour (Hoy, 2010; Veal, 2011). It is associated with interpretive philosophy (Saunders, Lewis and Thornhill, 2012), but also on constructionist and inductivist, even though do not always subscribe to all three of them (Bryman and Bell, 2011). However, Sirakaya-Turk et al (2017) mentions that, alongside interpretivists and social constructionists, also positivists, post-positivists and post-modernists also claim qualitative methods. As each of these paradigm stances claims qualitative methods as its own, they in turn shape the nature of the methods. Thus, how a positivist using participant observation would collect and interpret qualitative data would be different from how a social constructionist would use the same approach (Sirakaya-Turk et al, 2017).

Qualitative research is multimethod in focus, involving an interpretive naturalistic approach to its subject matter, meaning that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of meanings people bring to them (Thomas, 2003). It emphasizes the meanings people construct surrounding events in their lives, and the importance of understanding those meanings as they are embedded in context (Sirakaya-Turk et al, 2017). These strategies focus on data collection, analysis and writing, but they originate out of disciplines and flow throughout the process of research (Creswell, 2009). In addition, words, images and sounds may also be involved (Veal, 2011). Qualitative research has no single defining sampling, but the choice of sampling method is determined by the purpose of the study (Bamberger, 2000). Qualitative research protocols are relatively unstructured and flexible (Bamberger, 2000). In qualitative studies, information is most frequently recorded in the form of descriptive textual reports with little or no categorization (Bamberger, 2000). The documentation may consist of subjects' responses to semi-structured interview questions, notes taken during focus groups, or other kinds of group interaction, or the researchers' observations of relevant aspects of a community or organization (Bamberger, 2000). In other cases, the information may be recorded within predefined categories, but with reports presented in an unstructured or semi-structured form within each category (Bamberger, 2000).

The use of qualitative methods in leisure and tourism research has increased significantly in recent years (Veal, 2011). Qualitative research methods generally

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make it possible to gather a relatively large amount of information about the research subjects, which may be individuals, places, or organizations, but the collection and analysis processes typically place a practical limit on the number of subjects included (Veal, 2011). Hence, the approach involves obtaining a full and rounded account and understanding of the leisure or tourism behaviour, attitudes and/or situation of a few individuals, as opposed to the more limited amount of information which might be obtained in a quantitative study of a large sample of individuals.

3.3.3 Mixed methods

Mixed methods research (also called mixed research) is becoming increasing popular attached to research practice, and recognized as the third major research approach or research paradigm, along with qualitative research and quantitative research (Johnson, Onwuegbuzie and Turner, 2007). Today, the primary philosophy of mixed research is that of pragmatism. Mixed methods research is, generally speaking, an approach to knowledge (theory and practice) that attempts to consider multiple viewpoints, perspectives, positions, and standpoints (always including the standpoints of qualitative and quantitative research) (Johnson, Onwuegbuzie and Turner, 2007). Mixed research, in its recent history in the social and behavioural or human sciences, started with researchers and methodologists who believed qualitative and quantitative viewpoints and methods were useful as they addressed their research questions (Johnson, Onwuegbuzie and Turner, 2007).

It is argued by Creswell (2003) that including only quantitative and qualitative methods falls short of the major approaches being used today in the social and human sciences. Hence, in this research, it was decided to apply a blend of qualitative and quantitative methods, as well as triangulation of techniques in order to get a wider picture of the phenomenon being studied (hotel visitors' motives when using a mobile hotel gamified application, and understanding what fun means for them). Bryman (2012) explains that triangulation implies that the results of an investigation employing a method associated with one research strategy are crosschecked against the results of using a method associated with the other research strategy. Hence, for the purpose of this research a qualitative method (semi-structure interviews), in phase three, has been used to crosscheck the results of a quantitative method (survey), of phase two. The table below summarises the current methodologies and strategies.

Table 3. 2 Summary of research approach and methodology

Methodology	Strategy	Sample Size
Qualitative	Exploratory/Interviews	30
Quantitative	Explanatory/Survey	763
Qualitative	Exploratory/Interviews	25

3.4 Research design

This section focuses on the research design choice. In general terms a strategy is a plan of action to achieve a goal; therefore, a research design may be defined as a plan of how the researcher will achieve answering the research question (Saunders, Lewis and Thornhill, 2012). The researcher not only selects qualitative, quantitative or mixed methods studies to conduct, but also decides on types of studies within these three choices (Creswell, 2009). Even though particular research strategies may be associated with one of the philosophies discussed earlier, and also to a deductive or inductive approach, it is also recognized that there are often no boundaries between research philosophies, research approaches and research design (Saunders, Lewis and Thornhill, 2012). Hence, a particular research design should not be seen as inherently superior or inferior to any other. The key to the choice of research strategy or strategies is to achieve a reasonable level of coherence in the choice of research throughout the research design, which will enable the researcher to answer a particular research question or questions and meet the objectives.

With regard to mix methods, it is the researcher's choice to make decisions regarding the timing of the strands. According to Creswell and Clark (2011), a strand is a component of a study that encompasses the basic process of conducting quantitative or qualitative research: posing a question, collecting data, analysing data and interpreting results based on that data; in order to meet the definition of a mixed method, the research should include at least one quantitative and one qualitative strand. Timing refers to the complete strands, not just data collection but the order in which the researcher uses those strands during the same phase of the study (Creswell, 2003). Moreover, Creswell (2003) classifies timing within mixed method design in three ways: concurrent, which is when the researcher uses both strands during the same phase of the study; sequential, when the researcher applies both

strands in separate phases, so that data collection and analysis of one strand occurs before the other; and multiphase combination, when there are several phases within the study, which may use the strands in a concurrent or sequential manner. This research has applied the Sequential for designing the different research studies. It starts with a qualitative study to help in building the research framework, followed by a quantitative study in order to test and generalise the results, and a final qualitative study to add further understanding of the final results. Finally, this research follows another study to further understand and validate the results. Within these three phases, a mixed method approach that involves both quantitative and qualitative techniques is suitable as suggested by the pragmatism paradigm.

It is argued by Straub and Carlson (1989), and confirmed by Bourdreau, Gefen and Straub in (2001), that research in IS typically begins with a qualitative exploratory stage, and is usually followed by confirmatory research to empirically test hypotheses or propositions generated from the first phase. Since this research is looking at an Information System applied in the hospitality ndustry (hotel gamified applications), it is seen useful to follow a similar design. The overall research design is illustrated in the figure below.
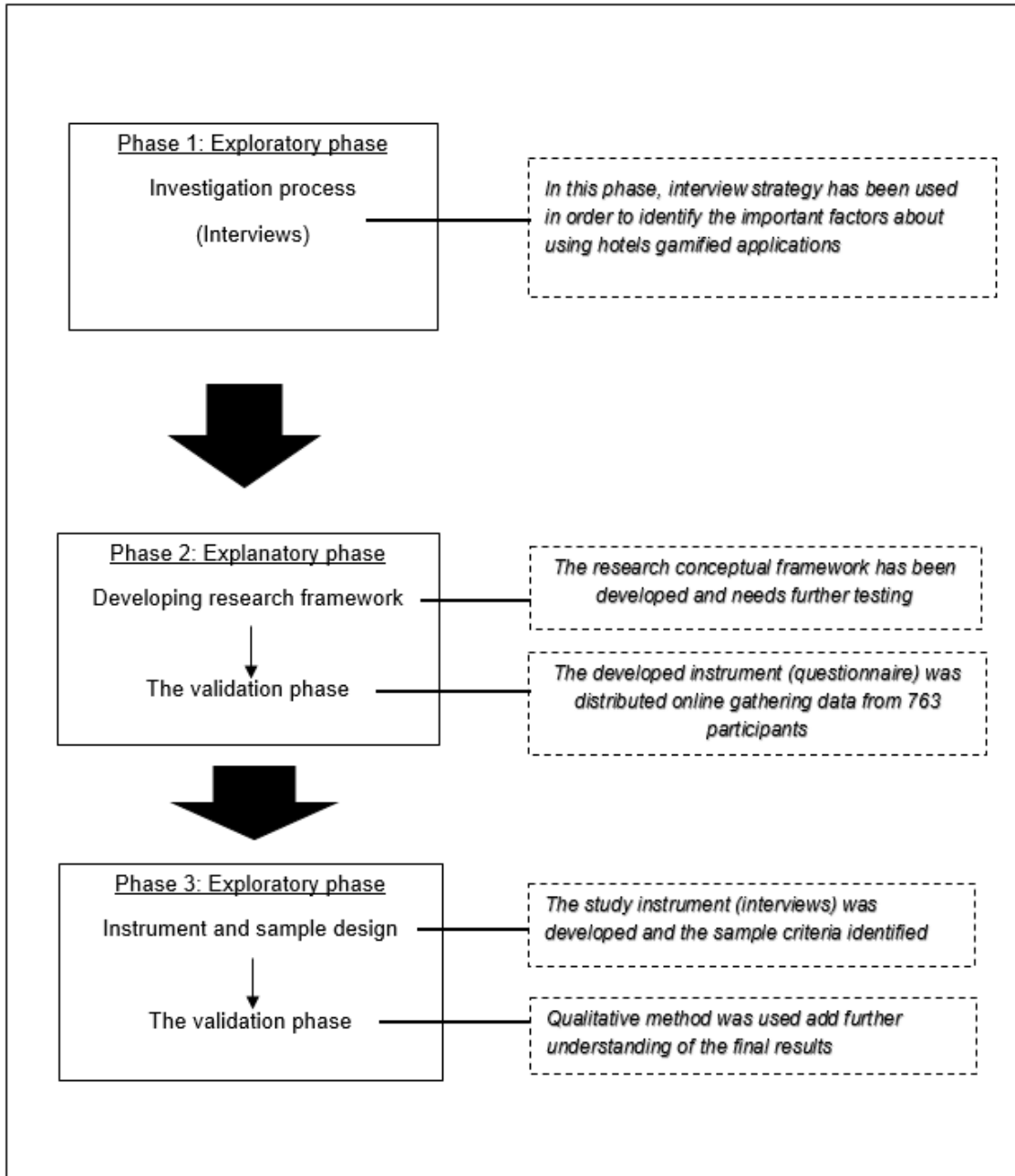
Figure 3. 1 Research design

3.5 Research strategies

This research aims to investigate hotel visitors' motives when using a mobile hotel gamified application, and to understand what fun means for them. For better interpretation and analysis, the combination of two or more research techniques has been adopted so as to investigate the research problem through the evaluation of a rich pool of data, and the information derived is divided into three phases. The section below will discuss the strategies behind these phases.

3.5.1 Phase 1: Semi-structured Interviews with gamers

An interview is a very good way of accessing people's perceptions, meanings, definitions of situations and constructions of reality (Punch, 2014). The interview is probably the most widely employed method in qualitative research (Bryman and Bell, 2011; Bryman, 2012). A research interview is a purposeful conversation between two or more people, requiring the interviewer to establish a rapport and ask concise and unambiguous questions, to which the interviewee is willing to respond and to listen attentively (Saunders, Lewis and Thornhill, 2016; O'Gorman and Macintosh, 2014). The term qualitative interview is often used to capture the different types of interviews that tend to be far less structured than the kind of interview associated with survey research in terms of structured interviewing (Bryman and Bell, 2011). For example, interviews can be used to explain and interpret the results of quantitative research, or conversely to provide exploratory data that are later developed by quantitative research (O'Gorman and Macintosh, 2014).

Interviews range from unstructured (open-ended) to structured, with semi-structured occupying the middle ground, and selecting the most appropriate type often determines project success (O'Gorman and Macintosh, 2014). For example, unstructured interviews in a resource-constrained, narrowly focused project may prove ineffective, whereas highly focused, structured interviews are unlikely to capture the depth of insight required in some exploratory studies (O'Gorman and Macintosh, 2014). As this phase aims to get an in-depth understanding related to the objective by using exploratory design, a structured interview is not appropriate as it might miss useful information. On the other hand, as a literature review has been conducted in the first place and critical points have emerged to be discussed (for example, the element of "fun" as a motive), unstructured interviews cannot be applied either. In semi-structured interviews, the researcher will have a list of themes and possibly some questions to be covered, although their use may vary from interview to interview (Saunders, Lewis and Thornhill, 2016). Questions may not follow on exactly in the way outlined on the schedule, and even questions that are not included in the guide may be asked as the interviewer picks up on things said by the interviewee (Bryman and Bell, 2011). Therefore, the middle ground of semi-structured interviews has been chosen as the most appropriate design for the purposes of this project, as it gives the opportunity to research the major topics as they appeared from the literature, but at

the same time gives the opportunity to the interviewee to speak freely about other topics that might not yet have been identified in the literature.

Table 3. 3 Strengths and Weaknesses of Semi-Structure Interviews

Semi-Structured Interviews		
Strengths	**Weaknesses**	**Applicability**
Questions prepared in advance to cover critical points, useful when the researcher is inexperienced. Interviewees still retain freedom and flexibility to express their own views. Increased reliability and scope for comparability. Interviewee is able to respond in language natural to them.	Time consuming. Resource intensive. Needs good interview skills to keep on topic. Interview questions are open to researcher bias. May lack in generalizability.	Multiple interviewers. Only one chance to conduct the interview. Researcher has some knowledge of the topic, in conjunction with other research methods.

Interview Planning

Like all research methods, careful preparation is the key to a successful interview. In semi-structured interviews the researcher has a list of themes and possibly some key questions to be covered.

Key objectives:

- To understand the key motives that contribute towards playing games
- To understand the key motives that contribute towards intention to use a hotel's gamified application
- To understand individuals' perception of fun when playing games
- To understand individuals' perception of fun when using a hotel gamified application

Apart from containing the list of themes and questions to be covered, the interview schedule for this type of interview will also be likely to contain some comments to open the discussion, a possible list of prompts to promote and further discussion, as well as some comments to close it (Saunders, Lewis and Thornhill, 2016). More questions are often added as probes, in order to seek clarification or get more details. An initial research instrument was developed and set out below in Figure 3.3.

Question	Probes	Follow Up	Dimensions
1. What kind of games do you play?	Can you give me more details about them?		Gaming background
2. Do you have any preference in a specific game?	Could you give me some examples?	Why this game?	Game motives
3. How often do you play this game?	Is it a routine for you?		Daily activity
4. What is so entertaining in this game?	Is it fun?		Fun
5. Have you ever used a hotel application before?	For what reason?	If not why not?	Technology knowledge
6. Do you know what Gamification is?	Any examples?		Introduction to the concept
7. Have you ever used a gamified application in the past?	What kind of gamified application have you used?	If not why not?	Past Experience
8. What do you thing about this imaginative hotel gamified application	Do you like it?		General thoughts
9. Would you use it?	Why would you use it?		Motives
10. Do you find this application useful?	Can you give more details?	If not why not?	Perceived Usefulness
11. Do you find this application ease to use?	Can you give more details?	If not why not?	Perceived ease of use
12. Do you find this application interesting?	Would you say it is fun to use?	Why is that?	Fun
13. What elements would make this application more interesting/fun	Can you give more details?		Exploring the element of fun
14. How important is the element of gameplay for you in order to use this application	Why is that?		Gamification and gameplay
15. Is the reward the most important element in the decision making or the gameplay itself?	What is more important to make you use this application?	Why is that?	Intrinsic/ extrinsic motivation
16. Would you use that application before visiting the hotel? During the visit? After the visit?	In what stage is more likely to do so?	Why is that?	Applications lifecycle
17. Would you use that application to book a room in a hotel of the specific brand?	Can you give more details?		Intention to use
18. Is this application enough for you in order to visit the brand in the future	Can you give more details about this opinion?	If not why not?	Intention to return

Figure 3. 2 Phase 1 Research Instrument

Probing has been used to explore responses that are significant to the research topic. Probing questions may also be used to seek an explanation where the interviewee's meaning is not understood or where the response does not reveal the reasoning involved (Saunders, Lewis and Thornhill, 2016), and even though such probes have been prepared some may emerge naturally within the conversation. Follow-up questions such as why not and why that is have been used to prompt further answers

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to a question identifying any feelings and emotions of the interviewee to make interviews truthful. At this point it should be mentioned that after question 7 the interviewer used visual material to give to the participant an idea of what a hotel gamified application would look like, therefore questions 8 to 18 have been done based on the visual material (See Appendix 1). Since there was no existing mobile gamified application in the hospitality industry, it was decided to develop visual material based on the definitions of gamification, the game mechanics (i.e. points, badges) and game motives (i.e. exploring, achieving) identified in the literature review.

For example, review from gaming literature was taking into consideration to build the visual material. Bartle's (1996) classification of gamers has contributed on the development of the material, with points and progress on the picture to refer to the **Achievers** type of gamers, the socializing button contributes towards motivating **Socializers** to use the application, leaderboard is the mechanic based on **Killers** characteristics and lastly the promotion of tasks with the example of real live scenario games is included to affect **Explorers** and their interest to explore the virtual and real world. Further typologies of gamers were included from gaming literature and Klug and Schell types (2006). For example, several badges were added to attract **Collectors**, the tasks to attract users with the characteristics of a **Craftsman**, the avatar to influence a **Storyteller** and a task such as upload a selfie for a user with the characteristics of a **Joker**. Besides gaming literature review, gamification literature was taken into consideration as well. Marczewski's Player and User Types majorly affected the development of visual material. **Socializers** user types have similar characteristics as described in gaming literature therefore the socializing button also affects their behaviour, with the avatar to be the most important element to affect **Free Spirits**, and tasks to influence the **Achievers**. Regarding the fourth category of **Philanthropists** the socializing button was interpreted to have the use of helping other users who need information of the hotel with their comments or live chat. Lastly, for the type of **Players** and their need of reward several tasks refer to discount to attract their behaviour.

The aim of using the visual material is to give an idea to the interviewee of how a hotel's gamified application would look. This would help the interviewee to focus on the elements they find more attractive and encouraging to use. Hence, it would be

easier to generate a conversation around the motives of the participants when using the system.

Population and sampling

In qualitative research the sample is intentionally selected according to the needs of the study, commonly referred to as "purposive sampling" or "purposeful selection", and the cases are specifically selected because they can show a lot about the issues that are importance to the research (Boeije, 2010). Purposive sampling is a non-probability form of sampling (Bryman and Bell, 2011; Bryman, 2012). The goal of purposive sampling is to sample cases/participants in a strategic way, so that those sampled are relevant to the research questions that are being posed (Bryman, 2012). With purposive sampling the researcher needs to use his/her judgment to select cases that will best enable them to answer the research questions and to meet their objectives, so for this reason it is sometimes known as judgemental sampling (Saunders, Lewis and Thornhill, 2016).

The research aims to identify individuals' opinions about a future hotel gamified application, therefore the sample should be familiar with mobile gaming applications in the past at in order to have experience; therefore, a purposive sampling technique is used. Statistics show that the average game player is 35 years old. Analytically the biggest game-players age group is between 18-35 years with 30%. 26% are under 18 years, 27% over 50 and 17% are between 36-49 years. It has therefore been chosen to focus the research on college students, as they are more likely to be familiar with mobile game applications as they are in the highest percentage group. The reason for choosing participants to be college students is due to the fact that they are more likely to have experience in the area of gaming. The purpose behind that is for the participants to be able to recognise the gaming elements on the visual material shown to them during the interview. As this research focuses a lot of the conversation around the visual material, it was considered important for the participants to have knowledge around games, as these visual materials have been developed to look a lot like games. Hence, the participants were able to express their opinion on their motives when they are playing games and give their opinion on which of these motives would be applicable and which not in the case of a hotel gamified application. Indeed, a study from Pew Internet Research finds that 66% of college students play video games at

least "once in a while". Lastly, the sample was taken from both genders, as 52% of gamers are males and 48% are female, showing that there is balance in the gaming industry between the two genders.

It is very difficult to know in advance the number of interviews needed to conduct when theoretical saturation is employed as a principle for assessing the adequacy of a sample (Bryman, 2016). However, it is recommended continuing to collect data by conducting interviews, until data saturation is reached (Saunders, Lewis and Thornhill, 2016), which means the number of interviews needed to get a reliable sense of thematic exhaustion and variability within a data set (Bryman, 2016). For the purpose of this research 30 students have participated. Data saturation arise on the 25th interview and an additional five interviews were developed.

Data analysis

Qualitative data are data in the form of words (for example interview notes, transcripts and answers to open-ended questions) (Sekaran and Bougie, 2013). Whether working with transcripts of interviews or focus groups, field notes or any other form of text, it is more likely to collect large amounts of data, likely to be characterised by their richness and fullness, based on the researcher's opportunity to explore a subject in as real a manner as possible - they are not straightforward to analyse (Saunders, Lewis and Thornhill, 2016; O'Gorman and Macintosh, 2014). Unlike quantitative data analysis, clear-cut rules about how qualitative data analysis should be carried out have not been developed (Bryman and Bell, 2011). In qualitative research, meanings are principally derived from words and images, and not numbers, meaning that since words and images may have multiple as well as unclear meanings, it is necessary to explore and clarify these with great care (Saunders, Lewis and Thornhill, 2016).

These non-standardised data will be likely to be large in volume and complex in nature, therefore the researcher will be confronted by either a mass of paper, still images, visual recordings or electronic files that will need to be explored, analysed, synthesised and transformed in order to address the research objectives and answer research questions (Saunders, Lewis and Thornhill, 2016). In order to do so, a procedure that is often referred to as the process of 'coding' data, with each code labelling or categorising parts of the dataset (O'Gorman and Macintosh, 2014), has to happen. The table below discusses different analytical techniques (thematic, template,

explanation building and testing, grounded theory method, narrative analysis and content analysis) to analyse qualitative data.

Figure 3. 3 Qualitative Analysis techniques

Technique	Description
Thematic Analysis	The essential purpose of this approach is to search for themes, or patterns that occur across a data set (such as a series of interviews or observations) and it involves coding qualitative data to identify themes or patterns for further analysis, related to the research question. This stage of analysis involves searching for patterns and relationships in the long list of codes to create a short list of themes that relate to the research question, therefore a theme is a broad category incorporating several codes that appear to be related to one another and which indicates and which indicates an idea that is important to that research question
Template Analysis	Template analysis allows for textual data to be thematically organised and analysed according to a set of codes developed a priori and it is considered ideal for those who considered Grounded theory as too perspective in terms of its methods and for those researchers using data sets of over 20.
Grounded theory method	Grounded theory method is part of a wider methodological approach as an emergent and systematic research strategy. It avoids using priori codes derived from existing theory and commences inductively, by developing codes from the data, and the development of an emerge idea or theory from these data informs the direction of a Grounded Theory study. Analysis involves what is commonly termed coding, taking raw data and raising it to a conceptual level.
Explanation building and testing	The nature of reaching an explanation and theorising differs from both Thematic and Template analysis. Within three techniques (Analytic Induction, Deductive Explanation Building and Pattern Matching the emphasis is on building (or predicting) and testing an explanation.
Narrative analysis	The purpose is to identify analytical themes within narratives and it focuses on the content rather than on the way it is structured. It can be used to analyse individuals' narratives or multiple, related narratives, attention is focused on the chronological sequel and contextual background of the themes.
Content analysis	Is an analytically technique that codes and categorises qualitative data in order to analyse them quantitavely. It is more likely to follow a step-by-step or sequential process. For Content analysis, this process involves sampling, devising analytical categories, defining the unit of analysis, conducting coding and undertaking quantitative analysis.

Adapted by Saunders, Lewis and Thornhill (2016)

Considering the above table, a thematic analysis is viewed as the most appropriate for the purposes of this phase. The fact that the essential purpose of this approach is to search for themes or patterns that occur across a data set will help in order to give a better understanding of the key motives that contribute towards intention to use hotels' gamified applications. This stage of analysis involves searching for patterns and relationships in the long list of codes to create a short list of themes that relate to the research question, which helps to understand patterns in relation to the aim of the study. Those patterns will be then taken into testing in the second phase of data collection.

3.5.2 Phase 2: Survey with hotel visitors

Survey strategy is usually associated with the deductive research approach (Saunders, Lewis and Thornhill, 2012; Bryman and Bell, 2011). Survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2009). It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalizing from a sample to a population (Creswell, 2009) on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with more variables (usually many more than two), which are then examined to detect patterns of association (Bryman, 2012).

It is a popular strategy in business and management research and is most frequently used to answer "what", "who", "where", "how much" and "how many" questions (Saunders, Lewis and Thornhill, 2012), and hence tends to be used for exploratory and descriptive research. The survey strategy allows the collection of quantitative data, which can be analysed quantitatively using descriptive and inferential statistics (Saunders, Lewis and Thornhill, 2012). It is a system for collecting information from or about people to describe, explain, or compare their knowledge, behaviour and attitudes (Sekaran and Bougie, 2013). A survey is a method of collecting data from people about who they are (such as education and finance), how they think (like motivations and beliefs), and what they do (behaviour) (Balvanes and Caputi, 2001). Techniques used to collect data on a survey strategy are questionnaires, structured observation and structured interviews. There is a massive ongoing collection of data about individuals via the internet and other transactions (Balvanes and Caputi, 2001).

Data collected using a survey strategy can be used to suggest possible reasons for particular relationships between variables and to produce models of relationships (Saunders, Lewis and Thornhill, 2012). The advantage of using a survey strategy comes from giving more control over the research process, and when sampling is used, it is possible to generate findings that are representative of the whole population at a lower cost than collecting the data for the whole population (Saunders, Lewis and Thornhill, 2012).

The choice of survey

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The first step was to decide what kind of population is suited to the investigation of the topic, to formulate a research instrument and decide how it should be administered (Bryman and Bell, 2011). Internet- and intranet-mediated questionnaires are usually delivered via email or a website (Saunders, Lewis and Thornhill, 2012). Email-based post and receive the hyperlink to the questionnaire and it depends on having a list of addresses (Saunders, Lewis and Thornhill, 2012). The web survey provided an important advantage over the email survey as it delivered a much wider variety of embellishments in terms of appearance. There are also greater possibilities than with paper-based questions in terms of the use of colour and variety in the format of closed questions (Bryman and Bell, 2011). There are further advantages in regards to the use of a web survey that have been taken into consideration, not only related to the appearance, such as the fact that the questionnaire is designed so that, when there is a filter question (yes/no), it would skip automatically to the next appropriate question (Bryman and Bell, 2011), or when a question has not been answered it would direct the participant to the appropriate area making sure that no question is left blank (if requested). Taking in consideration these advantages a web survey is considered the most appropriate tool for the data collection in this phase of the research.

Instrument Development

Developing instrument measurements is another critical issue for researchers as it has influence on the reliability and validity of the collected data. Hence, it is recommended to use existing measures that have already been tested by previous researchers (Bryman and Bell, 2011). Even though the variables used in this phase of the research have been a result of qualitative process from previous data collection, the measures were drawn from existing literature in similar contexts, and modified through considering the research aim and objectives. The proposed model examines the relationship between ten constructs (Perceived Enjoyment, Perceived Usefulness, Perceived Ease of Use, Extrinsic motivation/Reward, Perceived Innovativeness, Direct Feedback/Interactivity, Social Influence, Trust, Intention to Use hotel gamified applications and Intention to Return to a hotel gamified application). To these constructs three more have been added (Mastery, Purpose and Autonomy) after reviewing the relevant literature. These constructs should be translated into operational items in order to be measured empirically. The better measures, tapping each construct have been developed by revising the literature to adopt appropriate,

previously examined items. Appendix 4 presents item wording and the sources derived.

Scale used

Rating questions are often used to collect opinion data and most frequently use the Likert-style rating, in which the respondent is asked how they agree or disagree with a statement or series of statements usually on a four-, five-, six-, or seven- point rating scale (Saunders, Lewis and Thornhill, 2016). With the Likert rating scale, participants indicate their attitudes by highlighting how strongly they agree or disagree with carefully constructed statements. It is recommended to include both positive and negative statements so as to ensure that the respondent reads each one carefully and thinks about which box to tick (Saunders, Lewis and Thornhill, 2016).

In order to collect the data from the main measurement items, this study chooses a 5-point Likert scale (1=strongly disagree to 5=strongly agree) with a mid-point of neutral. The phrase "neutral" is used as it is less aggressive to the to the respondent than admitting they don't know. The main reason behind this selection is because this survey mostly uses measurement items that are adopted from studies using a similar 5-point scale.

The first part of the survey includes questions about the respondents' demographic information, as well as their previous experience in chain hotels and purposes behind the action. With regard to the demographics the survey question includes three questions which refer to gender, age and ethnicity. With regard to respondents' previous experience in chain hotels, this part includes a question asking when the last time was that they visited the hotel and the reason for doing it. The third part of the questionnaire includes a ranking with the constructs of the survey for the respondents to place them in rank order. This means that the relative importance to the respondent can be discovered.

Questionnaire layout

Once measurement items for each of the constructs in the conceptual model are drawn, the development of the complete survey can be accomplished. This includes the layout of the survey as well as respondents' characteristics. The first page of the survey includes a welcome page including the overall aim of the survey, the purpose

of the research and the procedure. This landing page also covers any ethical considerations such as risks, benefits, confidentiality and participation, as well as contact information, all part of the university ethical forms and approvals.

After the landing page, the questionnaire includes three different parts. The first part includes demographic information about the participants as well as their previous experience with chain hotels and purposes behind the action. The second part contains the main measurement items, and the third part asks respondents to rank the measurement options in terms of importance. A full survey layout is available in Appendix (5).

Population and sampling

The simple random sample is the most basic form of probability sample (Bryman and Bell, 2011), and intends to select a large number of individuals who are representative of the population or who represent a segment of the population (Creswell and Clark, 2018). A major determinant of the statistical power of a test is the size of the sample used, ensuring the possibility of finding statistically significant results (Baggio and Klobas, 2017). The population selected for this phase involves hotel visitors, particularly those who utilize mobile applications for their booking. As previously recognised, it adds a random sampling technique, whereby the sample is chosen to target individuals with hotel experience by utilizing online surveys and distributing questionnaires to the audience.

Data analysis

The data analysis process includes two parts: model construction and validation. For model construction (pilot survey), 15 have been used for model construction and 763 samples have been used for validation.

Pilot Study

Before the main data collection, a pilot study is required. The pilot test will facilitate further improvements to the question text. To pilot test the questionnaire a qualitative approach has been used. The main aim of this pilot study was to ask individuals whether the items have been clear to them, as the context of gamification is relatively new to the audience. Also, the time taken to fill the questionnaire was a concern at this stage.

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The questionnaire was initially filled by 15 individuals with the appropriate experience in both mobile booking and staying in a chain hotel. All 15 individuals were over the age of 18, but no further demographic requirement has been taken into consideration such as gender, nationality, income and social status, as it was not important at this stage of the study. As a result, out of the respondents, 9 of them were males and 6 females. The average time taken to complete the survey was between 15-20 minutes. Having a discussion with each one of them at the end of the pilot study seemed to take too long, resulting in them losing interest towards the end of the questionnaires; hence it was considered that data may be not as valid towards the end. Going into further detail with individuals, it was suggested that a few items were difficult to understand as they do not have personal experience with the application; therefore, they had to guess the answer. Taking this into consideration it was decided to remove these items, leading also to the survey time reduction to 10-15 minutes. (Appendix 4 presents a table with the items used and removed from the survey).

Model validation

The next step after the pilot test was to conduct a complete data collection from the specified sample (chain hotel visitors with experience in mobile applications). This process took 8 months, as it was important for the participants to have had experience with mobile applications, therefore a snowball sampling technique was used. When the questionnaires were added to the SPSS 24 system for the screening phase, 820 responses were received. After downloading the results in the SPSS 24 software it was found that 57 participants answered that they do not have experience in chain hotels, and therefore do not match the second criterion; hence they were excluded, leaving a sample of 763 suitable respondents.

As mentioned, to perform the data analysis process SPSS 24 was adopted for this research. It has been used because SPSS realises effective data management and makes data analysis quicker. Furthermore, it offers a wide range of options to choose the statistical methods tailored to specific needs. SPSS is used for data screening (for example, checking missing values and detecting multivariate outliers).

Finally, Factorial Analysis has been performed to examine the hypothesis. EFA technique is used to explore the data and provide information about the number of possible factors that best represent the data. Factorial Analysis allows one to

condense a large set of variables or scale items down to a smaller, more manageable number of dimensions or factors. It does this by summarising the underlying patterns of correlation and looking for groups of closely related items (Pallant, 2013). This study applied EFA first, then CFA before examining the hypothesis. In order to examine the structure of the measurement items corresponding to the variables presented in the conceptual model, EFA was applied using SPSS 24. EFA was applied to the 60 items as identified from the literature, contributing to 13 theoretically established constructs.

It is found that most variables have high loadings on the most important factor and small loadings on all other factors, making the interpretation difficult, hence a technique called factor rotation is used to discriminate factors (Field, 2018). Rotation methods can be either orthogonal or oblique. Orthogonal rotation methods assume that the factors in the analysis are uncorrelated, and oblique rotation methods assume that the factors are correlated (Brown, 2009). SPSS 24 offers three orthogonal rotation methods (varimax, quartimax and equimax) and two oblique (direct oblimin and promax). It is advised to choose one of the most commonly available methods of rotation such as Varimax (if orthogonal rotation is sought), or Direct Oblimin (if oblique rotation is sought (Brown, 2009). For the purpose of this research, firstly Direct Oblimin rotation method was used. According to Pallant (2013), the Component Correlation Matrix needs to be checked as it shows the strength of the relationship between the factors. This gives information to decide whether it was reasonable to assume that the components were not related (the assumption underlying the use of Varimax rotation), or whether it is necessary to use and report the Oblimin rotation. If the correlation between the components is quite low then it is expected very similar solutions from the Varimax and Oblimin rotation. However, if the components are more strongly correlated (>.3), it is possible to find discrepancies between the results of the two approaches to rotation, and in this case Oblimin rotation is the method most appropriate to be reported (Pallant, 2013).

3.5.3 Phase 3: Semi-structured Interviews with hotel visitors

The third phase of this research is going to follow a similar sampling strategy as the first phase. However, for the purposes of this phase sampling will not be from gamers, but hotel visitors instead. As the aim is to identify hotel visitors' opinions about a hotel gamified application but also discuss the findings of the second phase, purposive

sampling will allow the researcher to use judgment to select cases that will best enable answering the research questions and meeting objectives.

In phase one, the sample was based on students as it was found that they are more likely to be active gamers, whereas in this phase the sample is more generic to larger demographics, so a second sampling strategy was developed: snowball. Snowball sampling is commonly used when it is difficult to identify members of the desirable population (Saunders, Lewis and Thornhill, 2016), in this case individuals who have been hotel visitors in chain hotels, particularly those who utilize mobile applications for their booking. Snowball sampling is a technique in which a small group of people relevant to the research questions are identified, and these sampled participants propose others who have had the same experience or characteristics relevant to the research (Bryman, 2016). The purpose behind that is for the participants to be able to familiar with the concept as they were asked questions relating to mobile applications during the interview.

Following the results of phase two, the semi-structured interview design was developed. Utilizing the semi-structured interview approach allows flexibility in the order of questions depending on the flow of the conversation, to address the specific issues of the research and further exploration of the research question and objectives (Saunders, Lewis and Thornhill, 2012). Furthermore, Bryman (2016) adds that qualitative interviewing tends to be less structured, with greatest interest in the interviewee's point of view, consequently leading to flexibility, responding to the direction in which interviewees takes the interview and perhaps adjusting the emphases in the research as a result of significant issues emerging in the course of interviews.

Focus-group interviews were considered; however, the choice of semi-structured interviews was decided, due to the time given and cost of conducting group interviews as traveling might had been needed. Further, considerations arise since mixing different demographics (such as age) might result in influence on participants' responses and affect the reliability of the results. Also, the use of visual material might result in participants influencing one another on certain pages, losing valuable information.

Interview planning

This phase took the inductive approach as the analysis here is not theory-based (like application of the Technology Acceptance Model, which would be a deductive approach), but it seeks to build up a theory that is adequately grounded in the data (Saunders, Lewis and Thornhill, 2012).

Key objectives

The semi-structured interviews were used to complement the questionnaires, exploring or explaining, in depth, any additional information and details relating to individuals' responses; hence it aims to enhance and validate the questionnaire's findings. The following two objectives were explored through qualitative analysis:

- To further understand the key motives that contribute towards intention to use a hotel's mobile gamified application as they are seen by hotel visitors
- To further understand hotel visitors' perceptions of fun when using a hotel's mobile gamified application

Population and sampling

Semi-structured interviews were conducted with hotel visitors under the condition that they have experience with mobile applications. For these two criteria to be ensured, a snowball sampling was utilised, allowing the researcher to initially sample a small group of people relevant to the research questions, and these sampled participants propose other participants who have had characteristics relevant to the research question. The face-to-face semi-structured interviews were conducted over the period of two months from January 2019 and February 2019.

One of the problems that qualitative research faces is with regard to the number of people that should be interviewed before theoretical saturation has been achieved (Bryman, 2016). It is recommended to continue collecting qualitative data (such as semi-structured interviews) until data saturation is reached: when any additional data collected provides little if any new information or suggests new themes (Saunders, Lewis and Thornhill, 2012). For the purposes of this phase 25 interviews have been conducted. The researcher secured 19 interviews before no new themes emerged from interviewees' responses, but 6 further interviews were carried out in case new information arose.

Instrument Design

The interviews involved three parts. The first part included a generic discussion around the visual material similar to phase one, even though this time there was no need for the participants to have had experience in games. The aim was to obtain information about the characteristics of a gamified application in the hospitality industry and their opinion based on the visual material.

The second part included questions about the constructs used in the questionnaire. The constructs were divided into two lists: list one included the constructs being supported, and list two included the constructs not being supported in phase two. Participants were not aware about this information. The aim was to obtain hotel visitors' opinions about each construct (supported or not) and whether they find each one of them important, and at what point of the journey is it more likely that that element would influence their decision in using a hotel's gamified application in the hospitality industry.

List 1	List 2
Familiarity	Perceived Usefulness
Socialising	Ease of Use
Perceived Informativeness	Rewards
Fun	Perceived Risk
	Purpose (Altruism)

In the third part, participants were asked questions asked with regard to the meaning of the element of fun. The researcher took into consideration the findings from phase one as arose from the interviews with the gamers. The aim was to understand the meaning of the element of fun for a hotel gamified application in the hospitality industry, this time from the perspective of a hotel visitor.

Data analysis

Considering that phases 1 and 3 have taken the same strategy path, the same procedure followed during analysis of the results, with a thematic approach to be applied. The qualitative data analysis in this research further explored hotel visitors' behaviour towards hotels' mobile gamified applications. The purpose of the qualitative analysis is to further investigate and support the results of the quantitative questionnaire survey, which explored levels of behavioural intention and the gap

between them amongst hotel visitors. This stage of analysis involves searching for patterns and relationships in the long list of codes to create a short list of themes that relate to the research question, helping to further understand the results.

3.7 Ethical Considerations

In addition to conceptualising the writing process for the research, ethical issues were anticipated during the study (Creswell, 2014). Any research brings with it various dilemmas in terms of moral conduct towards the people expected to fill in questionnaires or being interviewed (O'Gorman and Macintosh, 2014). Research involves collecting data from people, about people, therefore anticipating ethical issues is required when making an argument for a study. Typical ethical dilemmas include the manner in which recruitment of participants is intended, the extent to which the participants will be informed about the research, and dealing with participants who may be concerned about how they are portrayed in the final dissertation (O'Gorman and Macintosh, 2014).

This section looks at the concerns about ethics that might arise in the course of conducting research. According to Bryman and Bell (2015), discussions about ethical principles in business research, and perhaps more specifically transgressions of them, tend to revolve around certain issues that recur in different guises broken down into four main areas:

- Whether there is a harm to participants
- Whether there is a lack of informed consent
- Whether there is an invasion of privacy
- Whether deception is involved

Harm of participants

Research that is likely to harm participants is regarded as unacceptable (Bryman and Bell, 2015; Saunders, Lewis and Thornhill, 2016). Harm may occur through risks to emotional wellbeing, mental or physical health, or social or group cohesion, and it may take a number of forms such as embarrassment, stress, discomfort, pain or conflict (Saunders, Lewis and Thornhill, 2016). To avoid these consequences several procedures took place in all three phases of this research. When participants were

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asked to participated in the interviewing phases (1 and 3), the interviews took place indoors in a safe environment to ensure the physical safety of the participants, but also in private one-on-one discussions to ensure stress or discomfort were avoided. For the survey phase (2), questionnaires were sent electronically to participants to take place in their own space, hence no physical or mental harm arose.

Lack of informed consent

The principle of informed consent means that participants should be given as much information as might be needed to make an informed decision about whether they wish to participate in the study (Bryman and Bell, 2015; Saunders, Lewis and Thornhill, 2016). Where someone agrees to participate in a particular data collection method, this does not necessarily imply consent about the way in which the data provided may be used (Saunders, Lewis and Thornhill, 2016), therefore assurance that anonymity and confidentiality have been provided to participants. The interviewees' names have never been shown at any point of data analysis or transcription, and have been replaced with codes (A, B, C) or (1,2,3). Participants should also know that their involvement is voluntary at all times and they should receive an explanation beforehand of the benefits, risks and dangers involved with their participation in the research project (Frankfort-Nachmias and Nachmias, 1996). To ensure the previous statement, participants in phase 1 and 3 (Interviewing) were given an Informed Consent form with details of the aims and objectives of the research, as well as a brief explanation with regard to the concept being investigated. Furthermore, they were informed about withdrawal opportunities if they wanted to in the future. In phase 2 (Questionnaires) all the above were mentioned in the beginning of the questionnaire alongside benefits, risks and dangers of the research to ensure that they have full knowledge of the details of the research.

Invasion of privacy

Privacy is a key principle that link to or underpins several other principles such as: respect for others, the avoidance of harm, the voluntary nature of participation, informed consent ensuring confidentiality, and maintaining anonymity (Saunders, Lewis and Thornhill, 2016). Privacy is very much linked to the notion of informed consent, because, to the degree that informed consent is given on the basis of an

understanding of what the participants' involvement is likely to entail, hence they acknowledge that the right to privacy has been surrendered for that limited domain (Bryman and Bell, 2015). However, participants do not entirely void the right to privacy by providing informed consent as when people are interviewed they may refuse to answer certain questions, as they may feel those questions delve into private realms they do not wish to make public (Bryman and Bell, 2015). To ensure the respect of the privacy all interviews (phases 1, 3) took place in public rooms between the interviewee and the interviewer. Furthermore, the participants were informed from the beginning of the interview that they will not be forced to answer any question if they do not want to. In the case of the questionnaire (phase 2) links were sent electronically to participants, therefore no interaction or identification between participants and the researcher took place to ensure that there will not be an invasion to participants' privacy. Also taking into consideration that information about religious preferences, sexual practices, racial prejudices and income remains relatively private (Frankfort-Nachmias and Nachmias, 1996), the appropriate demographic questions have been avoided.

Deception

Deception occurs when researchers represent their research as something other than what it is (Bryman and Bell, 2015). Researchers sometimes collect data without the knowledge of the observed individuals (Frankfort-Nachmias and Nachmias, 1996). For example, researchers joining online communities with the intention of collecting data rather than participating and seeking consent may be seen as committing a form of deception (Saunders, Lewis and Thornhill, 2016). Deception in various degrees is probably quite widespread in much research, because researchers want to limit participants' understanding of what the research is about so they respond more naturally to experimental treatment (Bryman and Bell, 2015). In many cases, social scientists face a conflict between two rights: the right of the scientist to conduct research and to acquire knowledge, and the right of individual research participants to self-determination, privacy and dignity (Frankfort-Nachmias and Nachmias, 1996). A decision not to conduct a planned research project because it interferes with the participants' welfare imposes limitations on the researcher's right, whereas a decision to conduct research despite an ethically questionable practice (such as deception)

denies the participants' rights (Frankfort-Nachmias and Nachmias, 1996). For the purposes of this study, no deception took place at any phase of the data collection method. Participants have always been fully informed that they take part in a research project and given full information with regard to the aims and objectives of the research conducted.

3.8 Chapter Summary

In this chapter, the focus is on the research methodology for the research's different studies. The core considerations of the research design are discussed. The research strategy is presented detailing a design based on the research approach. This could be summarised as pragmatism, an abductive approach with phase 1 and 3 following a qualitative method (semi-structured interviews) and phase 2 following a quantitative method (questionnaire). Finally, issues associated with undertaken research are discussed, along with an overview of ethical considerations and the steps to address those concerns.

Figure 3. 4 Research Design

Research Philosophy
• **Pragmatism**

Research approach
• **Abductive**

Methodological choice
• **Mix methods**

Research Strategy
• **Phase 1: Exploratory (Interviews)**
  Phase 2: Explanatory (Questionnaires)
  Phase 3: Exploratory (Interviews)
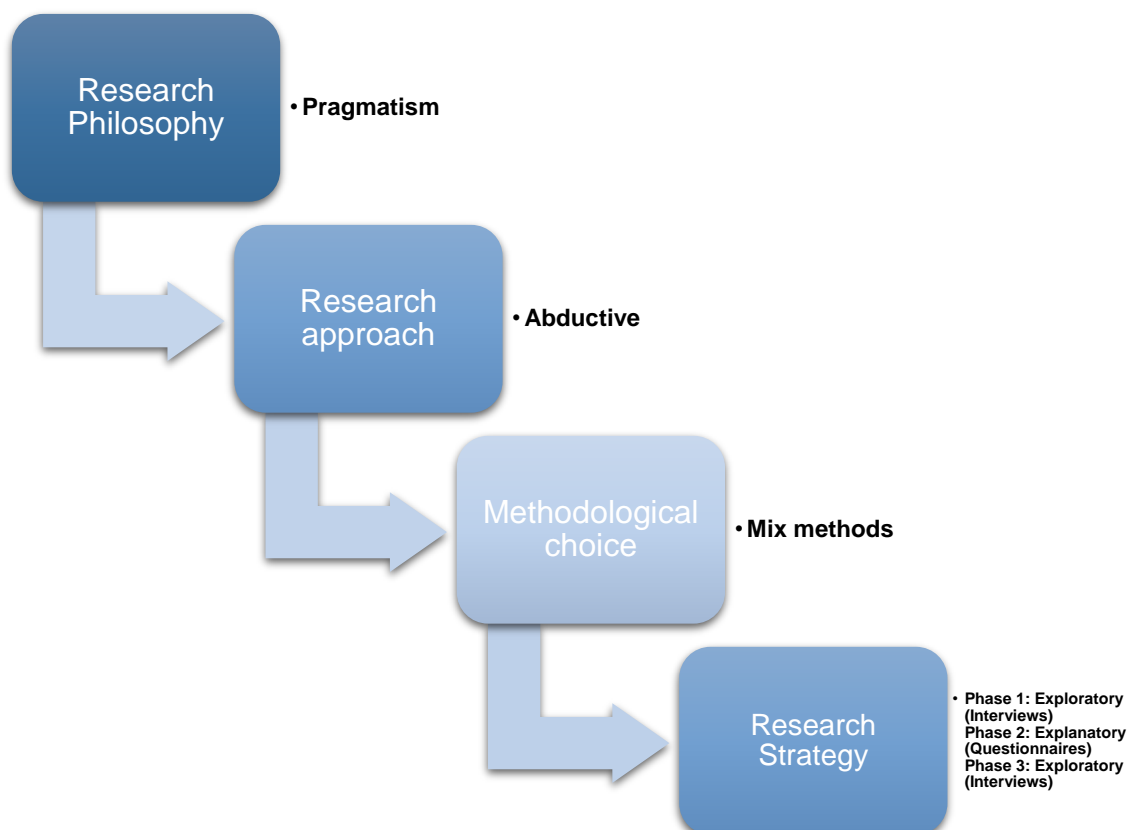
Chapter 4: Findings and discussion

Introduction

This chapter presents the data collected and discusses the findings, and it is divided into three sections, each one explaining each phase of the research.

Section 1

After reviewing the literature and setting up the methodology, the first section aims to understand individuals' motives to use a hotel's gamified application based on opinions collected from participants with experience in gaming. Section 1 presents the results of semi-structured interviews conducted with the primary aim of identifying individuals' motivations when using a hotel chain application and understanding the meaning of fun for them.

Section 2

The aim of this section is to present the results of the data and apply analysis techniques to validate the measurement items and structure of the proposed model, as well as to test the set hypothesis. Participants with experience in hotels and mobile applications were the target population for the main study. The consideration to include the criterion of having experience with mobile applications in the study was made on the basis that they were more likely to adopt m-commerce compared to those without this kind of experience.

Section 3

This section presents the results of semi-structured interviews that were conducted with the aim of understanding hotel visitors' motives when using a hotel application and understanding what fun means for them. The qualitative data analysis in this research further explores hotel visitors' behaviour towards hotels' mobile gamified applications. The purpose of the qualitative analysis is to further investigate and support the results of the quantitative questionnaire survey, which explored levels of behavioural intention and the gap between them amongst hotel visitors.

Note: At this point, it should be clarified that interviews coded with letters (i.e. A.B.C.), are data collected from phase 1. Interviews coded with numbers (i.e. 1.2.3) are data collected from phase 3.

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The aim of this study is to identify hotel visitors' motives when using a mobile hotel gamified application and understand what fun means for them						
Mix Methods						
Pragmatism						
Phase 1 Understand the key motives that contribute towards intention to use hotels' gamified applications and the perception of fun when they use the system				**Phase 2** Explain the relationship between the themes	**Phase 3** Understand hotel visitors' motives when using a hotel chain application and understand what fun means for them	
Objective 1	**Objective 2**	**Objective 3**	**Objective 4**	**Objective 1**	**Objective 1**	**Objective 2**
Understand the key motives when they play games	Understand the meaning of fun when they play games	Understand the key motives that contribute towards intention to use a hotel's gamified application	Understand individuals' perception of fun when using a hotel's gamified application	Measure hotel visitors' motives when using hotel gamified applications	Investigate and support the results of the quantitative questionnaire survey	Understand individuals' perception of fun when using hotels' gamified applications
⬇		⬇		⬇	⬇	⬇
Semi-Structured Interviews (Use of visual material)				Survey	Semi-Structured Interviews (Use of visual material)	
Purposive/Judgemental sampling				Random sampling	Purposive/Judgemental sampling	
Non-probability sampling				Probability sampling	Non-probability sampling	
Inductive				Deductive	Inductive	
Qualitative				Quantitative	Qualitative	
Exploratory				Explanatory	Exploratory	

4.1 Section 1: Qualitative Data Analysis (Phase 1)

Introduction

After reviewing the literature and setting up the methodology this section aims to understand individuals' motives to use a hotel's gamified application, based on opinions collected from participants with experience in gaming. This section presents the results of semi-structured interviews conducted with the primary aim of identifying individuals' motivations when using a hotel chain application and understanding the meaning of fun for them. Therefore, semi-structured interviews were developed. An interview is an ideal way of accessing people's perceptions, meanings, definitions of situations and constructions of reality (Punch, 2014), and is probably the most widely employed method in qualitative research (Bryman and Bell, 2011; Bryman, 2012).

Interviews range from unstructured (open-ended) to structured, with semi-structured occupying the middle ground, and selecting the most appropriate type often determines project success (O'Gorman and Macintosh, 2014). For the purposes of this research, a structured interview is not appropriate as it might miss useful information because of its structure. Reviewing the literature, critical points have emerged to be discussed, for example the element of "fun" as a motive; hence, unstructured interviews cannot be applied either. In semi-structured interviews the researcher will have a list of themes and possibly some questions to be covered (Saunders, Lewis and Thornhill, 2016), and therefore this design is followed. Furthermore, qualitative interviewing tends to be less structured, with greater interest in the interviewees' points of view, and consequentlyresponds flexibly to the direction in which interviewees take the interview, perhaps adjusting the emphases in the research as a result of significant issues emerging in the course of interviews (Bryman, 2016).

Objectives of the Interviews

The semi-structured interviews were designed to get an in-depth understanding of the motives to play games and use hotels' gamified applications based on the opinion of the expert "gamers". The following four objectives were explored through qualitative analysis:

- Motives of gamers when they play games

- Understand the meaning of fun for gamers when they play games

- Motivation of gamers when they would use hotels' gamified application

- Understand the meaning of fun for gamers when they use hotels' gamified applications

Profile of responders

The research aims to identify individuals' opinions about a future hotel gamified application, so the sample should have been familiar with mobile gaming applications in the past in order to have experience. The biggest age group in game players is between 18-35 years with 30%. 26% are under 18 years, 27% over 50 and 17% are between 36-49 years. A data study from Pew Internet Research finds that 66% of college students play video games at least "once in a while". Therefore, it has been chosen to focus on college students in the age group between 18-35, as they are more likely to be familiar with mobile game applications. The sample was taken from both genders as 52% of gamers are males and 48% is female, showing that there is balance in the gaming industry between the two genders. For the purposes of this research, data was collected from 18 males and 12 females.

The sample was chosen in order to be able to recognise the gaming elements on the visual material shown to them during the interview (see appendix 1). This phase focused on the conversation around the visual material, hence it was considered important for the participants to have knowledge around games. Participants were able to express their opinion on their motives when they are playing games and give their opinion on which of these motives would be applicable and which not in the case of a hotel gamified application.

To establish that the criteria will be met, snowball sampling was utilised, allowing the researcher to initially sample a small group of people relevant to the research questions and these sampled participants propose other participants, who have characteristics relevant to the research question. With regard to the sufficient amount of data collected, it is argued by Bryman (2016) that one of the problems that qualitative research faces is with regard to the number of people that should be interviewed before theoretical saturation has been achieved. Therefore, qualitative data (such as semi-structured interviews) continued to be collected until data

saturation was reached; when the additional data collected provides few, if any new information or suggests new themes (Saunders, Lewis and Thornhill, 2012). For the purposes of this phase 30 interviews have been conducted. The researcher secured 25 interviews before no new themes emerged from interviewees' responses, but five further interviews were carried out in case new information arose. The face-to-face semi-structured interviews were conducted over the period of five months between September 2016 and January 2017.

Methodology	Strategy	Sample Size
Qualitative	Exploratory/Interviews	30
Quantitative	Explanatory/Survey	763
Qualitative	Exploratory/Interviews	25

Instrument design

The interview plan involved two parts. The first part included a generic discussion based on participants' previous gaming experience. The aim was to understand their motives towards playing games as well as trying to identify the meaning of fun when they play games.

The second and main part of the interview was based on the visual material provided. The aim was to obtain information about the characteristics of a gamified application in the hospitality industry and their opinion based on them. This allowed the researcher to obtain several themes in regards to the motives of the gamers towards using the technology, so as to develop patterns for further exploration. Furthermore, the use of visual material allowed participants to discuss the mechanics that provide more fun for them when using the system, trying to understand the meaning of fun.

Interview results

The discussion of the interview results will be divided into four parts based on the objectives of the research: the first part is the motives of gamers to play games and the second is the meaning of fun for them when they play those games. The third part is identifying the motives of the participants in relation to using a hotel's gamified application based on the visual material provided, and the fourth part is understanding

the meaning of fun for them, again based on the visual material provided. The table below presents the themes that emerged from the data collection.

Understand the key motives when the play games	Understand the meaning of fun when they play games	Understand the key motives that contribute towards intention to use a hotel's gamified application	Understand individuals' perception of fun when using a hotel's gamified application
Escape the daily routine/Immersion	Personalization	Perceived Enjoyment/Fun	Socialising
Socialise/Social Influence	Challenge	Perceived Ease of Use	Achieving
Fun	Achieving	Perceived Usefulness	Competitiveness
Progress/Effort	Socialising	Reward	Challenge
Accessibility	Exploring	Social Influence	Exploring
	Competitiveness	Direct Feedback/Interactivity	Interactivity
		Perceived Innovativeness	Personalization
		Trust	

4.1.1 Motives to play games

Escape from daily routine - Immersion

Individuals seems to like playing games to get away from their daily routine. For example, participants agreed that: *"I would play the game every night just before I go to sleep just to distract me from whatever I have done that day"* (Interview, B). *"I like these games because they distract me from the rest of the day's activities and responsibilities"* (Interview, C) and others agree saying: *"because it helps me to escape from my daily routine, boredom I would say"* (Interview, F). These characteristics are closer to the definition of immersion. According to Angelides and Agius (2014), immersion is intended to mean the engagement or involvement a person feels as a result of playing video games. Providing an appealing distraction from everyday worries and concerns, computer games allow people to lose themselves in the world of the game (Jennett et al, 2008). It is found that many people play games in part to escape from their real world, like any form of popular entertainment, but rather than simply escape as they do when watch a movie or reading a novel, games allows them to become actively involved in the world they escape into (Klug and Schell, 2006). Similarly, in this research, gamers mentioned that: *"because when I play this game I get away from the environment 100%. I totally block everything that is bothering*

me, I just enjoy the game" (Interview, H). Another participant added: *"I could say that I do it when I want to get away from the daily routine. When I am waiting for something to happen and usually in a foreign environment I would open a game and get away from what is happening around me in order to spend that time"* (Interview, R).

The results of this study agree with the previous literature as the concept of immersion appears as a characteristic that gamers find when they play games. In the literature review, immersion has been defined as a sensation of being surrounded by a completely different other reality taking over all of an individual's attention (Kiili et al, 2012; McMahan, 2003). Many people play games in part to escape from their real world, similar to any form of popular entertainment (Klug and Schell, 2006). This concept has further been described by Klug and Schell, (2006) and named as **Storyteller** (a person who plays to create or live in an alternate world and build narrative out of that world). In the form of a sensation Leblanc's taxonomy of game pleasure immersion is called **Fantasy** to be defined as the pleasure of the narrative of the imaginary world, and the pleasure of imagining being something you are not. Bartle's (1996), taxonomy of players on the other does not provide gamers with characteristics of immersion as the research seemed to be concentrated on the element of fun and the meaning of it. However, Yee's (2006) components (a research based on Bartle's 1996 research) do mention the element of immersion and takes it a step further to sub-categorise the term into **Discovery, Role-Playing, Customization** and **Escapism** trying to provide a meaning of the term immersion. According to Yee's (2006) components (motivations) to play a game, providing Discovery, Role-Playing, Customization and Escapism to the game helps into enhancing the element of immersion.

Research by Brown and Cairns (2004) found identical results when studying gamers' experiences. Samples in their research quoted *"I suppose it's best described as a sense of being cut off from the world you actually inhabit"* and *"You just forget about the things around you and you're focused on what you're doing in the game"* when they are asked to describe total immersion. Participants in this study provided similar quotations: *"I prefer this kind of games because they can give me some time away from the daily routine and play for a long time as well, so if I have a lot of time to kill I would play console games"* (Interview, Q). This finding adds to the body of literature

that the element of immersion is considered as a motive for gamers when playing games.

Socialise – Social Influence

Socialising has appeared as a motive to play games in a couple of cases when participants highlighted the fact that, for them to be engaged in the game, their friends' engagement in the same game is significant. In literature review it is found that video games that encourage positive social interaction among players are beneficial to children's social skill development and socialisation (Maitland et al, 2018). Many video games have social components, with a study by Rogers (2017) mentioning that more than half of teenagers are playing video games, with games often leading to socialising outside of the game. Hence, socialising is one of the key motivations for playing video games, which are, broadly, played in a social context (Rogers, 2017). This concept has further been described by Klug and Schell, (2006) and named as **The Joker** (plays just for the fun and enjoys the social aspect of that). In the form of a sensation Leblanc's taxonomy of game a pleasure called Social Influence and Socialising has been named as **Fellowship** referring to everything enjoyable about friendship, cooperation and community. Without a doubt, for some players, this is the main attraction of playing games. Bartle (1996) called **Socialisers** players that would use the game as a communicative facility and apply the role-playing that these engender as a context in which to converse (and interact) with other players. However, it should be pointed out that according to Bartle (1996) socialising does not present a motive to play games, but a meaning of another motive; the element of fun. Yee (2006) presents Social aspects as a motive to play games to further provide three sub-categories of that element (Socialising, Relationship and Teamwork) as elements to enhance it.

For example, a participant mentioned: *"my close friends have it so I play with them as well. This is important for me to engage with the game otherwise is not interesting"* (Interview, P). Another participant mentions the importance of socialising for staying committed with the game, saying *"when I started to play it was ok. I was getting really addicted to it, but after a while it got boring […] My friends stopped playing so I got bored from the fact that I had to go in the game at a certain point and check whether someone had answered my request"* (Interview, E). Reviewing the literature has shown that socialising appears in the gaming industry as a meaning of fun (based on

Bartle's 1996 taxonomy of players) and not as a motive affecting gaming intentions. However, the finding shows the importance of socialising as a motivational factor within the game in the form defined as social influence.

Social influence occurs when an individual's behaviour is influenced by those around them and it relates to being frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao, Chen and Wang, 2016). A study by Hsu, Shiue and Sheng (2016) divided social influence into social presence and social norm. Social norms are defined as people's perception that most of those surrounding who are important to them think that they should or should not perform the behaviour in question (Hwang, 2010). Individuals usually expect reciprocal benefits, such as personal affection, trust, gratitude, and economic return, when they act according to social norms (Hsu and Lu, 2004). Social presence is the ability for the individual to be seen both socially and emotionally as a real person in an online community (Marmon, 2018). It is argued that digital gaming technology should be regarded as social presence technology, as it provides a setting and medium for interacting with others at a distance (such as online gaming) and augments and enlivens communication in co-located settings (de Kort, IJsselsteijn and Poels, 2007). Some game developers have attempted to increase the sense of social presence by integrating in-game gesturing systems and adopting a variety of text-based emoticons to let gamers express emotional cues that are typically only expressed non-verbally in face-to-face interactions (Kowert, 2015). The findings of this phase seem to agree with both of these definitions, as both of the participants argued about the importance of their friends' presence in the game for them to keep being motivated to play the game. One of the participants stated *"I used to play these games with friends. I was sending invitations and we helped each other, but once someone stopped the rest of us stopped as well"* (Interview, E). The results add to the body of literature as they agree that socialising in the form of social influence appears as a motive for individuals to play games.

Fun

Not surprisingly the findings of this phase showed that fun is the main motive of gamers to play games. Participants agreed: *"I like to be entertained for some time [...] Well the most important element is to have some fun during the experience and everything else*

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comes secondary […] For sure when I open the game I do not think oh I want to win, I do it because I want to have some fun and spend some time entertained" (Interview, P) and *"in general I would say that time goes by very pleasantly when you play games"* (Interview, J). The importance of the fun element for playing games is highlighted by Bartle (1996). Bartle (1996) found the element of fun so important for gamers to play games that he explored it further to identify four characteristics of individuals (as gamers), based on players' profile. These four activities are: **Achieving, Exploring, Socialising and Imposing upon others**. Considering Leblanc's taxonomy of game pleasure, only the pleasure of **Submission** (the pleasure of entering the magic circle, of leaving the real world behind and entering a new and more enjoyable set of rules and meaning. In a sense, all games involve the pleasure of submission, but some game worlds are simply more pleasing and interesting to enter than others), comes close to describe the term fun. However, neither Leblanc's taxonomy of game pleasure, nor Klug and Schell types seems to categorise the element of fun as a motive to play game, but it appears as a given for both cases.

For almost two decades there were no theories applied to virtual worlds until 1996 with the publication of Hearts, Clubs, Diamonds, Spades: Players who suit MUDs (Bartle, 2004). In the article it was published that, abstracting the various points that had been raised, a pattern emerged: that individuals habitually found the same kinds of thing about the game and that was the element of "fun". Highlighting the importance of fun for the gaming industry, Federoff (2002) mentions that if a game is not fun it will not sell.

Research by Yee (2006) clarifies that fun should be maintained in a game, otherwise it leads to the feeling that the game, instead of fun, is becoming an obligation. For example, participants in the research quoted: *"it was more like work than fun. One day I got burnt out trying to get exp for level 55 and quit".* The findings of their research point out the importance of fun for the success of the game. Similarly, participants in this research agreed on the fact that the game has to avoid creating frustration, but incorporate fun mostly through its simplicity. For example, one participant said: *"this is a more straightforward game to be honest. There is a definite story, a define gameplay and it is a very simple game to play, but because of its story it does get lot of time to finish and when I have spare time it goes by really well […] I just like it a lot because*

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of the story behind it and the fact that this story is amusing so it helps me to relax when I play. So when I play I have some fun" (Interview, T). Funk, Gaudiosi and Takashi (2010) add that, during production of a game, it is important to decide what features are essential towards making the game fun, and to avoid items that make a game frustrating. This finding adds to the body of literature showing that fun is important for the success of a game.

Progress - Effort

The element of progress appeared as an important feature when gamers play games. A couple of individuals mentioned that they are only motivated by games that give them some kind of progress and continuation. Progress/effort has been linked in the literature with achievement. Video games fundamentally present a continuous process of learning to users, as they are constantly evolving and progressing their knowledge and skills (Zichermann, 2011). In Marczewski's categorisation achievers are motivated by status as a result of their personal achievement. Suggested design elements for this group are: challenges, certificates, learning new skills, quests, levels or progression and epic challenges. Furthermore, Klug and Schell types categorised **The Achiever** as gamers playing not only to be better now, but also better in rankings over time. That shows a form of progress for this type of gamers as they want to progress over time and their effort to be recognised. These players play to attain the most championships over time. In the form of a sensation, within Leblanc's taxonomy of pleasures in game called **Challenge,** which is core of gameplay, since every game, at its heart, has a problem to solve. For some players this pleasure is enough, but others need more. Challenge in a game is considered fundamental to provide the element of achievement and consequently promote the element of progress. When achievers solve a problem they feel their effort to be recognised.

For example, *"I like strategy games. Not the strategy kind of games on mobile phones, but the ones that last for a long period and you can build on it. It is important to see your progress increased since you have put some effort doing it. Especially since it takes some time the higher you go in levels"* (Interview, D). It is understood that playing narrative-heavy video games takes an investment of time and effort. There are games across a wide range of time requirements, from those that are maybe completed in a matter of an hour or two to those that take more than 100 hours to complete (Green,

2017). Players with preferences in games that require time and effort to complete appear to be motivated based on their success towards the given tasks. The more individuals believe they are able to deal with given tasks or situations successfully, the stronger their motivations to engage in those situations and the more effort they will invest to resolve them (Klimmt and Hartmann, 2005). The results of this phase highlight the importance of maintaining an environment where players would feel that the effort they invested in the game is rewarded appropriately.

Participants in this phase argued about the importance of maintaining their progress in the game, and link it with their effort. For example, participants said *"when I have a lot of time to kill I play the same kind of games that require a long time and commitment, because I have done some progress already. I wouldn't like to lose this progress as I spent some time and effort here"* (Interview, P). Similar results appear in a study by King and Delfabbro (2009). In their study participants mentioned the importance of reward being represented on the effort required. *"If you can beat it without any challenge, then that's no fun"*. Therefore, the tasks provided by the game have to provide challenges and the appropriate reward highlighting the importance of developing tasks when designing a narrative video game. This finding adds to the body of literature showing that recognizing players' effort is important for the success of a game.

Accessibility

Accessibility is defined as the ability to access devices equipped for gaming. Broadband mobile data networks have become increasingly available and affordable, and usable and affordable smartphones and other smart devices are rapidly becoming the standard across many national markets (Feijoo et al, 2012). Reviewing the literature, the accessibility element is not presented as a motive to play a game. This is probably due to the utilitarian meaning of the purpose. When reviewing the literature mostly intrinsic motives have been recognised and that is due to the definitions of a game such as *"Games are, generally, entertainment activities in which players make choices constrained by rules in pursuit of objective goals that they have a fair chance of achieving"*. However, during the first phase of data collection participants were open to express their open in regard to every game available, with mobile games being introduced as well. That probably led participants to choose mobile games over other

games because of their utilitarian characteristic of accessibility. Thereafter, being able to access gaming devices appeared as a reason to play games for gamers. For example, participants agreed that: *"when I am bored it is easier for me to get on my phone wherever I am until I go and find something to do. I read a lot as well so I get to play games when I do not have a book"* (Interview, B). This shows that the ability for individuals to access devices carrying games has made playing video games a much easier and more popular activity. Mintel (2018) actually estimates that mobile gaming is expected to continue enjoying strong growth in the app market through to 2023. Participants agreed: *"I would say I rather play mobile games because they are more flexible. For example, when you are in a place and you are bored you just open a game and have some fun. I used to do it while I was travelling by train for the school or back, because it was taking some time"* (Interview, J). Other participants agreed, saying: *"I play mobile games to kill time when I am somewhere waiting for something to happen. It is a different kind of entertainment"* (Interview, P).

An emerging trend explaining this result in video gaming is the movement towards device-agnostic games. This means that users can pick up where they left on any device, and there is also beginning to be support for cross-platform gameplay interactions with users on other platforms (Mintel, 2018). Thus, for mobile gaming, this means that users are able to interact and play with, or against, other users on console or PC as well as those on different mobile operating systems, increasing the opportunities that the gamer can have. Another factor affecting the increase of mobile gaming is the ability to play games on social platforms. It is understood that social games (games played on social network services such as Facebook) have become very popular when measured by the number of registered users (Paavilainen et al, 2013). The findings of this research also found that the ability of individuals to easily access Facebook at any point has been another reason to prefer playing a game than other activities while waiting for something to happen. For example, a participant mentioned: *"I mostly prefer video games because I am already connected to Facebook, therefore it is easier for me nowadays to play games rather than before I would say"* (Interview, G). Facebook actually announced that 20% of Facebook's daily users play social games (Paavilainen et al, 2013), showing that gaming has become a daily activity for their users, maybe increasing their site revisit.

When mobile phones were just phones, users played simple games that were embedded in their handsets. The true mobile gaming market became international in around 2002, when operators began commercialising phones that were capable of downloading games from their own portals, and a separate spending stream was generated (Feijoo et al, 2012). It is measured that the UK mobile gaming market shows continuation of strong growth since 2013, indicating that this growth with continue over the next few years to a value of £1.59 billion in 2023 (Mintel, 2018). Furthermore, Smith, Gradisar and King (2015) in their research argue that recent reports claim that 95% of Australian adolescents have access to at least one game-equipped device in their home (such as tablet, smartphone, PC, or games console) and one in four of them own a mobile phone showing that accessibility may be one factor explaining adolescents' gaming behaviour. The findings of this phase show that participants' ability to access devices that support gaming at any point and time have been a major factor influencing their behaviour. This finding adds to the body of literature that accessibility is important for the mobile gaming success.

4.1.2 Understand the meaning of fun when playing games

Personalisation

The results of this phase proved the importance of personalisation in the system to make it more fun. Participants argued that when they play games they are mostly interested in building the character itself rather than the story or the level of the game. For example, one participant said: *"It is not a story or a level of the game that makes it fun. It is games that you start a character at level 1 and from then you go to a different level of the character and I like the things that you build on the character instead of levelling up through the game"* (Interview, A). This response did not get much popularity, but it is enough to add on the meaning of fun when playing games. The underlying assumption behind games where real people compete and cooperate via character self-representations is that the on-screen characters better simulate human-to-human interaction and increase engagement in the experience (Lim and Reeves, 2010). For example, the first *Guitar Hero* games offer a selection of virtual avatars to choose from, to act as the player's onscreen stand-in and replicate the player's performance in the virtual arena (Detweiler, 2010). Payne and Huntemann (2019) argue that avatars are interesting because it is with and through them that the players

engage in, interact with and explore the virtual worlds of video games. This finding adds to the limited body of literature as it identifies that personalisation through the mechanic of avatars contributes towards the meaning of fun for the players.

Challenge - Flow

The results of this phase showed the importance of challenge in the game to make it fun. Participants agreed that they like being challenged by games. Participants said: *"I like mental games because I want to challenge my brain"* (Interview, B). Other participants agreed: *"I like games that are more mentally stimulating, so I have to be a bit more engaged to them"* (Interview, D). This shows that gamers understand being challenged by a game as a meaning of fun. Participants showed particular attention to games that promote mental challenge. For example, a participant mentioned: *"I find attractive a specific kind of games the ones I mentioned earlier, which are puzzle games, because I like the fact that they make me think and come up with a strategy in order to solve a problem. I find that more interesting"* (Interview, R). This proves the challenge that the game promotes and the fact that gamers have to come up with a strategy to overcome the tasks. In more detail, participants said: *"I would say my favourite game is 'Escape the room', because it makes you think a lot. It is not competitive with others, but it is very competitive with yourself and it is forcing you to step up as a person and think outside the box most of the time. In this case I want to achieve and level up, but I do not really care about what others are doing. I like a lot the fact that I have to challenge myself first of all and the fact that I have to think and use my mind in order to progress. Is not so much of skills improvement, but mind improvement; so, I want to challenge my own brain here"* (Interview, S).

Participants' opinions highlight the fact that gamers find fun when the game promotes a mental challenge where participants have to come up with a strategy and improve their skill in order to overcome the tasks and level up. This skill-challenge balance is integral to the individual's perception of the enjoyment derived from an activity and has been found to be associated with a range of positive indicators including high level of arousal, intrinsic motivation, positive effect and enjoyment (Kaye and Bryce, 2012). The positive subjective state that an individual experience when they are undertaking an enjoyable activity where their capabilities match the high level of challenge required is characterised as flow (Kaye and Bryce, 2012). The importance of flow in

understanding certain gaming experiences, particularly the connection between challenge and fun, is noted by several authors (Sorenson, Pasquier and Dipaola, 2011; Koster, 2005). In their paper, Sorenson, Pasquier and Dipaola (2011) argue that the process of overcoming difficult tasks is the source of pleasure in games, whether it is through identifying patterns in the behaviour of enemy characters or developing the muscle-memory necessary to execute a sequence of button presses in a fighting game. If the task is too difficult, the player does not experience a sense of mastery, and when the task is too easy, the player does not need to develop any skills to succeed (Sorenson, Pasquier and Dipaola, 2011). Therefore, it is seen that flow is important for how players understand the meaning of fun when they play games. The level of challenge is related to the concept of flow where an optimal balance has to be struck between skills and challenge as the player progresses through a level (Lazzaro, 2009). Indeed, Koster (2005) mentions that when there is flow players usually say that "that was a lot of fun", and when there is no flow it is common to say that "that was fun", but less emphatically. This shows that the absence of flow is possible to affect the level of fun throughout game lifecycle.

Participants focus on the importance of flow for the continuation of playing a game. It was mentioned that: *"I like a game with a challenge. Until very recently I used to play a lot; every day and lots of hours, but unfortunately a few days ago I accidently erased it among other games and I am not in the mood of starting from the beginning as I was in a very high level. Now it is boring to me. There will be no challenge in the beginning"* (Interview, G). This finding further highlights that a game is seen as fun when it provides challenges for the player. Those challenges have to be chosen appropriately depending on the level and the skills of the player also called as flow. This finding proves the importance of challenge in a game to enhance the fun element.

Achieving

The results of this phase showed the importance of achievement in the game to make it fun. Participants agreed *"achievement is important and it is always good to level up, have nice scores and improve in the game"* (Interview, T). Similarly, to other elements such as challenge, achieving appears to be linked with certain tasks given in levels. For example, participants said *"I like the fact that I have to achieve something. The fact that there is a mission that I have to fulfil. For example, I like the fact that I have*

to disarm or arm the bomb which is basically the aim of the mission" (Interview, C). This shows the importance of incorporating the feeling of achieving in a game to make it fun. Furthermore, participants agreed on the importance of levelling up for promoting the sense of achievement. A participant explained, *"for me most important is levelling up. You see in this game levels are not so difficult to pass, but on the other hand not so easy to get bored. It has a nice balance at least to my levels. And after I finish all the levels I was going back to the beginning if I had to in order to finish every level with maximum stars. I would say that at some point I got addicted to it. You want to progress the levels. First is this one then the other one and you want to move forward; and then at some point I did not even bother to look for another game"* (Interview, J). This shows that some players are looking for games where they can improve their skills in order to compete with others and feel superior. This behaviour supports the literature and Lazzaro's (2009) research around the development and improvement of the emotion of achieving a goal when playing. This pattern is called hard fun and is related to the challenge of mastery of a certain skill needed to reach a goal (Lazzaro, 2019).

This finding agrees with the literature and Bartle's (1996) definition of a group of players called achievers. According to Bartle (1996), this group of players are often accumulating and disposing of large quantities of high-value treasure, or cutting a swathe through hordes of mobiles. For achievers, the main goal is to gather points and rise in levels, and all is ultimately subservient to this (Bartle, 1996). Participants presented similar characteristics to this group, saying: *"I just want to reach the end of the game and finish the story mode. I would say that I want to win and in the end of the day, it is not just socialising. For sure when I open the game I do not think oh I want to win, I do it because I want to have some fun and spend some time entertained, but once the game has started and I am in the field then yeah, I want to win"* (Interview, P). Yee (2006) has extended Bartle's taxonomy to propose three major MMORPG gaming components: achievement, immersion, and social interaction. With regard to the achievement component, similar characteristics arise. Players showed desire to gain power, progress rapidly, and accumulate in-game symbols of wealth or status and they had interest in analysing the underlying rules and system in order to optimize character performance (Yee, 2006).

According to Finseth (2018), designing user interfaces of video games is about emotion; the goal is for users to feel positively about the game – including satisfaction,

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sense of achievement, amusement, or excitement. Achievement systems usually consist of titles that are bound to avatars or player accounts; users collect them by fulfilling clearly stated conditions, hence they encourage players to complete specific tasks, play in challenging ways, or explore virtual worlds (Wang and Sun, 2011). A participant argued: *"achievement is basically the reason I play the game, and the one thing that is really addictive to the game is that when you enter the game you start with achievements and the more achievements you have the greater your player gets. So then the more achievements you have you are able to enter better worlds and that progresses you as a player"* (Interview, H). For example, World of Warcraft avatars must achieve certain levels before gaining access to higher-level environments (Wang and Sun, 2011). This finding shows the importance of the feeling of achieving for the player and its relationship with other characteristics such as completing tasks and being challenged, and most importantly progress in the game. Blizzard Entertainment publicly acknowledged the first player to collect all achievement titles, making him a celebrity in gaming circles (Wang and Sun, 2011), promoting recognition for the player to the rest of the community. The results of this research show the importance of achievement in the game for the players to have fun, and it proves that it is a valuable element when designing a game.

Socialising

The results of this phase showed the importance of socialising in the game to make it fun. For example, participants said: *"yes I like the fact that through the game there is a form of socialising since it is an online game and we could gather together and play as a team"* (Interview, P) and: *"I would play games for socialising. For example, there is a thing called Apple TV and there are games available on that and you play online with other users and I used to play that a lot"* (Interview, I). This finding agrees with the literature. Bartle (1996) described socialisers as the group of players that use the game as a backdrop, a common ground where things happen to players. Inter-player activities are very important: empathising with people, joking, listening, sympathising, entertaining; even merely observing people play can be rewarding (seeing them grow as individuals, maturing over time) (Bartle, 1996). Participants show similar characteristics saying: *"I just enjoy the game and actually socialise with people, within the environment. For example, a year ago, I was at a master level and I had my own people joining the team, because this is a team game mostly"* (Interview, H).

Playing video games is often stereotypically conceptualised as a solo and socially isolating activity, but it is an increasingly social activity which facilitates online and offline interaction amongst existing and new friends (Kaye and Bryce, 2012). Massively Multiplayer Online and Role-Playing Games (MMORPGs) and social networking games (Farmville) encourage players to engage socially both in and through games (Kaye and Bryce, 2012). Participants agree with this point of view: "*I would say that my favourite game has been Farmville. When we used to play Farmville as a group, as well as Sims for the same reason. It was nice that we could play as a group, all of us as friends together*" (Interview, E). A social interaction motivation describes the situation in which an individual plays games to interact with their friends (Giammarco et al, 2015). Social interaction is concerned with socialising with others, for instance, communication and helping, teamwork, and being part of a social group (Kneer and Glock, 2013). This shows that socialising and social interactions within a game is considered as a meaning of fun from players.

The social functions of games are evident in their design, from the very first consoles, since they would always release with at least two controllers showing that socialising is a prominent motivation for game play (Bowman, Kowert and Cohen, 2015). As mass adoption of broadband internet has spread, multiplayer online video games have become popular (Molyneux, Vasudevan and de Zuniga, 2015). These online games allow a distributed community of gamers to play together, sometimes in pairs or small groups, and other times with hundreds of people in a single virtual space (massively multiplayer online games, or MMOs) (Molyneux, Vasudevan and de Zuniga, 2015). This shows that socialising through gaming consoles has now been easier than before. This has further changed with the introduction of mobile gaming devices. Mobile gaming possibilities changed in 2006-2007 with the introduction of the first wave of smartphones and the availability of broadband connections with flat data fees (Feijoo et al, 2012). Hence, it is now easier for players to socialise in a game. The results of this research show the importance of socialising through a game for the players to have fun, and it proves that it is a valuable element when designing a game.

Exploring

The results of this phase showed the importance of exploring the system in a game as a meaning of fun. Participants agreed: *"I like games with mechanics of exploration*

included in the design. There are always elements in the games I like the most that encourage me to explore the system" (Interview, I). Other participants added: *"I would say though that I like exploring the game as well. Even though, Super Metroid is not the kind of game which is an open platform that you can walk around and explore, but the fact that you have to finish a part in order to unlock a new part and play it and check it over"* (Interview, T). This finding shows the importance of exploring the system for players when they considered a game to be fun. This finding has further support in the literature. A popular theory among game designers is Malone's theory of intrinsically motivating instruction, which identifies three rudimentary categories of fun in computer games: challenge, fantasy and curiosity (Nacke, Bateman and Mandryk, 2014). Curiosity is split into sensory and cognitive parts (Nacke, Bateman and Mandryk, 2014). Sensory curiosity can be triggered by the audio and visual effects of a game, and cognitive curiosity can be aroused by making players believe their knowledge structures are incomplete or inconsistent (Nacke, Bateman and Mandryk, 2014). Exploring the system could be a result of the intrinsically motivating instruction of curiosity. Indeed, Lazaro's (2009) research around the development and improvement of a set of emotional patterns suggested four distinct patterns one of them derived from the emotion of curiosity. This pattern, called easy fun, is related to explorative play and curiosity fostered, for example, by aesthetic experiences, ambiguity, incompleteness, role-play and attention to detail (Lazzaro, 2009). Easy fun maintains players' attention by experientially engaged by content rather than the pursuit of outcomes (Lazzaro, 2009).

This finding is consistent with the literature review and Bartle's definition of explorers. According to Bartle (1996), players would try to find out as much as they can about the virtual world. Even though initially this means mapping its topology, later it advances to experimentation with its physics, and they are delighted in having the game expose its internal machinations to them (Bartle, 1996). Scoring points is possibly necessary for them to enter some next phase of exploration, but it is tedious and everyone can do it, and killing is quicker and possibly a constructive exercise in its own right, but it causes too much hassle in the long run if the deceased return to seek retribution (Bartle, 1996). Similar results are shown in one of Marczewski's (2014) group of gamified users called Free Spirits. According to Marczewski (2014) Free Spirits are motivated by autonomy and they want to create and explore. Choo (2014)

adds that these individuals are not willing to be restricted in how they go through their personal journey, and they will likely find the defects of the system. Participants in this research described exploration with similar characteristics: *"I show my preference on games that allows me to explore the environment as much as possible. This makes me think and come up with a strategy in order to level up, and not just jumping around or killing things or collecting items. You are locked in an imaginary environment and you have to put yourself in this kind of situation in order to end the task. And this is what I find exciting to be honest, that I am transported to a different environment and the fact that I have to explore that environment in order to fill the task and progress. Well these are important as well (levels), but every task or room is exciting itself because it is different, therefore I have to explore it all in order to collect the right items and unlock the door"* (Interview, R). Yee (2006), also identifies a similar group of players with the same characteristics. In this case it was named the immersion component and their meaning of fun derived from finding and knowing things in the game that most players do not know about (Yee, 2006). In this category players favour role-playing behaviour by creating a persona and interact with other players to create a story (Yee, 2006). The results of this research shows the importance of exploring within a game for the players to have fun, and it proves that it is a valuable element when designing a game.

Competitiveness

Lastly, competitiveness is also an element that individuals find as a meaning of fun when they play games. Participants agreed: *"the fact that there is some kind of competitiveness of course it is very important. I mean there is an opponent and you have to create a strategy to win. And that feeling created when you play this game because of that competitiveness"* (Interview, P). Other participants added: *"I like this kind of games because they are online games and I can play against other individuals, so I can show my skills. These games are competitive games and I like this kind of competition because as I said I can show my skills. The scenario is better so you can spend multiple hours on it and it is really ending. So, the more you play the better your skills will become, which is very important for me as much for the game. I am improving my skills in order to compete with others"* (Interview, Q). This shows that some players are looking for games where they can improve their skills in order to compete with others and feel superior. This behaviour supports the literature and Lazzaro's (2009)

research around the development and improvement of the emotion of competitiveness. This pattern called people fun is related to competitive or collaborative experiences in multiplayer games (Lazzaro, 2019).

This finding shows similarities with Bartle's (1996) group of players called killers. In this, group players use the tools provided by the game to cause distress to other players and, where permitted, this usually involves acquiring some weapon and applying it enthusiastically to the persona of another player in the game world (Bartle, 1996). This group of people attack other players with a view of killing off their personae (characters), and the greater the distressed caused, the greater the killer's joy at having caused it (Bartle, 1996). Participants in this research showed similar behaviour saying: *"I like games with stories or RPGs where you can develop a character. I mean I like the fact that I develop a character, get the best weapon, get him stronger than anyone else and prove my superiority"* (Interview, T). Zichermann (2010) further mentions that killers are the kind of players who feel the need not only to achieve the goal, but also that they want the others to appreciate their superiority, therefore killing others' personae is not enough unless everyone else sees it happening. The results of this research show the importance of competing with others in the game for the players to have fun.

4.1.3 Motives to use a hotel gamified application

Perceived Enjoyment/Fun

The most popular response in regards to participants' motives to use hotels' gamified applications has been the element of fun and perceived enjoyment. Most of the participants agreed on the fact that the application looking fun would make it more engaging. For example, participants said *"I would definitely use it because it looks fun. I would prefer this one over any other application because it looks simpler and more fun and you are even more engaged"* (Interview, I). The element of fun is coming through those characteristics that reminded participants of gaming mechanics. Participants mentioned: "*I find it very attractive for me as a gamer*" (Interview, Q), "*of course I would like to use it first before I give you a final opinion, but out of the steps I see I find it very interesting and fun, because it reminds me of games*" (Interview, J). This finding shows that participants agree that the element of fun would be a motive to enhance intention to use hotels' gamified applications.

This result is consistent with the literature. Davis et al (1992) were the first to introduce enjoyment as an important factor to predict usage intention. Other researchers applied the hedonic construct "fun", which is a synonym for enjoyment, and found that it influences attitudes toward usage and intention to use (Gurtner, Reinhardt and Soyez, 2014). Although attributions of fun originally connote free time, leisure, recreation and play it is also used in the context of mundane obligations, such as work and school and even nowadays is seen as a requirement in achieving desired results in tasks such as shopping, using technology, learning, or even work (Tasci and Ko, 2016). Indeed, participants mentioned that there is a link between play and their intention to use the technology or even make a purchase. For example, a participant described: *"I would rather use this one to be honest because I find it more fun. It looks like it pushes me to actually bother to use it. I like that it is different from everything I used to know and it makes this procedure more fun. It seems to be more interesting, because it gives you the feeling that you are playing a game and it is not just a procedure like 'go in the application, find the nearest hotels, book one and finish'. There is something more exciting here. I believe that for every person if a procedure is suddenly more fun and exciting automatically it gets more interesting to use. I would rather do my purchases through this technology"* (Interview, R). This finding agrees with the purpose of gamification literature. In their study, Lopez and Tucker (2019) acknowledge that the aim of gamification is to implement game mechanics (such as points, badges and leaderboards) to improve individuals' motivation to perform a task or set of tasks, with the goal of meeting a certain objective. The results of this research show the element of fun is an important mechanic influencing individuals' intention to use hotels' gamified applications.

Perceived ease of Use

Participants agree that ease of use is important towards intention to use hotels' gamified applications. All participants found it easier to book a hotel room through the hotels gamified application. Participants agreed: *"It is something more interesting rather than just get into the application and a programme that looks a bit more complicated to be honest. In this case this one seems to make things a bit simpler because every stage it gets explained to me by that avatar there so it is making my life a bit easier"* (Interview, R). This shows that participants perceived the technology as easy to use, with the help of the avatar. However, their opinion is based on the

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visual material shown and not previous experience with the technology. For example, participants said: *"I cannot really tell you how practical it is, but it looks really simple. I mean even children could use it since they are so familiar with technology nowadays"* (Interview, H) and: *"I find it easy even though I have not used it. It looks easy"* (Interview, J).

This finding agrees with the literature developed by the Technology Acceptance Model. Perceived ease of use is a key component for the TAM (Chang, Hajiyev and Su, 2017; Ozturk et al, 2016; Moslehpour, Amri and Promprasorn, 2017), and it has been used to measure the acceptance of the technology and usage behaviour (Moslehpour, Amri and Promprasorn, 2017). Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989; Venkatesh, 2000). The less effort a technology requires, the more tendency and intention consumers will feel to use it (Aren et al 2013). Participants' opinions recognize similar characteristics. Participants said: "*it looks very simple and easy to use. For example, I can see the nearby hotels of the brand very easily and choose one of them"* (Interview, C). This shows that a hotel's gamified application has to be easy to use to enhance individuals' intention to use it. Special attention is taken on the functionality of the technology since participants agreed that the set-up has to be clear and save time in future uses. For example, *"I think it makes it easier to book a hotel like this, I mean I could sit down and quickly do it after you set up. I think the first time you use it might be slightly harder in order to get your avatar sorted, but as long as you save the app, you've always got it once you have done the initial process (sign up)"* (Interview, B) and *"it looks easy. I mean it gives me the chance to set up my requests and then give me the option. I have not actually used it in real life but it looks easy to use. The payment methods also seem to be easy to use"* (Interview, S). The results show that a hotel's gamified application has to be perceived as easy to use to influence individuals' intention to use it.

Perceived Usefulness

Participants highlighted that perceived usefulness influenced their intention to use a hotel's gamified application. Participants agreed: *"the fact that the application gives me the opportunity to choose between multiple budget hotels in order to compare prices and have a look at which one would be the best for me. I find this important"*

(Interview, T). This shows that the application is perceived useful since the users have the ability to choose between a variety of hotels depending on their budget. The element of usefulness became more focused when participants had a look at a page showing the nearby hotels and the ability to choose one of them according to their preference. *"I would personally use it for the fact that is shows me the nearby hotels so I see it as useful by that. I would also like the possibility to show me more nearby restaurants"* (Interview, F). Another participant agreed: *"you have multiple things brought into you like the map which is something that would definitely factor me to download it. It gives me access to all these things to see"* (Interview, D). This shows that usefulness is highly interdependent by participants' convenience to check nearby destinations in case they want to make a booking fast.

This finding is consistent with the literature developed by the Technology Acceptance Model. Perceived usefulness is a core construct of the TAM (Davis, 1989; Sohn 2017) to explain behavioural intention (Natarajan, Balasubramanian, and Kasilngam, 2017). A system high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive user-performance relationship (Davis, 1989). An individual is more likely to form favourable feelings of satisfaction and intent to continued usage when such usage is perceived as useful (Chiu et al 2009). In the perspective of e-shopping, perceived usefulness is the customers' perception that by shopping online his or her performance will be enhanced (Cheema et al 2013; Sohn, 2017). Participants' opinions show similar characteristics. Participants said: *"it is giving me the opportunity to get discounts and offers so I feel it is useful to me to use it and stay with the company, as long as it is not very demanding. I mean I am on holidays so I do not want to be attached to my mobile so much"* (Interview, E) and: *"the most important thing that I find in this application is the fact that you can see the nearby hotels and that the application encourages you to stay in a specific one by providing you with a discount"* (Interview, I). This finding also presents that usefulness is sometimes linked with a discount or a tangible reward that acknowledge their commitment. The results show that a hotel's gamified application has to be perceived useful to influence individuals' intention to use it.

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Reward

Equally in importance with perceived enjoyment, the element of reward shows to influence intention to use a hotel's gamified application. Most of the participants agreed on the importance of the reward when achieving a task: "*well the reward is very important, since the application tells you to certain tasks the reward is an extra motive in this case in order to do it. Yes, I would do it if the application gives me a task and an offer on top of it directing me somewhere well then yeah why not do it*" (Sample, P). Furthermore, participants agree that the importance of rewards is also dependent on the level they have managed to reach in the game. For example, a participant said: "*I would follow it because I know that my money spending will be rewarded in some point in the future so it is actually a contribution towards my decision making. I want the reward to be equal to my challenge and the more I progress the highest the challenge has to be otherwise it gets boring*" (Interview, F). This shows the importance of reward for the success of a hotel's gamified application, and the recognition that the reward has to show on the level of the user. Hsu and Wu (2015) divide extrinsic rewards as tangible and intangible. The tangible rewards refer to material or monetary incentives that have substantial cash value, such as pay or fringe benefits, and intangible refer to a form of psychological income such as a feeling of belonging or friendships on the job (Chang, Hsu and Wu, 2015). This finding adds on this definition as participants agreed that tangible rewards such as discounts are important in order to influence their future decision to use the technology again, but also intangible rewards do not lack in importance since the reward has to acknowledge the time and effort the user has put into the system, promoting the sense of belongingness to the user.

Outcomes and rewards can be tangible, such as a monetary bonus, certificate, prize and award, or intangible such as a skill that is perceived to be more useful or needed in the future or that improves one's special standing (Hansen, and Levin, 2016). Following this definition, participants in the research show special attention on the tangible reward instead of the intangible outcome. For example, participants clarified: "*it looks like a game and it is more attractive and interesting, but at the same time if you do not get something back out of your effort (like money) what is the point of doing it anyway*" (Sample, J). "*I see that there are rewards involved in the whole procedure and me as a customer I would buy more into it since I would be challenged through*

the gameplay procedure, but rewarded for it at the same time. If collecting points means that they will be transformed to a meaningful reward in the future like a discount then yes I would fight for these points, but if not then I do not find them interesting enough" (Interview, G). This finding highlights the importance of reward for using the technology. It also clarifies that this reward has to be something tangible and meaningful for the users so to influence their intention to use it.

Additionally, a participant commented that if the reward was sufficient enough that would alter the behaviour. The participant said: *"for example if the application asks me to come back again within 24 hours to do an activity in order to progress I would do so especially if I know that this progress is translated to a sufficient reward out of it"* (Interview, C). This shows the importance of reward for a hotel's gamified application. It is possible that if the reward is high or meaningful enough to influence the users' behaviour in the stage to change their behaviour or the decision and not just enhance it. The results show that a hotel's gamified application has to be rewarding to influence individuals' intention to use it. Also, the findings show that the reward has to be representative to the level the user reached, hence the time and effort invested in the system.

Social Influence

Participants agreed on the importance of social influence and socialising to influence their intention to use a hotel's gamified application. Participants argued in relation to both of these meanings: *"I am a person who always looks at others' comments to do with booking a hotel room so if this application could give me the chance to speak with others or read comments regarding with my future destination I am really fun of it. Also as I said I am not a really social person so if I could socialise within this application then yeah this is another positive factor for me to use the application"* (Interview, H). This finding shows the importance of social influence to motivate intention to use the technology, but it also shows that the system would encourage the user to change behaviour and be more social than outside the system. This finding agrees with the literature. In the literature surrounding technology adoption, the social aspects are commonly operationalized as social influence (Hamari and Koivisto, 2015).

The social interaction facilitated within a service may potentially satisfy these needs, such as a sense of recognition, which refers to the social feedback users receive on

their behaviour (Hamari and Koivisto, 2015). Social influence occurs when individuals' behaviour is influenced by those around them and it relates to being frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao, Chen and Wang, 2016). The findings add to this definition. Participants agreed that: *"I would use it to learn information related to the hotel if something is good or bad and I have the chance to ask someone who has already experience then yes, it is a good source of information"* (Interview, S). Thus, participants clarified that they would use a hotel's gamified application to collect information about a hotel or a service of a hotel, with the possible result that the information received could change their final decision. This finding also adds to the limited literature that socialising would be a motive to affect intention to use technology. As the first participant indicates socialising would be a meaningful addition to a system such as a hotel's gamified application.

Direct Feedback - Interactivity

The feature of direct feedback appeared as a motive to use a hotel's gamified application. Although this feature did not get a lot of popularity amongst participants it should be taken into consideration. In this case, a participant argued: *"I like this one, because in this application it makes you want to use it. It tells you about offers all the time. I have direct contact with them and direct feedback because it tracks whatever I do any time and it tells me what I can earn from the activities. These activities seem to be attached to my own preferences"* (Interview, E). This finding shows that the direct communication the technology uses is perceived as a meaningful feature for the user. Two types of interactivity in computer-mediated environments are most often discussed in the literature, namely human-information interaction and human-interaction (Pai and Yeh, 2014). This finding is mostly applicable to human-information interaction. Human-information interaction refers to users being able to select, classify, control, revise, establish and ignore information (Pai and Yeh, 2014). Participants show interest in the direct contact the technology provides and the information received is only relevant to the preferences uploaded in the system. This means that the participant likes the fact that they can control and select the information received. This finding also adds to the limited body of literature since it presents the effect of interactivity to technology through the context of hotel gamified applications.

Perceived Innovativeness (New/Unique)

Participants agreed on the importance of Innovativeness to influence their intention to use a hotel's gamified application. For example, a participant said: *"it looks very interesting. Since I am already going to book a room in your brand, by giving me a new way of doing it or doing it in a way that looks different and new I feel that is more attractive. It is interesting and for sure new and unique at the same time, so if the tasks are interesting as well, I would stick with it"* (Interview, P). Participants agreed that the innovativeness of the technology comes from the fact that it combines two different activities such as making a booking and playing a game. A participant argues: "*I like it because it is new and because it combines two different things, the gaming activity and the booking activity*" (Interview, F). Another participant added: *"I have never seen anything similar to be honest; booking a hotel room and play at the same time. I find it unique"* (Interview, G). Furthermore, the same participant identifies that, because of the uniqueness of this application, it would be enough to use it more frequently than Facebook: *"I find it useful and interesting, because you can track points, level up and to be honest other elements such as ranking. I would use that application during my stay in the hotel rather than the Facebook"* (Interview, G). This finding shows the importance of the new innovation, but also the willingness of the participants to adopt the new technology.

Personal innovativeness is defined as the degree of speed as well as willingness of an individual to adopt new ideas in relation to other members of the social system (Natarajan, Balasubramanian and Kasilngam, 2017; Bigne-Alcaniz et al 2007). Innovative consumers typically expect high benefits from innovation and adopt new product and services more extensively and quickly than others, and they provide feedback and revenues to companies offering new products and services, making them a valuable market segment (Tussyadiah, 2016). Participants displayed similar characteristics, as they were willing to utilize the technology, even though they defined it as new and unique. Participants identified *"I like it a lot. I find it very advanced and new. I mean me at least I have not seen anything like this before and I find it very interesting. I mean I like that it is different from everything I used to know and it makes this procedure more fun"* (Interview, R). This shows that participants are willing to step up and utilize the system even if they are among the first to do so. To strengthen the importance of innovativeness the following participant firstly clarified that using a

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smartphone during holidays is something not really attractive, but this application may change this behaviour. It is mentioned: *"this application would definitely make me want to download it at least to see it, but I don't know if I would stick with it. However, to be honest, since I download it I will use it and if the gameplay is good enough it will most possibly make me stick with the brand. It looks really attractive"* (Interview, H). This finding shows that a hotel's gamified application as a system with unique characteristics could change the behaviour of an individual during the visit in a hotel.

Still participants agreed that the innovativeness of the system will not be enough in the future as competitors may apply the same technology. For the innovative enterprise to create pure profit, innovation should generate and maintain a unique competitive advantage in relation to competitors in the domestic market as well as in international trade (Farsani et al, 2016). Participants agreed: "*I would stick with the brand because it is a bit new at the moment, but if in the future every hotel has it then I would want something special again, but at the moment I have not used anything similar before so yes I would stick with the brand*" (Interview, I). This finding highlights the importance of maintaining the innovativeness of the system and the constant evolution it might require to stay ahead of the competition.

Trust

Lastly, participants agreed on the importance of trust with regard to use of hotels' gamified applications. Although the theme is not considered as a motive to use the system, it is seen as an overall factor affecting participants' intention to use the technology. All participants agreed on the importance of the system being developed by a well-known brand. For example, a participant said: *"I do trust it as long as it is promoted by the hotel and it is recommended to do it. I would probably trust them, but it also depends from the hotel. For example, it is important to be a well-known brand"* (Interview, I). Other participants agreed: *"I trust it because it is an application out of a big brand so it promotes a feeling of trust here. It is a lot of money for someone like me to risk. But this is different. It is a big brand"* (Interview, S). This shows the importance participants see on the application being trustworthy, and the best way to promote that feeling is through the brand's recognition. This finding agrees with the literature since it is found that trust in websites plays an important role in e-commerce, because consumers are unlikely to shop online if they do not trust the seller's website

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on which they are shopping (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015; Amaro and Duarte, 2015).

Trust is the belief that renders consumers vulnerable to the good faith of online sellers after learning of their characteristics (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). In the field of m-commerce it has been found that trust was an important determinant influencing a consumer's intention to use the internet to conduct online transactions, and more generally the lack of consumer trust may create an impediment to the adoption of any form of electronic payment system including m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016). Participants explained: *"since we are talking for a well-known brand I trust them that they will send me somewhere good"* (Interview, P). This highlights the good faith users are willing to show in the system if the application is developed by a well-known brand. This finding proves the importance of the system being trustworthy towards users' intention to use hotels' gamified applications. Furthermore, this finding identifies a relationship between trusting the technology and the brand recognition.

4.1.4 Meaning of Fun for hotel gamified application users

Socialising

Socialising appears to contribute towards the technology becoming fun and enjoyable. Participants agreed that the *"socialise aspect is always good and fun. You can say where you have been and how are you doing. Also, you meet up with people doing the same thing with you"* (Interview, A). Another participant said: *"I would say it is fun, because I can find out what others do. I see that it looks a lot like Sims, but in the same time whatever I do or earn is actually real which makes it even more fun"* (Interview, E). This finding shows that participants would use the technology to socialise, and interact with others in a manner outside of the purposes of the system. It is also a finding highly related with participants' behaviour as gamers. It is seen earlier that socialising is a feature affecting the meaning of fun for gamers when playing games, and it appears to have a meaning of fun for gamers when using hotels' gamified applications. Hence, in terms of the meaning of fun, socialising affects both gamers and gamification users.

Achieving

Achieving also contributes towards the technology to become fun and enjoyable. A participant argued: *"I like the experience points, because it promotes the achievement. The more experience points I collect and the higher the achievement the better the reward will be"* (Interview, T). This shows the importance of enhancing the feeling of achievement in a hotel's gamified application to increase the level of fun. The findings also show that there is a direct relationship between the sense of achievement and progression in the system. For example, a participant clarified: *"well I do like the fact that you progress in this application so the higher I go or the more points I collect the better the reward will be. So, there is some kind of achievement feeling here which makes things a bit more exciting. It is not just collected points and then at some point you get a reward back. You have to work towards that reward"* (Interview, N). This shows the importance of tracking users' progression to enhance the sense of achieving. This finding is consistent with participants' behaviour as gamers. It appears that the sense of achievement as a meaning of fun is both apparent when participants are playing games or using hotels' gamified applications. Hence, in terms of the meaning of fun, achievement affects both gamers and gamification users.

However, in terms of using a hotel's gamified application, achieving also has further implications to the system. Most of the participants agreed that achieving is highly linked with the reward associated in the task. For example, a participant mentioned: *"in some case you have daily achievements like there is three things that you have to do such as order food from your phone, do this do that and then you get lot of XP because you are spending money. And then you have something small like take a selfie at the room or at the lobby or in any signature areas of the hotel like the SPA something that you are not directly spending money, but still it gets you to an area where it is possible to make a purchase or book a service"* (Interview, D). This finding shows that there is an effect on the money spent in the system with the points collected, which might affect the overall sense of achievement. For example, the more money the user invests in the system the higher the feeling of achievement is earned.

Competitiveness

Competitiveness is a feature contributing to make the technology fun and enjoyable. A participant said *"I like the competitiveness of it because it motivates me to win others*

as well and be in the top, but I don't really care about showing off" (Interview, F). This finding shows the contribution of competitiveness towards the meaning of fun. Furthermore, this research identified that there is a link with the leaderboard mechanic. For example, a participant mentioned: *"I like it because I am a competitive person. I mean I like the fact that I can see how many points I have and how many points the leader has in order to have an idea about how much more effort I have to put through in order to reach the top. As I said before I like to get better and compete with others, the highest I will get in the ranking the more I would stick with the company"* (Interview, Q). Another participant agreed: *"since I am a gamer I like a lot the fact that you can get points and level up so you kind of progress and differentiate yourself from others. For the same reasons I also like the fact that I can be on the leaderboard so I can compare myself with others and compete with them. And of course, I want to battle to be the best because that means the best reward as well"* (Interview, H). This shows that the mechanic of the leaderboard is very important for users with competitiveness characteristics, and should be included in the system to attract users with this behaviour. This finding is consistent with participants' behaviour towards games, as competitiveness is a characteristic that appears when they both speak about games and hotel gamified applications. Hence, in terms of the meaning of fun competitiveness affects both gamers and gamification users.

Challenge - Flow

Another feature contributing towards the technology becoming fun and enjoyable is the element of challenge. Most of the participants revealed that the system being challenging contributes towards making it fun and engaging. For example, it was said: *"I mean since the game experience is interesting and challenging enough I would stick around to progress"* (Interview, H). It is also argued that the system having challenging tasks is its biggest advantage against other reward systems currently available. A participant described: *"overall I say that I like the fact that I have to fulfil a challenge take points or badges in order to be rewarded. Is less boring. This is the biggest difference from anything else I know so far. The fact that you have to basically win your rewards by doing something interesting instead of just collect points"* (Interview, G). This finding shows the importance of challenging the user by providing challenging tasks to complete and reward appropriately. It further shows that an effective hotel's gamified application should be able to deliver challenges to the user by providing an

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enjoyable game experience. The participants agreed that the best way of doing it is by promoting tasks and linking them with collecting the appropriate amount of points or badges. These challenges should be associated with the behaviour of the user as a hotel visitor or a traveller. It was clarified by participants that the system should be encouraging traveling. For example, *"I like the fact that it is challenging. It would push me to do things in order to win. For example, if I was a regular traveller and there was a challenging task to fulfil, I would use it even more"* (Interview, F). This shows that a challenge delivered in the right way is enough to influence or alter users' behaviour. Moreover, this finding is consistent with participants' behaviour towards games, as being challenged is a characteristic that appears when they both speak about games and hotel gamified applications. Hence, in terms of the meaning of fun, successfully delivering challenges affects both gamers and gamification users.

Exploring

Exploring appears to contribute towards the technology becoming fun and enjoyable. Participants agreed that exploring the hotel or the surroundings of the hotel is very important for them when they think about fun and enjoyable activities. For example, *"I mostly like the exploring part because that way I get the chance to see the hotel as well. So I would use it more if it was sending me to several places of the hotel because that would make me more active and also I could explore the hotel or even artefacts close to the hotel. The exploring thing would get me to know more about the location, but also you are doing something not online, but you are physically doing something and going somewhere"* (Interview, I). Another participant added, *"if the application gets me to do activities related to exploring the surrounding area of the hotel this is primary for me because I get to see what it is around the location"* (Interview, P). This finding shows that is very important for the system to be aware of the surroundings of the hotel and being able to promote exploration activities for the user. Combining this behaviour with participants' opinions in regard to being challenged, it is advisable to design tasks to challenge the users to explore either the hotel or the surroundings of the hotel. Indeed, participants described: "*I am a person with limited plans especially as it has to do with holidays. For example, I like to visit new places and try new things so if this application challenges me to go out and explore new places or tastes and give me an offer on top of it then I am more than happy to follow it"* (Interview, Q). In this case, an effective hotel gamified application should be able to deliver challenges

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to the user, by providing tasks associated with exploration behaviour. Hence, these challenges should be associated with the behaviour of the user as a hotel visitor or a traveller. Participants agreed that exploration is a meaning of fun when they are using the technology, yet in this case exploration does not have to do with exploring the system itself, but being motivated to explore the physical world in the destination through the system. Thus, in terms of the meaning of fun, exploration does not affect gamers and gamification users in the same way.

Interactivity

Interactivity is a feature contributing towards making the technology fun and enjoyable. Participants agreed: "*I like it because it is more interactive and I like that*" (Interview, C). Participants' understanding of interactivity in this system was related to their ability to see their progress immediately, hence they are able to plan their next step. Similarly, to the challenge feature, this system being interactive is also one of the advantages against other reward systems currently available. For example, a participant clarified: "*Yes, I would definitely become loyal to this brand, because it is an easy platform and even though I am sure that these kind of big chain hotels have already some reward schemes or other reward systems I find this more interactive, it gets more interesting. In this case you can see your progress. It puts the ball in your court, because if I want to do this for the reward then I can because I know where I am and what I need to do in order to get what I want. Also, on the other hand I can see that I have to do this and this for the reward but if I do not like it then I just won't do it*" (Interview, T). A second understanding of interactivity is related to participants' ability to communicate with other users and get an immediate response in regards to their question. For example, a participant specified: "*I would do it in order to communicate with other customers in the hotel at the specific moment in order to ask them feedback for a specific facility such as the pool*" (Interview, Q). This shows that interactivity in a hotel's gamified application can be promoted through the system itself or the ability of the system to let users interact with each other. This finding agrees with the literature. Pai and Yeh (2014) describe two types of interactivity in computer-mediated environments, namely human-information interaction and human-interaction. Human-information interaction refers to users being able to select, classify, control, revise, establish and ignore information (Pai and Yeh, 2014). Human interaction refers to bidirectional communication, joint conversations, feedback, role switching and responses between

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senders and receivers (Pai and Yeh, 2014). The finding agrees with the definition of interactivity as discussed by Pai and Yeh (2014), since participants agreed that interactivity in a hotel's gamified application would have both ways of looking at it. Furthermore, this finding is consistent with participants' similar behaviour towards games and gamified applications. In terms of the meaning of fun, the ability of the system to be interactive with the user affects both gamers and gamification users.

Personalisation

Lastly, personalization is a feature that participants find as a meaning of fun when they use a hotel's gamified application. Very important for participants is the fact that the system speaks directly to them, enhancing a personal relationship between the user and the brand. For example, participants agreed: *"I like the fact that it is personal. I mean the way I see here it is speaking directly to me is more attractive to me. It gives me orders directly to me on a personal level. The tasks are delivered directly to me. Same with the offers"* (Interview, J). This shows that participants enjoy the idea of the system recognizing them. It promotes a relationship between the two parts. Another participant identified: *"it is more personalised because I am not just booking a hotel room, but the hotel talks to me now and it tells me that if I book with them they will give me tasks back to do so they are interested about my living there. They are giving me some tasks so I know what is around the hotel as well as in the hotel"* (Interview, P). This finding highlights the importance of delivering the tasks on a personal level to the user. It is found that promoting challenges and tasks might not be enough, unless they are personalised to the users and their preferences. Hence, it is important to design a system able to understand users' preferences and deliver them out in a way to promote a personalised experience.

The importance of personalisation is also seen through the mechanic of the avatar. Participants enjoy the opportunity of creating their own avatar as it gives them the ability to make the application more personal to them. Participants agreed: *"I like the fact that I can build my own avatar. I see it as a personal fact and I would enjoy it. It is more personal and I believe that everyone wants to feel unique"* (Interview, F). Another participant added: *"Yes for sure I like it when things get to be more personalised. I feel like this avatar now represents me and what I like"* (Interview, S). This shows the importance of the avatar to make the system fun. Participants suggested that the

avatar should be able to carry a personal photo *"if you could actually take a photo and personalise your avatar instead of just creating it, it would work brilliantly"* (Interview, B). This finding shows that participants would like to make the virtual world identical to the physical world. This finding is consistent with participants' behaviour towards games, as personalisation is a characteristic that appears when they both speak about games and hotel gamified applications. Hence, in terms of the meaning of fun, personalisation affects both gamers and gamification users.

4.1 Summary

This chapter presented the results of phase 1, aiming to identify motives when using a hotel chain application and understand what fun means for them. Utilizing the semi-structured interview approach allowed flexibility in the order of questions depending on the flow of the conversation, to address the specific issues of the research and further exploration of the research questions and objectives (Saunders, Lewis and Thornhill, 2012). Phase 1 was designed to get an in-depth understanding of the motives to play games and use hotels' gamified applications based on the opinion of gamers. The following four objectives were explored through qualitative analysis:

- Motivation of gamers when they play games
- Understanding the meaning of fun for gamers when they play games
- Motivation of gamers when they would use hotels' gamified applications
- Understand the meaning of fun for gamers when they use hotels' gamified applications

The analysis of the first phase revealed primary findings about the main motives influencing the intention to use hotels' gamified applications. Participants expressed their opinion on motives when playing games and gave their opinion on which of these motives would be applicable and which not in the case of a hotel gamified application. The interview plan involved two parts. The first part included a generic discussion based on participants' previous gaming experience. The aim was to understand their motives towards playing games as well as trying to identify the meaning of fun when they play games. Based on participants' responses, several themes arose. Findings demonstrated five motives for gamers to play games, and these are: escape form daily routine (or immersion), socialising (or social influence), fun, progress (or effort) and

accessibility. It appeared that these five themes are considered as motives when gamers are seeking to play a game. These findings further supported by the literature and studies by Jennett et al (2008), Klug and Schell (2006), Brown and Cairns (2004), de Kort, IJsselsteijn and Poels (2007), Hwang, (2010), Federoff (2002), Bartle (1996), Yee (2006), Green (2018), Klimmt and Hartmann (2005) and Feijoo et al (2012).

The second objective of the first part was to understand the meaning of fun when participants play games, with six themes found. These themes are: personalisation, challenge (or flow), achieving, socialising, competitiveness and exploring. The results have been compared with the literature review, showing similarities. Meanings such as achievin agreed with the literature review as defined by Bartle (1996), Lazzaro (2009) and Yee (2006). 'Exploring' agreed with the literature and studies by Nacke, Bateman and Mandryk (2014) and Bartle (1996). 'Socialising' agreed with the literature review as explained by Bartle (1996) and Marczewski (2014), and studies by Kaye and Bryce (2012) and Giammarco (2015). The meaning of personalisation also agreed with previous literature and Marczewski's (2014) identification of gamification users called Free Spirits. The feature of challenge as explained by participants agreed with the literature in studies by Koster (2005) and Sorenson, Pasquier and DiPaola (2011). Participants agreed that personalisation is an important meaning of when playing games, agreeing with the literature and studies by Payne and Huntemann (2019) and Detweiler (2010). Lastly, competitiveness as a theme agreed with the literature and the Lazzaro (2009) study. This group of people showed characteristics of imposition upon others as defined by Bartle (1996). These findings add to the gaming literature as motives to play games and the meaning of fun when playing games. However, since the scope of this research is not to add to the gaming literature, these findings should be accepted with caution as the interviews have not been focused on the gaming behaviour of the participants.

The second and main part included discussion based on participants' opinions on hotels' gamified applications. The aim was to obtain information about the characteristics of a gamified application in the hospitality industry and their opinion based on them. This led to seven themes with regard to the motives of the gamers towards using the technology, developing a pattern for further exploration. These themes are perceived enjoyment (or fun), perceived ease of use, perceived usefulness, social influence (or socialising), direct feedback (or interactivity),

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perceived innovativeness and trust. These themes are supported by the literature in studies by Gurtner, Reinhardt and Soyez (2014), Tasci and Ko (2016), Lopez and Tucker (2019), Chang, Hajiyev and Su (2017), Davis (1989), Venkatesh (2000), Ozturk et al (2016), Cheema et al (2013), Sohn (2017), Hamari and Koivisto (2015), Zhao, Chen and Wang (2016), Pai and Yeh (2014), Farsani et al (2016) and Tussyadiah (2016). These findings add to the body of literature on intention to use technology in the context of the hospitality industry. Comparing the motives of participants to play games and use hotels' gamified applications, only two themes appeared in both cases (Socialising and Fun). Motives such as Accessibility, Immersion and Effort appeared as motives to play games, but not motives to use hotels' gamified applications. Motives such as Perceived Ease of Use, Perceived Usefulness, Reward, Direct Feedback (Interactivity) and Perceived Innovativeness appeared as motives to use hotels' gamified applications, but not motives to play games. This finding shows that even though games and gamified application are considered as similar concepts, they are not used for similar purposes by the audience.

The last objective of this phase was to understand the meaning of fun when using a hotel's gamified application. Using the visual material allowed participants to discuss the mechanics that provide more fun for them when using the system, trying to understand the meaning of fun. The results have been compared with participants' responses with regard to their meaning of fun when playing games, to identify whether there are similarities or differences. A list of seven themes appeared when trying to understand the meaning of fun when using a hotel's gamified application. These themes are: socialising, achieving, competitiveness, challenge (or flow), exploring, interactivity and personalisation. Comparing the themes with the ones that appeared as meaning of fun in games, it is found that five of them are identical (socialising, achieving competitiveness, challenge (or flow) and personalisation. These themes have the same meaning for fun when participants play games or use a hotel's gamified application. Exploring has appeared as meaning fun in both cases, although with a different meaning. Participants found exploring the system as a fun activity when playing games. Conversely, exploring the system is not seen as a fun activity when using a hotel's gamified application, but exploring the physical environment of the hotel (either the hotel or the surroundings of the hotel) is considered as fun. Hence, participants clarified that it is fun if the system can promote the destination and

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encourage the users to visit several attractions. Lastly, the seventh theme of interactivity is seen as a meaning of fun when using a hotel's gamified application, but not fun when playing games. This finding might be a result of the fact that games are considered to deliver interactivity anyway, whereas on the other hand this system promoting interactivity is a unique phenomenon. The results of this phase will be taken into further investigation in phase two, when a survey is conducted in an attempt to explain the relationship between the themes and generalise the results.

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4.2 Section 2: Quantitative Data Analysis (Phase 2)

Introduction

This section presents the results of the data and applies analysis techniques to validate the measurement items and structure of the proposed model, as well as to test the set hypothesis. Individuals with experience in chain hotels and mobile applications were the target population for the main study. The consideration to include the criterion of having experience with mobile applications in the study was made on the basis that they were more likely to adopt m-commerce compared to those without this kind of experience.

The results of phase 1 indicated eight motives towards intention to use hotels' gamified applications. In addition to those eight constructs an additional three are added based on the literature review. These three constructs are Mastery, Purpose and Autonomy, adapted from Marczewski's taxonomy of gamification users. Chapter 2 (hypothesis development section) set the background of the study by reviewing the literature on technology acceptance, e-commerce and m-commerce and presented the findings. Based on the review of the literature, the research model (figure 1) was proposed and the following hypotheses were established.
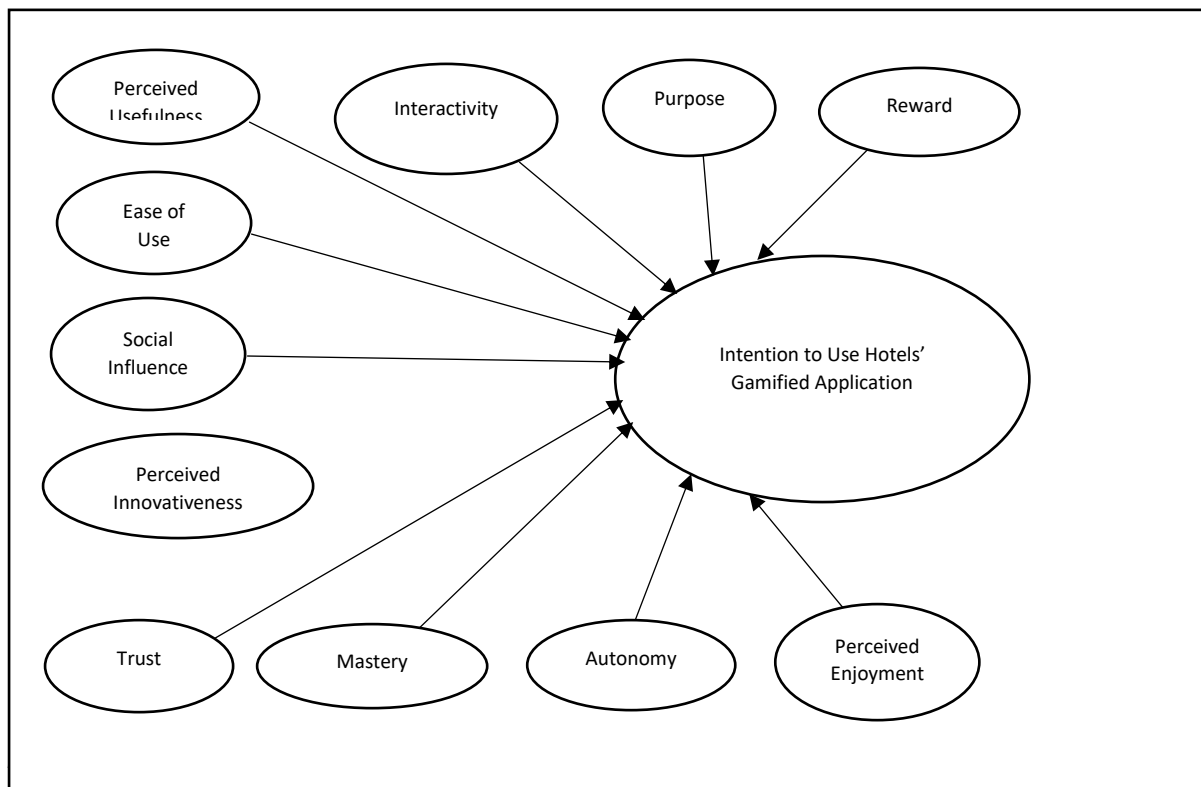
Figure 4. 1 Conceptual Framework

H1: *Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.*

H2: *Perceived ease of use has a positive influence on the intention to use hotel gamified mobile applications.*

H3: *Perceived Enjoyment has a positive influence on the intention to use hotel gamified mobile applications.*

H4: *Perceived Innovativeness has a positive influence on the intention to use hotel gamified mobile applications.*

H5: *Social Influence has a positive influence on the intention to use hotel gamified mobile applications.*

H6: *Trust has a positive influence on the intention to use hotel gamified mobile applications.*

H7: *Reward has a positive influence on the intention to use hotel gamified mobile applications.*

H8: *Autonomy has a positive influence on the intention to use hotel gamified mobile applications.*

H9: *Mastery has a positive influence on the intention to use hotel gamified mobile applications.*

H10: *Purpose has a positive influence on the intention to use hotel gamified mobile applications.*

H11: *Interactivity has a positive influence on the intention to use hotel gamified mobile applications.*

4.2.1 Pilot Study

Before the main data collection, a pilot study is required. The pilot test will facilitate further improvements to the question text. To pilot test the questionnaire a qualitative approach has been used. The main aim of this pilot study was to ask individuals whether the items have been clear to them as the context of gamification is relatively new to the audience. Also, the time taken to fill the questionnaire was a concern at this stage.

The questionnaire was initially filled by 15 individuals with the appropriate experience in both mobile booking and staying in a chain hotel. All 15 individuals were over the age of 18, but no further demographic requirement has been taken into consideration such as gender, nationality, income and social status as it was not important at this stage of the study. As a result, out of the respondents nine of them were males and six females.

The average time taken to complete the survey was 15-20 minutes. Having a discussion with each one of them at the end of the pilot study, this seems to be too long for them, losing interest towards the end of the questionnaires, hence it was considered that data may not be fully completed. Going into further detail with individuals it was suggested that a few items were difficult to understand as they do not have personal experience with the application, and therefore they had to guess the answer. Taking this into consideration it was decided to remove these items, leading also to the survey time reduction to 10-15 minutes.

4.2.2 Main Survey

The next step after the pilot test was to conduct a complete data collection from the specified sample (chain hotel visitors with experience in mobile applications). The online survey link was sent to around 820 individuals with experience in mobile applications using a snowball technique. This process took 8 months as it was important for the participants to have experience with mobile applications. After downloading the results in the SPSS software, it was found that 57 answered that they do not have experience in chain hotels, therefore they do not match the second criterion, and they were excluded, resulting in a total of 763 usable questionnaires.

Demographic profile and other characteristics of the participants

The tables below present participants' profiles according to their gender, age and ethnicity, as well as further information with regard to the last time for them visiting the hotel and the reason behind it. As mentioned earlier, individuals who answered that they have had no experience in a chain hotel were excluded from the final data sample in the screening and cleaning step of entering the data in the SPSS 24 software.

Demographic	Category	Frequencies (n)	%
Gender	Female	426	55.8
	Male	325	42.6
	Missing Values	12	1.6
Age	18-24	410	53.7
	25-34	276	36.2
	35-54	63	8.3
	55-64	7	0.9
	65+	0	0.0
	Missing Values	7	0.9
Ethnicity	Austria	115	15.1
	Bulgaria	5	0.7
	China	124	16.3
	Congo	1	0.1
	Cyprus	176	23.1
	Czech Republic	7	0.9
	France	3	0.4
	Germany	4	0.5
	Ghana	5	0.7
	Greece	60	7.9
	Hong Kong	1	0.1
	Hungary	2	0.1
	India	5	0.7
	Italy	39	5.1
	Lithuania	1	0.1
	Oman	1	0.1
	Poland	5	0.7
	Romania	6	0.8
	Russia	7	0.9
	Saudi Arabia	3	0.4
	Spain	4	0.5
	Taiwan	2	0.3
	United Kingdom	176	23.1
	United States	2	0.3
	Uzbekistan	2	0.3
	Venezuela	2	0.3
	Missing Values	5	0.7

Table 4. 1 Demographics of the Survey

From 763 respondents, the majority were female (55.8%, n=426), while 42.6% (n=325) were male. A very small number of respondents, 1.6% (n=12), chose not to share their gender. The sample has not been excluded as the respondents did answer all the

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questions in the main body of the questionnaire. With regard to the age demographic of the sample, the majority of the respondents belong in the younger age group (18-24) (53.7%, n=410), followed by 25-34 years of age (36.2%, n=276), 35-54 years (8.3%, n=63), while only 0.9% (n=7) belong to the 55-64 years of age group. Unfortunately, no data (0%) was able to be taken from the 65+ years of age sample, while 7 respondents (0.9%) chose not to share their age. Lastly, the majority of the sample was taken from European countries such as the United Kingdom (23.1%, n=176), and Cyprus (23.1%, n=176), followed by Austria (15.1%, n=115), Greece (7.9%, n=60) and Italy (5.1%, n=39). A considerable amount of data has been taken from a non-European country: China (16.3%, n=124). Further samples have been taken from 20 more countries across the world with lower contribution as shown in the table, while 0.7% (n=5), did not share their ethnicity.

Further characteristics with regard to the experience of the participants in a hotel have been taken in the first section of the questionnaire. Out of the 763 respondents the majority have visited a hotel within the last year (74.6%, n=569), followed by 2-3 years ago (11.7%, n=89), 4-5 years ago (8.5%, n=65) and lastly more than 6 years ago (5.2%, n=40). People who answered never in this question have been excluded from the final sample. Moreover, it was asked of the participants to share the purpose behind their visit to a hotel, showing that the majority of them (83.5%, n=637) have done so for leisure purposes, followed by individuals who have done it for both leisure and business purposes (12.5%, n=95), and lastly a minority of individuals have done it only for business purposes (4.1%, n=31).

Last time visiting hotel			
		N	%
Labelled Values	Within last year	569	74.6
	2-3 years ago,	89	11.7
	4-5 years ago,	65	8.5
	More than 6 years ago	40	5.2
	Never	0	0
Purpose of the visit			
Labelled Values	Leisure	637	83.5
	Business	31	4.1
	Both	95	12.5

Table 4. 2 Past Experience of survey participants

Outliers

An outlier is a score very different from the rest of the data (Field, 2018), and it can have a dramatic effect on the correlation coefficient (Pallant, 2013). According to Field (2018), the dramatic effect of outliers on the sum of squared errors is important because it is used to compute the standard deviation, which in turn is used to estimate the standard error, which itself is used to calculate confidence intervals around the parameter estimate and test statistics. It is suggested to remove all extreme outliers from the data file, or changing the value to a less extreme value from the data file, which might improve the variation, but it will affect the generalization (Pallant, 2013).

The statistical value called 5% trimmed mean helps to decide if the extreme scores have a strong influence on the mean, by removing the top and bottom 5% of the cases and calculating a new mean value (Pallant, 2013). If the new trimmed mean and the original are very different, then further actions need to be made. The table below shows the original mean of each item and the 5% trimmed mean, showing that extreme scores are not having a strong influence on the mean, and therefore no further action is needed.

Fun1	Mean	3.97	EOU1	Mean	4.09
	5% Trimmed Mean	4.05		5% Trimmed Mean	4.18
Fun2	Mean	2.48	EOU2	Mean	4.06
	5% Trimmed Mean	2.42		5% Trimmed Mean	4.14
Fun3	Mean	4.12	EOU3	Mean	4.01
	5% Trimmed Mean	4.20		5% Trimmed Mean	4.05
Fun4	Mean	4.17	EOU4	Mean	4.38
	5% Trimmed Mean	4.25		5% Trimmed Mean	4.45
Fun5	Mean	4.15	EOU5	Mean	4.27
	5% Trimmed Mean	4.22		5% Trimmed Mean	4.33
R1	Mean	4.25	DF1	Mean	4.32
	5% Trimmed Mean	4.31		5% Trimmed Mean	4.40
R2	Mean	3.95	DF2	Mean	4.36
	5% Trimmed Mean	4.01		5% Trimmed Mean	4.44
R3	Mean	3.75	DF3	Mean	4.38
	5% Trimmed Mean	3.79		5% Trimmed Mean	4.46
R4	Mean	3.89	Auto1	Mean	4.21
	5% Trimmed Mean	3.94		5% Trimmed Mean	4.27
R5	Mean	3.72	Auto2	Mean	4.13
	5% Trimmed Mean	3.76		5% Trimmed Mean	4.19
R6	Mean	3.94	Auto3	Mean	4.21
	5% Trimmed Mean	4.02		5% Trimmed Mean	4.28
PU1	Mean	3.97	Social1	Mean	3.37

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	5% Trimmed Mean	4.03		5% Trimmed Mean	3.41
PU2	Mean	3.89	Social2	Mean	3.07
	5% Trimmed Mean	3.95		5% Trimmed Mean	3.08
PU3	Mean	3.64	Social3	Mean	2.88
	5% Trimmed Mean	3.68		5% Trimmed Mean	2.86
PU4	Mean	3.59	Social4	Mean	2.78
	5% Trimmed Mean	3.62		5% Trimmed Mean	2.75
PU5	Mean	4.13	Social5	Mean	2.97
	5% Trimmed Mean	4.20		5% Trimmed Mean	2.97
Innov1	Mean	3.31	Purpose1	Mean	3.61
	5% Trimmed Mean	3.34		5% Trimmed Mean	3.67
Innov2	Mean	3.07	Purpose2	Mean	3.69
	5% Trimmed Mean	3.07		5% Trimmed Mean	3.74
Innov3	Mean	3.64	Purpose3	Mean	3.69
	5% Trimmed Mean	3.70		5% Trimmed Mean	3.74
Innov4	Mean	3.67	Purpose4	Mean	4.03
	5% Trimmed Mean	3.73		5% Trimmed Mean	4.10
Innov5	Mean	3.85	Purpose5	Mean	4.22
	5% Trimmed Mean	3.91		5% Trimmed Mean	4.29
Master1	Mean	4.30	Trust1	Mean	3.93
	5% Trimmed Mean	4.37		5% Trimmed Mean	3.97
Master2	Mean	4.34	Trust2	Mean	3.95
	5% Trimmed Mean	4.42		5% Trimmed Mean	3.99
Master3	Mean	3.92	Trust3	Mean	3.99
	5% Trimmed Mean	4.00		5% Trimmed Mean	4.04
Master4	Mean	4.01	Trust4	Mean	3.60
	5% Trimmed Mean	4.09		5% Trimmed Mean	3.63
ITR1	Mean	3.53	Trust5	Mean	3.29
	5% Trimmed Mean	3.56		5% Trimmed Mean	3.29
ITR2	Mean	3.69	ITU1	Mean	4.07
	5% Trimmed Mean	3.72		5% Trimmed Mean	4.11
ITR3	Mean	3.77	ITU2	Mean	4.01
	5% Trimmed Mean	3.81		5% Trimmed Mean	4.05
ITR4	Mean	3.65	ITU3	Mean	3.98
	5% Trimmed Mean	3.70		5% Trimmed Mean	4.02
ITR5	Mean	3.70	ITU4	Mean	3.77
	5% Trimmed Mean	3.75		5% Trimmed Mean	3.56

Table 4. 3 Means and 5% Trimmed Mean

Normality

Once the data are collected it is very useful to plot a graph of how many times a score occurs, known as frequency distribution, or histogram showing how many times each value occurred in the data set (Field, 2018). It is important to have some general descriptions for common types of distributions. Ideally, data would be distributed symmetrically around the centre of all scores. This is known as normal distribution and is characterized by a bell-shaped curve (Field, 2018). Many statistical techniques

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assume the distribution of scores on the dependent variable is "normal". Normal is used to describe a symmetrical, bell-shaped curve, which has the greatest frequency of scores in the middle with smaller frequencies towards the extreme (Pallant, 2013).

There are two main ways in which a distribution can deviate from normal: (1) lack of symmetry (called skew) and (2) pointiness (called kurtosis) (Field, 2018). The skewness value provides an indicator of the symmetry of the distribution, and kurtosis, on the other hand, provides information about the 'peakedness' of the distribution (Pallant, 2013). In a normal distribution the values of skew and kurtosis are 0 (Field, 2018). If the skewness is between -0.5 and 0.5 the distribution is approximately symmetric, and if skewness is less than -1 or greater than 1 the distribution is highly skewed. However, this is an uncommon occurrence in social sciences (Pallant, 2013). In addition, it is recommended in the case of a large sample (200+) to inspect the shape of distribution by using a histogram or a P-P plot (Field, 2018).

Normality was first assessed through descriptive analysis using skewness and kurtosis outputs of all items in the dataset. In this case, skewness and kurtosis results show an acceptable but not perfect level of normality beside the constructs of Direct Feedback (DF) and Fun (Fun), where the values were slightly above suggested levels. According to Pallant (2013), with reasonably large samples, skewness will not 'make a substantive difference in the analysis' and kurtosis can result in an underestimate of the variance, but this risk is reduced with a large sample (200+ cases). Furthermore, the histograms that were generated indicate acceptable, but not perfect, normality. Hoster (2008) agrees that very few data sets will show a perfect normal distribution, but if the skew is pronounced (the mean and the median have quite large difference), then the data must be treated with caution if a technique assumes normal distribution. In the case of this study the mean and median difference do not show large difference, hence it is decided that no transformation remedy is required at this stage. Tables of skewness and kurtosis are presented in tables (See appendix 7).

Pallant (2013) argues that often in research the difference between groups is not as important as the relationship between the variables. EFA technique is used to explore the data and provide information about the number of possible factors that best represent the data. Factorial Analysis allows us to condense a large set of variables or scale items down to a smaller, more manageable number of dimensions or factors. It does this by summarising the underlying patterns of correlation and looking for groups of closely related items (Pallant, 2013). This study applied EFA first, then CFA before examining the hypothesis. In order to examine the structure of the measurement items corresponding to the variables presented in conceptual model, EFA was applied using SPSS 24. EFA was applied to the 60 items as identified from the literature, contributing to 13 theoretically established constructs.

There are a variety of approaches that can be used to identify (extract) the number of the underlying factors or dimensions, such as: Principal Component Analysis, Principal Factors, Image Factoring, Maximum Likelihood Factoring, Alpha Factoring, Unweighted Least Squares and Generalised Least Squares (Pallant, 2013). PCA aims to reduce a set of variables into a smaller set of dimensions. PCA is concerned only with establishing which linear components exist within the data and how a particular variable might contribute to a given component (Field, 2018). PCA method was selected as it is the most commonly used approach (Pallant, 2013), and it is a default setting in SPSS, used to extract the maximum variance from the data set with each component.

Prior to performing PCA the suitability of factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .4 and above. The table below shows in detail the correlation matrix. Furthermore, to verify that the data are suitable for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value has to be checked for being at .6 or above, and the Bartlett's Test of Sphericity value is significant (Sig. value being .05 or smaller). In this case, KMO value is valued at .958 exceeding the recommended .6 and Bartlett's Sphericity is Sig. at .000, providing confidence that the sample size is adequate for factor analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.958
Bartlett's Test of Sphericity	Approx. Chi-Square	44127.876
	df	1770
	Sig.	.000

Table 4. 4 KMO and Bartlett's Test

The following step is to assess the adequacy of extraction and the number of factors. Criteria used for the purpose of this research are: percentage of variance criterion (communality), latent root criterion (Eigenvalues) and the Scree test criterion.

Communality

The total variance of an original variable shared with other variables is known as communality. The closer the communalities are to 1, the better the factors are at explaining the original data (Field, 2018). If the communality values are equal to or exceed 1, this indicates a problem with the solution, as it might suggest that there are not enough data, or that the number of factors extracted is wrong. Instead, communality values lower than 0.3 (in respect of a large sample) indicates that the variables with these values are unrelated to others in the set. Action taken in this case is to remove items with low communality. Table 4 below shows that all the items shared values between 0.5 and 1, indicating that all the items are suitable and no further action is necessary.

Construct	Initial	Extraction	Construct	Initial	Extraction	Construct	Initial	Extraction
Fun1	1.000	.779	EOU1	1.000	.810	DF1	1.000	.721
Fun2	1.000	.693	EOU2	1.000	.814	DF2	1.000	.775
Fun3	1.000	.802	EOU3	1.000	.775	DF3	1.000	.780
Fun4	1.000	.848	EOU4	1.000	.642	Auto1	1.000	.649
Fun5	1.000	.740	EOU5	1.000	.616	Auto2	1.000	.662
R1	1.000	.733	Social1	1.000	.706	Auto3	1.000	.649
R2	1.000	.643	Social2	1.000	.808	Purpose1	1.000	.749
R3	1.000	.704	Social3	1.000	.872	Purpose2	1.000	.803
R4	1.000	.814	Social4	1.000	.874	Purpose3	1.000	.836
R5	1.000	.743	Social5	1.000	.830	Purpose4	1.000	.749
R6	1.000	.687	Innov1	1.000	.624	Purpose5	1.000	.746
PU1	1.000	.724	Innov2	1.000	.688	Master1	1.000	.574
PU2	1.000	.775	Innov3	1.000	.755	Master2	1.000	.569
PU3	1.000	.804	Innov4	1.000	.793	Master3	1.000	.626
PU4	1.000	.806	Innov5	1.000	.716	Master4	1.000	.628
PU5	1.000	.662	ITR1	1.000	.677	Trust1	1.000	.689
ITU1	1.000	.717	ITR2	1.000	.765	Trust2	1.000	.680
ITU2	1.000	.683	ITR3	1.000	.805	Trust3	1.000	.564
ITU3	1.000	.758	ITR4	1.000	.789	Trust4	1.000	.636

| ITU4 | 1.000 | .653 | ITR5 | 1.000 | .752 | Trust5 | 1.000 | .733 |

Table 4. 5 Communality

Eigenvalues

In PCA (as well as factor analysis) not all factors are retained (Field, 2018). The process of deciding how many factors to keep is called extraction. Following the Kaiser's criterion only factors with eigenvalues greater than 1 have been retained. If an eigenvalue is greater than 1, it satisfies the latent root criterion, but if it is less than 1 it is considered not important and can be disregarded. Principal component analysis revealed the presence of ten components with eigenvalues exceeding 1, explaining 44.4%, 5.9%, 5.3%, 3.2%, 3.2%, 2.5%, 2.3%, 2.0%, 1.8% and 1.7% of the variance respectively. These ten values explain a total of 72.8% of the variance.

Component	Initial Eigenvalues			Extraction Sums of Squared Loading			Rotation Sums of Squared Loadings
	Total	% of the Variance	Cumulative	Total	% of Variance	Cumulative	Total
1	26.650	44.417	44.417	26.650	44.417	44.417	8.490
2	3.593	5.988	50.405	3.593	5.988	50.405	13.605
3	3.214	5.357	55.762	3.214	5.357	55.762	9.560
4	1.959	3.264	59.026	1.959	3.264	59.026	13.068
5	1.927	3.212	62.238	1.927	3.212	62.238	12.172
6	1.528	2.547	64.785	1.528	2.547	64.785	5.912
7	1.427	2.378	67.163	1.427	2.378	67.163	12.233
8	1.236	2.061	69.223	1.236	2.061	69.223	12.094
9	1.094	1.823	71.046	1.094	1.823	71.046	12.541
10	1.067	1.779	72.825	1.067	1.779	72.825	8.260
11	.914	1.523	74.349				
12	.874	1.456	75.805				
13	.823	1.371	77.176				
14	.736	1.226	78.402				
15	.673	1.121	79.523				
16	.665	1.109	80.632				
17	.598	.997	82.593				
18	.579	.964	83.509				
19	.549	.916	84.372				
20	.518	.863	85.196				

Table 4. 6 Total Variance Explained

Scree test criterion

The third approach used is Catell's scree test. This involves plotting each of the eigenvalues of the factors and inspecting the plot to find a point at which the shape of the curve changes direction and becomes horizontal (Pallant, 2013). Typically, there will be a few factors with high eigenvalues, and many factors with relatively low eigenvalues, so this graph has a very characteristic shape: sharp descent in the curve followed by a tailing off (Field, 2018). Catell recommends retaining all the factors

above the elbow, or break in the plot, as these factors contribute the most to the explanation of the variance in the data set (Palland, 2013; Field, 2018). With a sample of more than 200 participants, the scree plot provides a fairly reliable criterion for factor selection (Field, 2018).
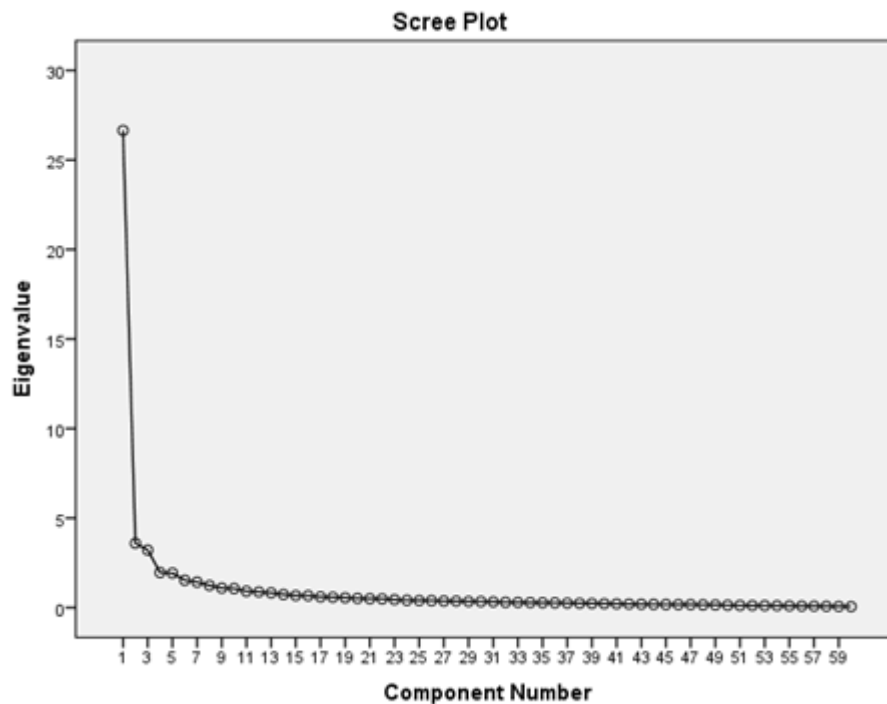
Figure 4. 2 Scree Test Criterion

Rotated Pattern Matrix

Once factors have been extracted, it is possible to calculate the degree to which variables load onto these factors. However, it is found that most variables have high loadings on the most important factor and small loadings on all other factors, making the interpretation difficult, hence a technique called factor rotation is used to discriminate factors (Field, 2018). Rotation methods can be either orthogonal or oblique. Orthogonal rotation methods assume that the factors in the analysis are uncorrelated, and oblique rotation methods assume that the factors are correlated (Brown, 2009). SPSS 24 offers three orthogonal rotation methods (varimax, quartimax and equimax) and two oblique (direct oblimin and promax). It is advised to choose one of the most commonly available methods of rotation, such as Varimax (if orthogonal rotation is sought) or Direct Oblimin (if oblique rotation is sought) (Brown, 2009).

For the purpose of this research, firstly Direct Oblimin rotation method was used. According to Pallant (2013), Component Correlation Matrix needs to be checked as it shows the strength of the relationship between the factors. This gives information to decide whether it was reasonable to assume that the components were not related (the assumption underlying the use of Varimax rotation), or whether it is necessary to use and report the Oblimin rotation. If the correlation between the components is quite low then one would expect very similar solutions from the Varimax and Oblimin rotations. However, if the components are more strongly correlated (>.3), it is possible to find discrepancies between the results of the two approaches to rotation, and in this case the Oblimin rotation is the method most appropriate to be reported (Pallant, 2013). Table below shows more details with regard to the correlation between the components, showing the presence of multiple correlations above .3, which confirms that oblique rotation needs to be reported for the purposes of this research. Hence it was decided to run a direct Oblimin rotation.

Component	1	2	3	4	5	6	7	8	9	10
1	1.000	-.373	.258	.257	.206	.207	.237	.295	.265	.209
2	-.373	1.000	-.337	-.390	-.288	-.175	-.222	-.333	-.283	-.380
3	.258	-.337	1.000	.200	.266	.231	.204	.402	.226	.145
4	.257	-.390	.200	1.000	.365	.114	.397	.268	.367	.311
5	.206	-.288	.266	.365	1.000	.236	.415	.318	.383	.266
6	.207	-.175	.231	.114	.236	1.000	.195	.303	.221	.086
7	.237	-.222	.204	.397	.415	.195	1.000	.345	.447	.271
8	.295	-.333	.402	.268	.318	.303	.345	1.000	.402	.192
9	.265	-.283	.226	.367	.383	.221	.447	.402	1.000	.269
10	.209	.380	.145	.311	.266	.086	.271	.192	.269	1.000

Table 4. 7 Component Correlation Matrix

In the extraction of the factors, the number of factors is selected to be based on the Eigenvalue of 1, in order to help decide the number of factors that should be considered. The table below (Pattern Matrix) shows that a ten factor solution is confirmed, with ten items (PU1; Fun2; Trust1, Trust2, Trust3; Innov2, Innov3, Innov1; EOU4, EOU5) not loading and one item (ITR1) cross-loading. This is consistent with the earlier findings for the number of factors.

	Component									
	1	2	3	4	5	6	7	8	9	10
PU2	.593									
PU3	.585									
PU4	.526									
PU5	.432									

	1	2	3	4	5	6	7	8	9	10
PU1										
Social3		-.847								
Social4		-.831								
Social5		-.824								
Social2		-.756								
Social1		-.625								
Fun2										
Trust1										
Innov2										
R4			.748							
R1			.662							
R2			.605							
R5			.602							
R6			.586							
R3			.576							
ITR4				.860						
ITR3				.859						
ITR5				.809						
ITR2				.803						
ITU4				.554						
ITR1				.492						.410
ITU3				.459						
Trust3										
Fun3					.860					
Fun4					.818					
Fun1					.782					
Fun5					.697					
Trust2										
Trust5						.612				
ITU1						.585				
Trust4						.574				
ITU2						.453				
DF3							.834			
DF1							.772			
DF2							.769			
Master2							.496			
Master1							.493			
Auto3							.456			
Auto1							.445			
Purpose5								.835		
Purpose4								.796		
Purpose3								.637		
Purpose2								.596		
Purpose1								.502		
EOU4										
EOU1									.826	
EOU2									.821	
EOU3									.754	
Innov5									.468	
EOU5										
Master4										.531
Master3										.506
Innov4										.423
Auto2										.417
Innov3										
Innov1										

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a Rotation converged in 25 iterations.

Table 4. 8 Pattern Matrix

In this stage it was decided that the ten items not loading should be removed, but the items (ITR1) that are cross-loading should remain. Based on the earlier findings, it was decided to perform the EFA again, but this time the number of factors was forced to be loaded as ten factors rather than based on the Eigenvalue in SPSS. This approach is suggested by Pallant (2013) and can help to assess the new ten factors solution.

As a result, of the second phase, the pattern matrix loaded in a much clearer structure, as seen in the table below. Only one item (Innov4) did not provide loading, hence it was deleted from the solution. The results of the final measurement items indicate that the ten-component solution explained 75.57% of the total variance.

	Components									
	1	2	3	4	5	6	7	8	9	10
Auto2	.637									
Master4	.618									
Auto3	.539									
Master3	.538									
Auto1	.514									
Social3		-.841								
Social4		-.827								
Social5		-.819								
Social2		-.759								
Social1		-.684								
ITR4			-.852							
ITR3			-.848							
ITR5			-.809							
ITR2			-.799							
ITU4			-.531							
ITR1			-.487							
ITU3			-.456							
Fun3				.907						
Fun4				.866						
Fun1				.785						
Fun5				.750						
R4					-.808					
R1					-.693					
R2					-.693					
R5					-.692					
R3					-.650					
R6					-.582					
Trust5						.623				
Trust4						.597				
ITU1						.595				
ITU2						.474				
EOU1							-.808			
EOU2							-.790			
EOU3							-.759			
Innov5							-.421			
Purpose5								.773		
Purpose4								.746		
Purpose3								.600		
Purpose2								.561		
Purpose1								.470		
DF3									-.848	
DF2									-.817	
DF1									-.735	
Master1									-.553	
Master2									-.532	
PU3										-.712
PU4										-.675
PU2										-.671
PU5										-.462
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. a Rotation converged in 16 iterations.										

Table 4. 9 Pattern Matrix second round

As a result of the EFA, eleven items in total where dropped from the original measurement items. It is now 49 instead of 60. Furthermore, the Pattern Matrix shows a few interesting mergings. For example, Autonomy items (Auto1, Auto2, and Auto3) merged with Mastery items (Master3, Master4), and Intention to Use items (ITU3, ITU4) merged with Intention to Return Items. However, the remaining Intention to Use items (ITU1, ITU2) merged with the left Trust items (Trust4, Trust5). The only left Innovation item (Innov5) merged with the Ease of Use items. Finally, the remaining Mastery items (Master1, Master 2) merged with the Direct Feedback items. This provides evidence that the respondents perceived them items as one construct and not as proposed in the initial model.

The following table presents all the ten constructs and their items. Highly loaded items are presented first, with the wording of each item. This will help to rename the merging constructs. For example, the first construct which included three Autonomy items (Auto1, Auto2, and Auto3) and two Mastery (Master3, Master4) has now been renamed to Familiarity. Familiarity has been defined by Gefen (2000) and Gefen and Straub (2004) in the context of e-commerce as an understanding often based on previous experiences, interactions and learning of what, why, where and when others do what they do. The items used in both researches are presented in Appendix (6). The third construct has been renamed as Intention to Use a hotel's mobile gamified application since it included items from Intention to Use and Intention to Return. It was decided to give this name as it is considered the dependent variable and it distributes towards achieving the objectives of this research. The seventh construct carried the name of Ease of Use even though it loads an item from Innovation, since it only loads one item against the three of Ease of Use and it is also loading with the lower value. Furthermore, looking at the wording of the item it matches the definition of Ease of Use. Construct six has been renamed as Perceived Risk as it loads two items from Intention to Use initial construct and two from Trust. Perceived Risk has been defined from Chopdar and Sivakumar (2019) in the context of m-commerce as composed of two elements: (1) the amount at stake which would be lost if the consequences of an action were not favourable, and (2) the individual's subjective feeling of certainty that the consequences will be unfavourable. The items of this research are available in Appendix (6). Finally, the ninth construct including three items from Direct Feedback (DF1, DF2, and DF3) and two from Mastery (Master1, Master2) has been renamed as

Perceived Informativeness. Perceived Informativeness has been defined by Lin (2007) in the context of e-commerce as the ability to inform customers about product alternatives, including information timeliness, accuracy, usefulness and completeness. For example, complete contact information and return policy add credibility and thus perceived integrity, while detailed FAQs and available feedback mechanisms show the online merchant's concern about customer's opinion and thus enhance perceived benevolence (Gao and Wu, 2010). Details about the wording of these two researches are available in Appendix (6).

Table 4. 10 All Items Wording

		Item	Wording	Loading
Familiarity	5 Items	Auto2	I would use a hotel gamified application if it could let me do things myself	.637
		Master4	When I use a hotel gamified application I want to recognize things of myself	.618
		Auto3	I know how to find what I am looking for on the app stores	.539
		Master3	I do not like to browse, I like to go straight for what I want when I book a hotel	.538
		Auto1	I would use a hotel gamified application if I could control information I receive	.514
Socialising	5 Items	Social3	I want to use a hotel gamified application to get to know other people	-.841
		Social4	I would use a hotel gamified application to find new friends	-.827
		Social5	I would use a hotel gamified application because I prefer to socialise with others rather than be alone	-.819
		Social2	I want to find using a hotel gamified application a bonding experience	-.759
		Social1	I would use a hotel gamified application with my friends and family to socialise	-.684
Intention to use a hotel's mobile gamified application	7 Items	ITR4	I will consider a hotel gamified application to be my first choice for transactions in the future	-.852
		ITR3	I plan to continue using the hotel gamified application to book my hotel	-.848
		ITR5	It is likely that I will continue purchasing products (or services) from this application in the future	-.809
		ITR2	I will continuously book hotels at this hotel gamified application in the future	-.799
		ITU4	If I download a hotel gamified application in the next 30 days, I will use it	-.531
		ITR1	I will not change my holiday shopping application in the future	-.487
		ITU3	I would use the hotel services provided by the gamified application	-.456
Fun	4 Items	Fun3	Using a hotel gamified application should be fun and pleasant	.907
		Fun4	I have to find my hotel gamified experience interesting	.866
		Fun1	Using a hotel gamified application should be fun for its own sake	.785
		Fun5	I have to find my hotel gamified experience exciting	.750
Rewards/ Extrinsic Motives	6 Items	R4	I would use a hotel gamified application for expected rewards	-.808
		R1	I would use a hotel gamified application for tangible rewards (Discounts, Offers)	-.693
		R2	I would use a hotel gamified application for intangible rewards (Badges, Points)	-.693
		R5	I would use a hotel gamified application for the completion task rewards	-.692
		R3	I would use a hotel gamified application for the unexpected rewards	-.650
		R6	I would enjoy looking for discounts on a hotel gamified application	-.582
Perceived Risk	4 Items	Trust5	I am afraid that my private information will be used in an unwanted manner	.623
		Trust4	I rarely download applications I know nothing about	.597
		ITU1	I want to use the gamified application not because I will have to, but because I will want to	.595

		ITU2	I would use the hotel gamified application for gathering information for hotels	.474
Ease of Use	4 Items	EOU1	I want to be able to use a hotel gamified application without the help of an expert	-.808
		EOU2	I want to find it easy to learn how to use a hotel gamified application	-.790
		EOU3	I want it to be easy to use a hotel gamified application to find hotels that i want to book	-.759
		Innov5	I think I would use a hotel gamified application even if I did not know anyone who had done it before	-.421
Purpose	5 Items	Purpose5	The hotel gamified application has to be willing to help customers	.773
		Purpose4	The hotel gamified application has to show a sincere interest in solving customer problems	.746
		Purpose3	I would enjoy booking a hotel on a gamified application for my friends and family	.600
		Purpose2	I would feel good to book a hotel on the gamified application for the special people in my life	.561
		Purpose1	I would like shopping on the hotel gamified application for others, because when they feel good, I feel good	.470
Perceived Informativeness	5 Items	DF3	I would use a hotel gamified application if it provides me with up-to-date service information	-.848
		DF2	I would use a hotel gamified application if it provides me with up-to-date information	-.817
		DF1	I would use a hotel gamified application if it responds to my questions immediately	-.735
		Master1	I like to have a great deal of information before I buy	-.553
		Master2	I want to be shown lots of choices before I buy	-.532
Perceived Usefulness	4 Items	PU3	I want using a hotel gamified application to increase my shopping effectiveness	-.712
		PU4	I want using a hotel gamified application to improve my shopping performance	-.675
		PU2	I want using a hotel gamified application for booking to increase the productivity of my booking tasks	-.671
		PU5	I want to find a hotel gamified application useful	-.462

Research Hypotheses

As a result of merging factors, the research hypotheses have been updated.

H1 *Familiarity has a positive influence on the intention to use hotel gamified mobile applications.*

H2 *Socialising has a positive influence on the intention to use hotel gamified mobile applications.*

H3 *Fun has a positive influence on the intention to use hotel gamified mobile applications.*

H4 *Rewards have a positive influence on the intention to use hotel gamified mobile applications.*

H5 *Perceived Risk has a positive influence on the intention to use hotel gamified mobile applications.*

H6 *Perceived Ease of Use has a positive influence on the intention to use hotel gamified mobile applications.*

H7 *Purpose has a positive influence on the intention to use hotel gamified mobile applications.*

H8 *Perceived Informativeness has a positive influence on the intention to use hotel gamified mobile applications.*

H9 *Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.*

Reliability and correlation

Reliability

When deciding which items should remain and which should be removed, a reliability and correlation examination was conducted to check the data. In the case of reliability, each loaded factor was assessed by Cronbach's alpha measure. The table below presents the reliability test for each construct, showing that all of them are above the recommended value of 0.7, confirming that items in each factor were internally consistent.

Table 4. 11 Reliability for each Construct

			Number of Items	Reliability Cronbach's Alpha
1	Familiarity	Fam	5	.833
2	Socialising	Social	5	.950
3	Intention to use hotel's mobile gamified application	ITU	7	.915
4	Fun	Fun	4	.916
5	Rewards	Rew	6	.920
6	Perceived Risk	PR	4	.800
7	Ease of Use	EOU	4	.881
8	Purpose	Purpose	5	.892
9	Perceived Informativeness	PI	5	.872
10	Perceived Usefulness	PU	4	.901

Furthermore, the reliability has been checked between the constructs. The Cronbach's Alpha in this case is .919. The table below also shows that all the values are positive, indicating that the constructs are measuring the same underlying characteristics.

Table 4. 12 Inter-Construct Correlation Matrix

	Familiarity	Socialising	Intention to use hotels' mobile gamified	Fun	Rewards	Perceived Risk	Ease of Use	Purpose	Perceived Informativeness	Perceived Usefulness
Familiarity	1.000	.563	.640	.551	.547	.557	.661	.582	.671	.685
Socialising	.563	1.000	.565	.432	.611	.546	.516	.625	.429	.667
Intention to use hotels' mobile gamified application	.640	.565	1.000	.514	.541	.497	.561	.523	.570	.581
Fun	.551	.432	.514	1.000	.568	.493	.558	.462	.588	.468
Rewards	.547	.611	.541	.568	1.000	.633	.563	.670	.545	.665
Perceived Risk	.557	.546	.497	.493	.633	1.000	.517	.620	.508	.601
Ease of Use	.661	.516	.561	.558	.563	.517	1.000	.604	.618	.642
Purpose	.582	.625	.523	.462	.670	.620	.604	1.000	.541	.677
Perceived Informativeness	.671	.429	.570	.588	.545	.508	.618	.541	1.000	.607
Perceived Usefulness	.685	.667	.581	.468	.665	.601	.642	.677	.607	1.000

Correlation

The correlation between the variables are provided in the table 4.14 labelled Correlations. As the table shows, the relationship of the independent variables (Familiarity, Socialising, Fun, Rewards, Perceived Risk, Ease of Use, Purpose, Perceived Informativeness and Perceived Usefulness) with the independent variables (Intention to use hotels' mobile gamified application) is within the preferable standards of .3 and .7.

Table 4. 13 Correlation

		Intention to use hotels' mobile	Familiarity	Socialising	Fun	Rewards	Perceived Risk	Ease of Use	Purpose	Perceived Informativenes	Perceived Usefulness
Pearson Correlation	Intention to use hotel's mobile gamified application	1.000	.640	.565	.515	.540	.497	.559	.523	.568	.582
	Familiarity	.640	1.000	.562	.551	.546	.557	.661	.581	.669	.681
	Socialising	.565	.562	1.000	.432	.611	.545	.515	.625	.428	.667
	Fun	.515	.551	.432	1.000	.567	.493	.556	.462	.586	.468
	Rewards	.540	.546	.611	.567	1.000	.632	.563	.670	.545	.664
	Perceived Risk	.497	.557	.545	.493	.632	1.000	.515	.619	.506	.600
	Ease of Use	.559	.661	.515	.556	.563	.515	1.000	.602	.617	.637
	Purpose	.523	.581	.625	.462	.670	.619	.602	1.000	.541	.677
	Perceived Informativeness	.568	.669	.428	.586	.545	.506	.617	.541	1.000	.607
	Perceived Usefulness	.582	.681	.667	.468	.664	.600	.637	.677	.607	1.000

Multicollinearity

Collinearity diagnostics were also performed on the variables as part of the multiple regression procedure, in order to inspect problems with Multicollinearity that may not be evident in the correlation matrix. The table below (4.15) presents two values: Tolerance and VIF. Tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables, and VIF (Variance inflation factor) is the inverse of the Tolerance value (Pallant, 2013). In the case of Tolerance, if the value is very small (less than .10) it indicates that the multiple correlation with other variables is high, suggesting the possibility of Multicollinearity. In the case of VIF, values above 10 would be a concern, indicating Multicollinearity. The table below (4.15) reveals that all of the bivariate correlations were <0.530 for independent variables. Also, the VIF test (with Intention to use hotels' mobile gamified applications as a dependent variable) suggests the absence of Multicollinearity as all the results were above 1 and less than 5.

Table 4. 14 Multicollinearity

	Collinearity Statistics	
	Tolerance	VIF
Familiarity	.375	2.670
Socialising	.460	2.174
Fun	.523	1.913
Rewards	.383	2.608
Perceived Risk	.486	2.060
Ease Of Use	.430	2.324
Purpose	.393	2.546
Perceived Informativeness	.431	2.318
Perceived Usefulness	.328	3.050
Depended Variable: Intention to use hotels' mobile gamified applications		

Evaluating the model

Looking at the model summary the value given under the heading **R Square** reveals how much of the variance in the dependent variable (Intention to use a hotel's mobile gamified application) is explained by the model. In this case the number is .517. Expressed as a percentage, this means that the model explains 51.7% of the variance in Intention to use a hotel's mobile gamified application. It is also noticed that there is an **Adjusted R Square** value in the output. When a small sample is involved, the R square value in the sample tends to be a rather optimistic overestimation of the true value in the population (Pallant, 2013). The **Adjusted R Square** statistic 'corrects' this value to provide a better estimate of the true population value. In this case, and as the sample is considered large (over 760) both values are similar (Adjusted R Square .512), and therefore there is no need to report the Adjusted R square.

Table 4. 15 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719a	.517	.512	3.27558
a Predictors: (Constant), Perceived Usefulness, Fun, Trust, Socialising, Intrinsic Motives, Ease Of Use, Purpose, Rewards, Personalization				
b Dependent Variable: Intention to use hotels' mobile gamified applications				

To assess the statistical significance of the result, it is necessary to look at the ANOVA table. This tests the null hypothesis that multiple R in the population equals 0. The model in this case reaches statistical significance (Sig. = .000; this means p <.0005).

Table 4. 16 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.

Regression	8640.143	9	960.016	89.475	.000
Residual	8057.817	751	10.729		
Total	16697.961	760			

a Dependent Variable: Intention to use hotels' mobile gamified applications
b Predictors: (Constant), Perceived Usefulness, Fun, Trust, Socialising, Intrinsic Motives, Ease Of Use, Purpose, Rewards, Personalization

Evaluating each of the Independent Variables

The next step is to identify which of the variables included in the model contributed to the prediction of the Dependent Variable. To begin with, the value in the column Sig. (see table 4.18) needs to be checked to tell whether variables are making a statistically significant unique contribution to the equation. If the Sig. value is less than .05, the variable is making a significant unique contribution to the prediction of the dependent variable (Intention to use a hotel's mobile gamified application) (Pallant, 2013). However, if greater than .05, it could be concluded that the variable is not making a significant contribution to the prediction, probably due to the overlap with other independent variables in the model (Pallant, 2013). Table 17 below shows that five variables (Rewards, Perceived Risk, Ease of Use, Purpose and Perceived Usefulness) have scores greater than 0.05, and therefore are not making a significant unique contribution to the dependent variable, hence it was decided to be removed from the final model (Pallant, 2013).

Table 4. 17 Coefficients

Model	Standardized Coefficients Beta	Sig.	Correlations		
			Zero-order	Partial	Part
Familiarity	.258	.000	.640	.222	.158
Socialising	.205	.000	.565	.197	.139
Fun	.099	.005	.515	.103	.072
Rewards	.061	.135	.540	.055	.038
Perceived Risk	.025	.495	.497	.025	.017
Ease of Use	.072	.064	.559	.068	.047
Purpose	-.001	.986	.523	-.001	.000
Perceived Informativeness	.135	.000	.568	.127	.089
Perceived Usefulness	.039	.374	.582	.032	.023
Dependent Variable: Intention to use a hotel's mobile gamified application					

As the variables were removed, table (4.19) presents the new results of the variance in the dependent variable. Hence, the new **R Square** is .510. Expressed as a

250

Sensitivity: Internal

percentage, means that the model explains 51% of the variance in Intention to use a hotel's mobile gamified application.

Table 4. 18 New Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714a	.510	.507	3.29065
a Predictors: (Constant), Intrinsic Motives, Socialising, Fun, Personalization				
b Dependent Variable: Intention to use a hotel's mobile gamified application				

The next step is to compare the different variables and their contribution of each independent variable. Therefore, the standardised coefficients beta is presented to find out which beta value is the largest out of the remaining variables. In this case, the largest beta coefficient is .302, which is for Familiarity, meaning that the variable makes the strongest unique contribution to explain the dependent variable, when the variance explained by all other variables in the model is controlled for. The beta value for Socialising was slightly lower (.263), followed by Perceived Informativeness (.176) and Fun (.131). The last piece of information presented table 4.20, is the part of correlation coefficients. When this value squares it gives an indication of the contribution of that variable to the total R square (Pallant, 2013). In this case, Familiarity has a part correlation coefficient of $.201^2$ (.04) indicating that Familiarity uniquely explains 4% of the variance in Intention to use the hotel's mobile gamified application. Similarly, Socialising has a part correlation coefficient of $.214^2$ (.05), explaining 5% of the variance, Perceived Informativeness $.123^2$ (.02) explaining 2% of the variance, and Fun $.101^2$ (.01) explaining 1% of the variance.

Table 4. 19 Beta Coefficients

Model	Standardized Coefficients Beta	Sig.	Correlations		
			Zero-order	Partial	Part
Familiarity	.302	.000	.640	.276	.201
Socialising	.263	.000	.565	.293	.214
Fun	.131	.000	.515	.143	.101
Perceived Informativeness	.176	.000	.568	.173	.123
Dependent Variable: Intention to use a hotel's mobile gamified application					

The results of the analysis presented above show that the model as developed including the variables of Familiarity, Socialising, Fun and Perceived Informativeness explains 51% of the variance in Intention to use the hotel's mobile gamified application. Out of these four variables, Familiarity makes the largest unique contribution (beta = .302), followed by Socialising (beta = .263), Perceived Informativeness (beta = .176) and Fun (beta = .131).

Calculating the coefficient of determination

In this stage, it is checked how much variance the variables share and what is the coefficient of determination. To do so, square the r value and to convert it to 'percentage of variance' multiply by 100.

Table 4. 20 Variance

		(ITU)	(Fun)	(PI)	(Fam)	(Social)
Intention to use a hotel's mobile gamified application (ITU)	Pearson Correlation	1				
Fun (Fun)		.515	1			
Perceived Informativeness (PI)		.568	.586	1		
Familiarity (Fam)		.640	.551	.669	1	
Socialising (Social)		.565	.432	.428	.562	1

Following this formula, it is found that Fun helps to explain 26.5% of the variance, Perceived Informativeness helps to explain 32.3%, Familiarity helps to explain nearly 41% and Socialising helps to explain 32% of the variance in respondents' scores on the Intention to use the hotel's mobile gamified application scale.

4.2.3 Hypothesis testing

Table 4. 21 Model Hypothesis and testing

Hypotheses	Paths	Std Regression Weights (β)	Standard Error SE	p-value	Hypothesis Findings
H1	Fam ➔ IU	.258	.059	***	Supported
H2	Social ➔ IU	.205	.029	***	Supported
H3	Fun ➔ IU	.099	.059	.005	Supported
H4	Rew ➔ IU	.061	.042	.135	Not Supported
H5	PR ➔ IU	.025	.056	.495	Not Supported
H6	PEOU ➔ IU	.072	.063	.064	Not Supported
H7	Purp ➔ IU	-.001	.047	.986	Not Supported
H8	PI ➔ IU	.135	.059	***	Supported

H9	PU → IU	.039	.065	.374	Not Supported

The main objective of this phase was to investigate the factors influencing intention to use the hotel's gamified application. The model explains (R=.51) 51% of the hotel visitors' intention to use the technology. This study used a population of individuals with experience in chain hotels as hotel visitors and experience with mobile applications. This explains why the study was able to achieve such high variance in customers' usage intentions. The conceptual model suggests that there are four direct influences towards intention to use a hotel's mobile gamified application. These factors are Familiarity, Fun, Socialising and Perceived Informativeness.

These factors are Reward, Perceived Risk, Perceived Ease of Use, Purpose and Perceived Usefulness. These findings are discussed individually by looking specifically at the hypothesis.

Familiarity

H1 *Familiarity has a positive influence on the intention to use hotel gamified mobile applications.*

Out of the four factors of intention to use, familiarity was found to be the highest positive contributor. Hypothesis H1: Fam ➝ IU revealed a significant relationship between Fam and IU, with a beta coefficient of (β=.258, p < 0.000) indicating a positive contribution of intention to use the hotel's gamified application. This suggests that the most important factor that would motivate hotel visitors to use the technology is familiarity. The more the users feel familiar with the technology when they perform their booking arrangements, the more willing they are to continue using the technology. Several studies have seen the relationship of familiarity with trust in e-commerce (Gefen, 2000; Gefen and Straub, 2004; Mittendorf, 2018); there is a limited connection of familiarity with intention to use. The importance of this finding demonstrates that familiarity has a direct positive effect towards intention to use the hotel's gamified application. Furthermore, it shows greater significance compared with other factors such as Fun, PI and Socialising. This result suggests that increasing the level of familiarity whilst using the application is the most important factor for hotel visitors.

In this study, mastery and autonomy were combined into a single construct (familiarity) during the Exploratory Factor Analysis. The familiarity construct became more comprehensive as a definition containing items that are related with website recognition, personalization and visual aspects of the application, rather than items related to autonomy, performance and process. These items fit the description of familiarity provided by Gefen (2000) and Gefen and Straub (2004). They explored previous familiarity scales and then defined familiarity in the context of e-commerce as an "understanding often based on previous experiences, interactions and learning of what, why, where and when others do what they do".

The current study demonstrates that the strongest predictor of intention to use a hotel's gamified application is familiarity. The more familiar the users are with the technology and the mechanics, the higher the level of motivation to use the technology.

Socialising

H2 *Socialising has a positive influence on the intention to use hotel gamified mobile applications.*

This section refers to the relationship between socialising and intention to use the hotel's gamified application. Hypothesis H2: Social $\rightarrow$ IU reveal a significant relationship between Social and IU, with a beta coefficient of (β=.205, p < 0.000) indicating a positive contribution of intention to use the hotel's gamified application. This suggests that being able to socialise with other users through the application would motivate hotel visitors to use the technology. The more the users are able to socialise with others when they are using the application, the more willing they are to continue using it. The findings agree with the literature in a term called social influence. A study by Hamari and Koivisto (2015) in the context of gamification has shown mixed results, as social influence showed a positive relationship with attitude, but not a positive relationship with continuance use. Therefore, this research adds to the small body of literature that studies the link between socialising or social influence and intention to use technology, by confirming that there is significant positive influence on the intention to use hotel gamified mobile applications.

Fun

H3 *Fun has a positive influence on the intention to use hotel gamified mobile applications.*

The relationship between fun and intention to use the hotel's gamified application was tested. Hypothesis H3: Fun ➝ IU was significantly valid (β=.099, p < 0.005). The higher the level of fun a user has with the website interaction, the more they are motivated to continuously use the technology. This finding supports previous research in the area of accepting technology even though it was named as perceived enjoyment. Fun was used as a dimension of enjoyment rather than as a concept in itself (Tasci and Ko, 2016). Enjoyment can be defined as the fun or pleasure derived from performing activities either actively or passively, regardless of the quality of the performance attained (Kim and Preis, 2016; Gurtner, Reinhardt and Soyez, 2014). Studies by Chen (2017), Lee et al. (2018), Rouibah, Lowry and Hwang (2016), Natarajan, Balasubramanian and Kasilngam (2017), Natarajan, Balasubramanian and Kasilngam (2018), Agrebik and Jallais (2015), and Gurtner, Reinhardt and Soyez (2014) have all examined the relationship between perceived enjoyment and intention to use an information system, with positive results. This means that the higher the level of fun and enjoyment felt, the higher the level of intention to use the hotel's gamified application by the hotel visitor.

Reward

H4 *Rewards have a positive influence on the intention to use hotel gamified mobile applications.*

This study was unable to demonstrate a positive relationship between perceived Ease of Use and Intention to use the hotel's gamified application. Hypothesis H4: PEOU ➝ IU was not supported with a beta value of (β=.025, p < 0.495). Thus, the study reveals that an easy to use hotel gamified application does not have an effect on the intention to use this technology. The results disagree with the majority of the literature. Previous researches such as Smith et al. (2011), Chinomona (2013), Moslehpour (2018), Chen and Tsai (2017), Chang, Hajiyev and Su (2017), Venkatesh (2000) and Lu et al. (2015) showed that perceived ease of use has a positive effect on technology intention. Furthermore, research by Yang, Asaad and Dwivedi (2017) found a positive

effect between perceived ease of use and customers' intention to engage in gamification, and research from Yoo, et al (2017) found a positive effect on perceived ease of use and intention to use Gamified Smart Tourism Applications.

However, these results agree with some recent previous research such as Moslehpour, Amri and Promprasorn (2017), who found that there is not a significant influence of PEOU on IU smartphone applications. The results of their study showed that PEOU has no significant influence on IU of smartphone app Thai users. It means that to Thai respondents, whether or not an application is easy to use, it will not significantly influence their intention to download and use it (Moslehpour, Amri and Promprasorn (2017). Similarly, the results of this study showed that PEOU has no significant influence on IU hotels' gamified applications, meaning that hotel visitors, whether or not the application is easy to use, will not be significantly influenced in their intention to use it. Therefore, this research adds to the body of literature that studies PEOU and IU, by confirming that there is not any influence or effect.

An explanation for this may come from the fact that participants do not have experience with the technology. For example, participants in a previous phase mentioned: *"I find it easy even though I have not used it. It looks easy"* (Interview, J). Other participants agreed, saying: *"well yes it looks easy. I mean it gives me the chance to set up my requests and then give me the option. I have not actually used it in real life, but it looks easy to use"* (Interview, S). The ambiguous results of the phases lead to the conclusion that further exploration of the construct needs to be made.

Perceived Risk

H5 *Perceived Risk has a positive influence on the intention to use hotel gamified mobile applications.*

This study was unable to demonstrate a positive relationship between perceived Risk and Intention to use the hotel's gamified application. Hypothesis H5: PR ➞ IU was not supported with a beta value of (β=.025, p < .495). Accordingly, the study reveals that a risky hotel's gamified application does not have an effect on the intention to use the technology.

Perceived Risk is a construct merged from Trust and two items of ITU during the Exploratory Factor Analysis. Perceived Risk became more comprehensive as a

definition, containing items related to trust, confidence and assurance in addition to items that are related to independence and self-determination. These items have been used by Chopdar and Sivakumar (2019), to fit the definition of Perceived Risk in the context of m-commerce. Chopdar and Sivakumar (2019) reveal that risk perceptions of consumers negatively influence their intention to shop over mobile and act as a barrier towards the regular use of mobile shopping. Privacy and security concerns were treated as a single construct and found negative influence on trust (Chopdar and Sivakumar, 2019). The aim of this construct was to investigate the importance of trust towards the technology and whether their perception of trust would influence their intention to use the hotel's gamified application. In the field of m-commerce it was found that trust is an important determinant, influencing a consumer's intention to use the internet to conduct online transactions, and more generally the lack of consumer trust may create an impediment to the adoption of any form of electronic payment system including m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016).

The results of this study contradict the literature review. Studies in similar contexts found a positive effect of trust towards intention to use technology. For example, the study by Agag and El Masry (2016) found consumers' trust has a direct and positive influence on their intention to purchase travel online; Chimona (2013) found that trust in mobile social software will have a positive effect on the users' intention to use the mobile social software; Amaro and Duarte (2015) found that trust in online travel shopping has a positive influence on intentions to purchase travel online; Phonthanukitithaworn, Sellitto and Fong (2016) found that trust has a positive effect on the behavioural intention to adopt m-payment services; Ponte, Carvajal-Trujillo and Escobar-Rodriguez (2015) found that trust positively affects the online purchase intention; and a study by Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez (2012) found that trust has a positive effect on intention to use Travel 2.0 websites.

However, the results agree with studies by Susanto, Chang and Ha (2016) and Chemingui and Lallouna (2013), when both showed a negative impact of trust towards continuance use intention for mobile financial services. Their explanation for the un-supported relationship is due to the importance of traditional barriers or to the launch phase of services (MobiFlouss) that were not sufficiently widespread, and consequently this can also be explained by the respondents' unfamiliarity with such

services. Participants in the first phase seem to agree with the importance of being familiar with the brand in order to trust the technology. For example, participants said: *"well I trust it just based on the fact that this application is actually being made directly from a big brand like this. I would not trust it if it was made by a third party I think"* (Interview, F), and: *"yes, I do (trust it) as long as it is promoted by the hotel and it is recommended to do it. I would probably trust them, but it also depends from the hotel. For example, it is important to be a well-known brand"* (Interview, I). This result shows the importance of familiarity towards trust.

These results confirm findings in previous studies which indicated that trust will not always have a positive influence on service use because trust may positively affect short-term relationships but not long-term relationships (Susanto, Chang and Ha, 2016). Consequently, this research adds to the body of literature that studies the link between PR and IU, by confirming that there is no influence or effect. Yet the misunderstanding of trust with familiarity leads to the conclusion that further clarification needs to be made in regards to the relationship of trust towards intention to use a hotel's gamified application.

Perceived Ease of Use

H6 *Perceived Ease of Use has a positive influence on the intention to use hotel gamified mobile applications.*

It was found that perceived Ease of Use has no significant relationship with IU. Hypothesis H6: PEOU ➡ IU was not supported with a beta value of (β=.072, p < 0.064). Respectively, the study reveals that an easy to use hotel's gamified application does not have an effect on the intention to use it. The results of this study disagree with the literature review. It is suggested that the clearer and more understandable online shopping sites are the more attractive for potential customers they would be (Moslehpour, Amri and Promprasorn, 2017)). Perceived ease of use is a construct tied to an individual's assessment of the effort involved in the process of using the system (Venkatesh, 2000) and it is a prominent construct in tourism information systems research (Ozturk et al, 2016).

The results of this study were not consistent with the original TAM theory (Davis et al, 1989). Previous studies using the TAM theory showed empirical results with perceived

ease of use influencing intention to use technology. Studies such as Smith et al. (2011), Chinomona (2013), Moslehpour (2018), Chen and Tsai (2017), Chang, Hajiyev and Su (2017), Venkatesh (2000) and Lu et al. (2015) proved that perceived ease of use has a positive effect on technology intention. In the context of gamification, research by Yang, Asaad and Dwivedi (2017) found a positive effect between perceived ease of use and customers' intention to engage in gamification, and research from Yoo, et al (2017) found a positive effect on perceived ease of use and intention to use Gamified Smart Tourism Applications. On the other hand, research by Moslehpour, Amri and Promprasorn (2017) on factors influencing intention to use of smartphone applications in Thailand has shown a negative impact of perceived ease of use and intention to use smartphones which agrees with the findings of this phase. In this point, it should be noted that in the current model, even though the hypothesis is not supported the rejection is very weak (β=.072, p < 0.064).

An explanation for this unsupported result may come from the fact that participants have no personal experience with the technology, and therefore their answers are based on theory. Participants in the first phase actually raised their concern with regard to the relationship of the technology being easy to use and their intention on using it. For example, participants argued: *"I cannot really tell you how practical it is, but it looks really simple"* (Interview, H) and: *"I have not actually used it in real life but it looks easy to use"* (Interview, S). Furthermore, other participants mentioned that even though it looks easy, it might take some time and effort at the beginning to do the initial set up: *"I think it makes it easier to book a hotel like this, I mean I could sit down and quickly do it […] I mean after you set up. I think the first time you use it might be slightly harder in order to get your avatar sorted, but as long as you save the app, you always got it […] once you have done the initial process (sign up)"* (Interview, B). Based on the first phase results and the weak rejection of the construct in the second phase, it is easy to assume that the construct needs further investigation in order to clarify whether it is a motive to use the hotel's gamified application or not.

Purpose

H7 *Purpose has a positive influence on the intention to use hotel gamified mobile applications.*

This study was unable to demonstrate a positive relationship between purpose and Intention to Use hotels' gamified applications. Hypothesis H7: Purp ⟶ IU was not supported with a beta value of (β=-.001, p < 0.986). According to Pink (2009), purpose is the force to do an activity in the service of something with a bigger meaning. Similarly, altruism represents an individual's willingness to benefit the wellbeing of others on a voluntary basis without the anticipation of any form of return (Chen, Fan and Tsai, 2013; Cheng and Chen, 2011; Teng, Wu and Liu, 2015). Thus, the finding shows that a hotel's gamified application with the main idea the mechanic of altruism (purpose) does not have an effect on the intention to use the technology.

The finding of this phase actually agrees with the first phase as participants did not mention the element of altruism as a motive to use the hotel's gamified application. The addition of the construct to the conceptual framework has been based on Marczewski's gamification application users' types. Virtual tourist communities in which tourists exchange opinions and experiences have been around for many years, but lately an expansion of 2.0 technologies has been evident in the tourism industry (Parra-Lopez et al 2011). Before and during vacation trips, tourists use the internet to obtain information about the trips, share their knowledge and compare services related to the trip (Parra-Lopez et al 2011). Since altruism is defined as the principle or practice of concern for others, it was considered a motive for why visitors post information and comments on social network sites (Kim, Lee and Bonn, 2016), hence needing further explanation.

However, the results of this study disagree with the literature. Empirical hospitality research has shown that altruism is an important motivator for many hotel firms that have been involved in environmental schemes, such as Teng, Wu and Liu's (2015) study, showing that altruism has a significant and positive influence on customers' intention to choose to visit a green hotel. In the case of Web 2.0 tools, Iglesias-Pradas, Hernandez-Garcia and Fernandez-Cardador (2017) mention that altruism of the participants has a positive influence on the production and distribution of content using wikis, showing that altruism has a positive effect on blog adoption for knowledge sharing purposes. Still the results of this study reveal that hotel gamified application users may continue using the technology even if they do not seek to do it for altruistic purposes. Hence, the results of this study adds to the small body of literature that

studies the relationship between Purpose and IU, by confirming that there is no influence or effect.

Perceived Informativeness

H8 *Perceived Informativeness has a positive influence on the intention to use hotel gamified mobile applications.*

The perceived Informativeness of a hotel's gamified application is believed to contribute towards the hotel visitor's intention to use the technology. Hypothesis H8: PI ➔ IU supported this relationship. The empirical results revealed that the hypothesis is supported with β=.135, p < 0.000. The importance of this finding demonstrates that perceived Informativeness is shown as less significant compared to familiarity and socialising, but of higher importance as a motive to use the technology than fun.

In this study, Direct Feedback and Mastery were combined into a single construct (Perceived Informativeness) during the Exploratory Factor Analysis. This construct became more comprehensive as the definition contained items that related to interactivity, accuracy and information in addition to items that are related to knowledge and understanding. These items fit the description of Informativeness provided by Lin (2007) in the context of e-commerce. Perceived Informativeness is defined as *"the ability to inform customers about product alternatives, including information timeliness, accuracy, usefulness and completeness"*.

In previous literature, there are not many models that link perceived Informativeness with gamification. However, in the context of e-commerce, studies have shown positive effect of Perceived Informativeness on trust (Gao and Wu, 2010), customer satisfaction (Lin, 2007), intention to use (Gao and Wu, 2010), and reuse intention (Li and Mao, 2015). The results of this phase further agree with the previous phase as participants agree on the importance of being informed about the offers and services provided by the brand as well as the interaction provided by the technology. For example, a participant said: *"I like this one, because in this application it makes you want to use it. I mean it tells you about offers all the time. I have direct contact with them and direct feedback because it tracks whatever I do any time and it tells me what I can earn from the activities"* (Interview, E).

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These results suggest that increasing the level of customer information whilst using the application is a very important mechanic for hotel visitors. The more users feel informed about the offers and services provided about the hotel brand, the readier they are to continue using the application.

Perceived Usefulness

H9 *Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.*

It was found that perceived usefulness has no significant relationship with intention to use hotel gamified mobile applications. The hypothesis H9: PU ➡ IU with (β=.039, $p < 0.374$) was not significant, indicating that when a hotel's gamified application is perceived as a useful way of making a booking, it does not generate the motive of intention to use the technology. This finding contradicts previous research in similar contexts. Previous studies by Natarajan, Balasubramanian and Kasilngam (2017), Izquierdo-Yusta, Renny, Guritno and Siringoringo (2013), Martınez-Ruiz and Alvarez-Herranz (2014), Wang (2011) Ashraf, Thongpapanl and Spyropoulou (2016) and Sohn, (2017) have shown a positive impact of perceived usefulness on intention to use mobile shopping applications or intention to shop online. In addition, a study by Kim and Preis (2016) has shown a positive outcome between perceived usefulness and intention to use mobile devices for tourism-related activities. Furthermore, these findings contradict with previous research in the gamification context. For example, research by Yang, Asaad and Dwivedi (2017) found a positive effect between perceived usefulness and customers' intention to engage in gamification, and research from Yoo, et al (2017) found a positive effect on intention to use Gamified Smart Tourism Applications.

However, this finding does agree with some previous research as well. Research by Cheema et al (2013) and Ashraf, Thongpapanl and Auh (2014), showed that Perceived Usefulness has no direct effect on consumers' intention to shop online. Cheema et al (2013) argues that the important and surprising result of their study is the insignificant relationship of perceived usefulness with online shopping intentions. It means that the behavioural intentions of the sample members towards online shopping were not due to its usefulness, but they were attracted towards internet shopping for other reasons (Cheema et al, 2013). Similarly, the surprising finding in

this research indicates that the behavioural intentions of the sample members towards a hotel's gamified application is not due its usefulness, but other reasons.

One reason for the unsupported relationship could be the meaning of usefulness itself. For example, participants in the previous phase mention that the technology is considered useful since it provides them with information with regard to the offers of the brand and the knowledge of the surroundings of the hotel. For example, a participant mentioned: *"well the most important thing that I find in this application is the fact that you can see the nearby hotels and that the application encourages you to stay in a specific one by providing you with a discount"* (Interview, I). Another participant said: *"well the fact that the application gives me the opportunity to choose between multiple budget hotels in order to compare prices and have a look at which one would be the best for me. I find this important"* (Interview, T). The results of the previous phase showed that usefulness is highly interconnected with Informativeness; a construct that has been accepted. The misunderstanding between the two constructs led to the conclusion that it needs further clarification.

Following the above findings, a revision of the model is presented in Figure 4.3, having deleted all the insignificant paths of the hypothesis model.

Figure 4. 3 Model after evaluation
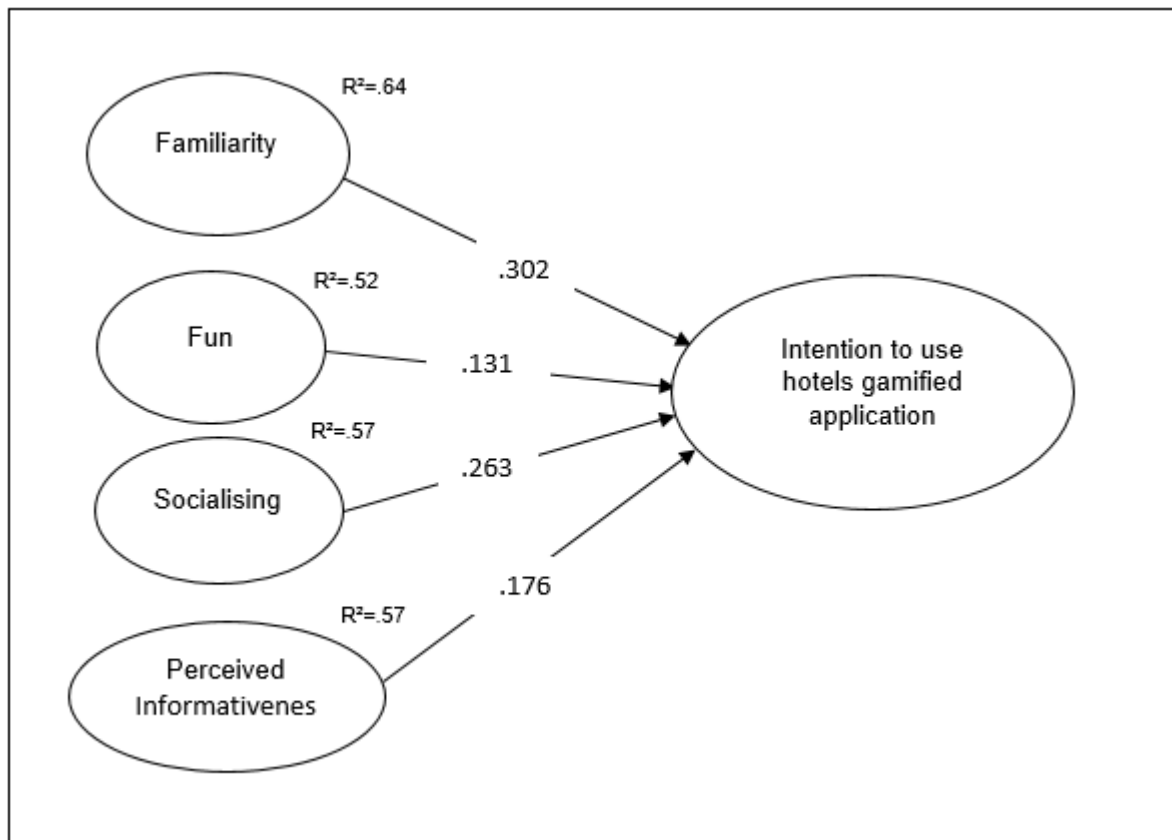
4.2 Summary

The 60 items of the scale were subjected to principal component analysis (PCA) using SPSS 24. Prior to performing PCA, the suitability of the data for the factor analysis was assessed. Inspection of the correlation revealed the presence of many coefficients of .4 and above. The Kaiser-Meyer-Olkin value was .958 exceeding the value of .6 and Bartlett's Test of Sphericity reached statistical significance (Sig.000), supporting the factorability of the correlation matrix. Principal component analysis revealed the presence of ten components with Eigenvalue exceeding 1, explaining 44.4%, 6%, 5.4%, 3.3%, 3.2%, 2.5%, 2.4%, 2.1%, 1.8% and 1.8% of the variance respectively. An inspection of the Screeplot revealed a break after the tenth component. Using Catell's (1966) scree test, it was decided to retain ten components for further investigation.

The ten-component solution initially explained a total of 72.83% of the variance, with Component 1 contributing 44.4%, Component 2 contributing 6%, Component 3 contributing 5.4%, Component 4 3.3%, Component 5 contributing 3.2%, Component

6 contributing 2.5%, Component 7 contributing 2.4%, Component 8 contributing 2.1%, Component 9 contributing 1.8% and Component 10 contributing 1.8%. To aid in the interpretation of these ten components an oblimin rotation was performed. The rotated solution showed that ten items (PU1; Fun2; Trust1, Trust3, Trust2; Innov2, Innov3, Innov1; EOU4, EOU5) were not loading and one item (ITR1) cross-loading. In this stage it was decided that the ten items not loading should be removed. Based on the earlier findings, it was decided to perform the EFA again, but this time the number of factors was forced to be loaded as ten factors rather than based on the Eigenvalue in SPSS. In this point, only one item (Innov4) did not provide loading, hence it was deleted from the solution. The rotated solution revealed the presence of simple structure, with all components showing a number of strong loadings, but few variables merging. This variable has been renamed. As a result of EFA a new hypothesis framework was developed.

The model in this research was tested with a survey using a web-based questionnaire involving 763 respondents. The empirical findings indicate the important role of Familiarity (β=.258) in influencing hotel visitors' intention to use hotel gamified applications. Both Socialising (β=.205) and Perceived Innovativeness (β=.135) are confirmed as significant factors affecting intention to use hotel gamified applications. Furthermore, Fun was found to be the least significant factor (β=.099) influencing intention to use hotel gamified applications. Surprisingly, five factors (Perceived Usefulness, Perceived Ease of Use, Reward, Perceived Risk and Purpose) have not been supported. Hence, it is considered useful to contact another round of data collection to further investigate and support the results of the quantitative questionnaire survey exploring levels of behavioural intention and the gap between them amongst hotel visitors.

4.3 Section 3: Qualitative Data Analysis (Phase 3)

Introduction

This section presents the results of semi-structured interviews that were conducted with the primary aim of understanding hotel visitors' motives when using a hotel application and understanding what fun means for them. The qualitative data analysis in this research further explores hotel visitors' behaviour towards hotels' mobile gamified applications. The purpose of the qualitative analysis is to further investigate and support the results of the quantitative questionnaire survey which explored levels of behavioural intention and the gap between them amongst hotel visitors.

Following the results of phase two, the semi-structured interview design was developed. Utilizing the semi-structured interview approach allows flexibility in the order of questions depending on the flow of the conversation, to address the specific issues of the research and further exploration of the research question and objectives (Saunders, Lewis and Thornhill, 2012). Furthermore, Bryman (2016) adds that qualitative interviewing tends to be less structured, with greatest interest in the interviewees' point of view, consequently leading to a flexible response to the direction in which interviewees takes the interview, and perhaps adjusting the emphases in the research as a result of significant issues emerging in the course of interviews.

Focus-group interviews were considered, however the choice of semi-structured interviews was decided due to the time given and cost of conducting group interviews, as traveling might have been needed. Further considerations arose since different demographic mixes (such as age) might result in the influence of participants' responses and affect the reliability of the results. Also, the use of visual material might result in participants influencing one another on certain pages, losing valuable information.

Objectives of the Interviews

The semi-structured interviews were used to complement the questionnaires, exploring or explaining, in depth, any additional information and details relating to individual's responses; hence it aims to enhance and validate the questionnaires' findings. The following three objectives were explored through qualitative analysis:

- To understand the reasons behind the rejection of the five constructs
- To understand the key motives that contribute towards intention to use a hotel's mobile gamified application as they are seen by hotel visitors
- To understand hotel visitors' perception of fun when using a hotel's mobile gamified application

The nature of qualitative data has further implications for their analysis, due to their large volume and complex nature (Saunders, Lewis and Thornhill, 2012). There are two different approaches to the qualitative analysis: deductive approach and inductive approach. This research took the inductive approach as the analysis here is not theory based, like application of the Technology Acceptance Model which would be a deductive approach, but it seeks to build up a theory that is adequately grounded in the data (Saunders, Lewis and Thornhill, 2012).

The sample

Semi-structured interviews were conducted with hotel visitors under the condition that they have experience in mobile applications. For these two criteria to be ensured, a snowball sampling was utilised, allowing the researcher to initially sample a small group of people relevant to the research questions and these sampled participants propose other participants, who have had characteristics relevant to the research question. The face-to-face semi-structured interviews were conducted over the period of two months between January 2019 and February 2019.

One of the problems that qualitative research faces is in regards to the number of people that should be interviewed before theoretical saturation has been achieved (Bryman, 2016). It is recommended continuing to collect qualitative data (such as semi-structured interviews) until data saturation is reached; when the additional data collected provides little if any new information or suggests new themes (Saunders, Lewis and Thornhill, 2012). For the purposes of this phase 25 interviews have been conducted. The researcher secured 19 interviews before no new themes emerged from interviewees' responses, but six further interviews were carried out in case new information arose.

Instrument Design

The interviews involved three parts. The first part included generic discussion around the visual material similar to phase one, even though this time there was no need for the participants to have experience in games. The aim was to obtain information about the characteristics of a gamified application in the hospitality industry and their opinion based on the visual material.

The second part included questions about the constructs used in the questionnaire. The constructs divided into two lists; list one included the constructs being supported and list two included the constructs not being supported in phase two. Participants were not aware about this information. The aim was to obtain hotel visitors' opinions about each construct (supported or not) and whether they find each one of them important, and at what point of the journey is more likely that element will influence their decision in using a hotel's gamified application in the hospitality industry.

List 1	List 2
Familiarity	Perceived Usefulness
Socialising	Ease of Use
Perceived Informativeness	Rewards
Fun	Perceived Risk
	Purpose (Altruism)

In the third part, participants were asked questions relating to the meaning of the element of fun. The researcher took into consideration the findings from phase one as arose from the interviews with the gamers. The aim was to understand the meaning of the element of fun for a hotel gamified application in the hospitality industry, this time from the perspective of a hotel visitor.

Interview Results

The discussion of the interview results will be divided into two parts: the first part looks at motives of hotel visitors to use a hotel gamified application, and the second is the meaning of fun when using a hotel gamified application.

4.3.1 Motives to use a hotel gamified application

The analysis of the third phase reveals primary findings about the main motives influencing the intention to use hotels' gamified applications. In this phase it was aimed to get an in-depth understanding of hotel visitors' explanation of the constructs as have emerged from phase two and explore why certain constructs have been rejected. The first general finding shows that a complex application such as a hotel gamified application has different purposes at different stages. Utilizing a hotel's gamified application before visiting the hotel promotes behaviour with utilitarian characteristics as it takes into consideration budget elements, payment procedures, and decision making. On the other hand, utilizing the application during the stayi at the hotel promotes behaviour with hedonic characteristics as it promotes the element of fun and enjoyment.

For example, it was pointed out that: *"The way I think of it list one has more elements associated with behaviour being at the hotel. You are in holiday mood and you are using the application to have some extra fun or find out about services provided in the hotel, where the second list has more functional elements that you want when making the booking"* (Interview, 25). Similarly, another hotel visitor said that: *"…I would use it before going to the hotel for booking the room, but also find information in regards to what is there for me to do and sort out a way of plan for my holidays. During my visit there I would use it to interact with the hotel in case there is an issue and so on, but also to achieve a few tasks not only for the reward but for the entertainment as well"* (Interview, 10).

As pointed out in this phase, most of the participants would use this application for the utilitarian aspect of it before going to the hotel for the functionality that it offers. Conversely, using the application during the stay at the hotel would serve hedonic purposes, through the tasks and gameplay it offers. As a result of this phase it shows a clarification in regards to the results of phase two. It is shown that the constructs being rejected in the previous phase do not lack in importance towards the motives in using a hotel's gamified application, but they appear in different stage of usage of the application.

To further clarify the difference in usage, participants were asked whether they see the application as a marketing tool or a game. If the participants were seeing this

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application as marketing tool, then they would be more likely identify the utilitarian aspects of the technology, and if the participants highlighted the game elements of the application they would more likely to point out the hedonic characteristics of the technology. However, there were no clear results on whether this technology is seen as a marketing tool or a game, but it further shows the different behaviour it promotes at different stages of usage.

Nearly all participants stated that they are seeing this application as a marketing tool before going to the hotel and as game while they are in the hotel. One of the participants stated: *"it is more a marketing tool before doing the booking, or before being at the hotel and then is a game as soon as you got in the hotel and you want to start achieving tasks and exploring the area"* (Interview, 8). Another participant said: *"…while being in the hotel I would use it for the gaming element. Because it is fun. But this is strictly during my staying the hotel, because if I am in a relaxed mode. If I am not at the hotel I would treat it as a marketing tool, mainly because of the different purposes I would use it for"* (Interview, 5).

Further clarification with regard to the mechanic that makes the application look like a game during the visit at the hotel has proved to be tasks and the willingness of individuals to follow the tasks. Most of the participants stated their enjoyment around the mechanic of tasks, but only when this behaviour is attached to the stage during the stay at the hotel. A participant mentioned that: *"it is mostly a game when you are thinking of doing the tasks, and more like a marketing tool when you thinking of making a booking or a reservation"* (Interview, 19). This shows that tasks help making the application look like a game when they are including activities achievable during users' stay at the hotel. Furthermore, another participant mentioned that: "*The only time that I would use it without taking tasks into consideration is before visiting the hotel either at the booking time or if I want to get information from the hotel such as how close to the airport they are"* (Interview, 24). This shows that hotel visitors are seeing the application as game during their staying at the hotel. Conversely, the application is seen as a marketing tool while hotel visitors are doing a booking, hence before arriving at the hotel. Moreover, it appears that the element promoting the gaming aspect in the application is the willingness of users to follow tasks at different stages of usage.

After clarifying that both lists are important in using a hotel's gamified application, it was attempted to get an in-depth understanding of hotel visitors' explanations of the constructs as have emerged from phase two. Each construct from both lists was discussed to get visitors' point of view and the value it offers.

List 1	List 2
Familiarity	Perceived Usefulness
Socialising	Ease of Use
Perceived Informativeness	Rewards
Fun	Perceived Risk
	Purpose (Altruism)

Familiarity

Familiarity is an important feature that should be included in hotels' gamified applications. One of the participants stated: *"I like the idea of familiarity because I see that the application is talking to me in first person and explains to me every single task which makes it more enjoyable"* (Interview, 1). This construct shows hedonic value as it is associated with behaviour close to personal likes of individuals. Another participant mentioned: *"the application knows my preferences too because I like doing certain things and it rewards me appropriately"* (Interview, 12). Familiarity also promotes its hedonic meaning when it is linked with games. For example, a participant commented: *"familiarity is also saving me time as the more I am using the application the easier it will be to me to do the things I want, just like a game gets easier the more you play it. Despite the difficulty the higher you level up. The gameplay experience is still familiar to your regardless"* (Interview, 14).

Even though this research has showed a relationship of familiarity with hedonic elements such as the gameplay experience, previous literature focused on the relationship of familiarity with trust in the context of e-commerce. For example, Gefen (2000) studies familiarity and trust in the context of e-commerce, the results showing that even though trust and familiarity are different, trust is significantly affected by familiarity. Familiarity is a prerequisite of trust because it creates a framework and understanding of the environment and the trusted party, within which the expectations of trust can be explicated (Gefen, 2000). According to Gefen and Straub (2004) this construct is also antecedent of trust because it enables people to place their trust

beliefs about the future into a context which clarifies the specifics of what they expect. Gefen and Straub (2004) further add that trust is built through successful previous interactions with the trusted party and the knowledge gained about its trustworthiness and what to expect of it. Also, *"familiarity also sounds interesting because I like it to be easy and the more familiar you are with something the easier it gets"* (Interview 8). This shows that the regular use of the technology and the familiarity created would lead to easiness to use, but also further trust in the system. Previous researches support the effect of familiarity to trust in the context of e-commerce (Gefen and Straub, 2004) and C2C (Mittendorf, 2018). Gefen (2000) has also shown an indirect positive effect of familiarity toward intention to purchase through trust.

Even though several studies as presented have seen the relationship of familiarity with trust in the e-commerce, there is a limited connection of familiarity with intention to use. Familiarity appears a complex understanding, often based on previous interactions, experiences and learning of others (Zhang, Ghorbani and Cohen, 2007). Based on the literature familiarity is a broad construct where knowledge about the organization can be resourced from sources as varied as individuals' prior visits to the destination, the media, word of mouth or publicity (Artigas, Vilches-Montero and Yrigoyen, 2015). Zhang, Ghorbani and Cohen, in their 2007 study, recognized that familiarity is affected by prior experience, repeated exposure, level of forgetting and forgetting rate to the properties of multi-agent e-commerce systems. Indeed, participants recognized that: *"familiarity is something that comes from the regular use of an application or a website. The more you use a website the easier it gets to you to find what you are looking for. This is something that games do successfully with the first levels which are mainly introductive. They help you to get skills so when the difficult levels come you are ready. If you want to build something close to a game familiarity is important"* (Interview, 21). Experience is also often conceptualized as familiarity. For example, in their study of customer familiarity and its effects on satisfaction and dissatisfaction, Soderlund (2002) measures a customer's familiarity with an airline based on the number of times the customer has made trips with this airline. When service performance was high, high-familiarity customers expressed a higher level of satisfaction and behavioural intentions than did fewer familiar customers (Soderlund, 2002). Similarly, participants argued *"familiarity helps in order*

to make things clear and understandable so it does help in order to make it fun" (Interview 20).

The results of this research showed the influence of familiarity is especially strong on people's intentions to use a hotel's gamified application. People tend to trust the familiar, and familiarity obtained through frequent exposure has the potential to engender trust. Repeated exposure to a company name, logo, design, and services reminds customers of the company and its business, and leads to familiarity (Siau and Nah, 2018). Moreover, participants argued that the gameplay experience provided by this technology further provides familiarity. This showed the positive results of the construct of familiarity towards intention to use the hotel's gamified application.

Socialising

Socialising is an important feature that should be included in a hotel's gamified application used during the visit of hotel visitors in the hotel. Participants said: *"The socialising aspect is important in the point I could ask others about what can I see nearby. Where they have been and what they liked. Is mostly related with my during staying activity"* (Interview, 3). Also, another participant mentions: *"…socialising should be considered as fun when I am in the hotel because I am in the mood for speaking with others anyway"* (Interview, 19). This also shows the hedonic value that the element of socialising promotes to the application. More participants agreed with socialising linking to fun. For example, *"for me there is a special attention to the element of socialising because I am a social person anyway so if it was attached with the application it makes it so much more fun"* (Interview, 7).

However, participants also stated the importance of socialising with others in order to get information about the destination. For example, participants argued: *"I mean socialising could lead to the element of fun but also to the perceived informativeness. For example, you can socialise for having fun meeting people and so on, but on the other hand you can also socialise and find information about the hotel from people who are already there or used some of the services recently. It looks like a TripAdvisor within the application"* (Interview, 24). Even though, this is behaviour associated with the stage before going to the hotel, participants stated that would only use the mechanic when they are in the hotel to find others opinion about a service provided by the hotel while being on site.

The findings agree with the literature in a term called social influence. The participants' statements here highlight the importance of socialising with others to find information and opinions about the brand. Social influence occurs when an individual's behaviour is influenced by those around them, and it relates to being frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao, Chen and Wang, 2016). Social influence comes in two forms: subjective norms and informational social influence (Harn et al, 2014). Subjective norms refer to the perceived social pressure on an individual to perform or not to perform the behaviour, regardless of their beliefs and attitudes toward the behaviour (Harn et al, 2014; Jeng and Tzeng, 2012). On the other hand, informational social group influence is the process in which people determine the successful experience of their social group with an innovation before deciding whether or not to proceed with adoption (Harn et al, 2014). Therefore, the concept of informational social influence describes an influence to accept information obtained from another as evidence about reality (Harn et al, 2014). Considering the two forms of social influence, the definition of informational group influence comes closer to participants' arguments. For example, participants argued, *"I can ask others about their experience in a certain hotel. It is much more realistic than the advertisements that hotels put out there"* (Interview, 9).

In a similar study by Harn et al (2014) informational social influence has been used as a moderating effect on factors influencing purchase intention towards online group buying. However, the results of the study showed that it was not supported, implying that there is no moderating effect by informational social influence on online purchasing. Perhaps, consumers do not rely on other sources of information when making an online purchase (Harn et al, 2014). The results of Harn et al (2014) do not agree with the results of this study, with a possible explanation the fact that the informational social influence has been used as a moderator and not an independent variable. In the case of intention to use hotels' gamified applications, users agreed on being influenced by others' opinions or past experiences with the brand's services before making a final decision of purchasing.

The results agree with previous research in similar contexts. Studies have shown a positive effect of social influence on intention to use a free voluntary service (Watjatrakul, 2013), continuous intention in an e-tutoring system (Hsu, Shiue and Sheng, 2016) and on customers' brand attitude in the marketing context (Yang, Asaad

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and Dwivedi, 2017). With regard to the gamification context, a study by Hamari and Koivisto (2015) has shown mixed results as social influence is positively associated with attitude, but is not positively associated with continuance use. However, attitude showed a positive effect on continuance intention, proving an indirect positive effect of social influence towards continuance intention through attitude.

The concept of informational social influence describes an influence to accept information obtained from another as evidence about reality (Harn et al, 2014). In the same terms participants agreed that they would use a hotel's gamified application to obtain information about a brand or brand's services before making a final decision to make the purchase. This shows that social influence and socialising is a motive for individuals towards intention to use the technology, highlighting the importance of the feature when designing a hotel's gamified application.

Perceived Informativeness

Informativeness is an important feature that should be included in hotels' gamified applications. Participants argued: *"the perceived informativeness is also important due to the fact that the application itself informs me about certain things in regards to my staying there or the booking process"* (Interview, 3). Information quality is a measure of value perceived by a customer of the output produced by a website, with characteristics such as being up-to-date, accurate, usefulness, complete and its presentation to be viewed as important determinants of perceived information quality (Lin, 2007). The participants agreed that these characteristics would be very important for them when deciding to use the application either to make a booking or find information about the services provided by the hotel during their stay at the destination. This shows that perceived informativeness can both affect a utilitarian behaviour such as the booking process, or hedonic behaviour such as enjoyment of the stay at the destination. It is found though that before going to the hotel appears to have utilitarian usage, while being at the hotel has hedonic meaning. *"Perceived informativeness is something different but still important because it answers my questions around my holidays before they even arise if that makes sense. It seems that the application is being proactive trying to explain what is going on in the hotel"* (Interview, 20). The results of this study agree with the literature review. Information is a major benefit a consumer expects to gain from engaging in an exchange with any media (Gao and

Wu, 2010). A participant said: *"finally, perceived informativeness is an element that makes the application useful. It is good to know the rules and regulations of the hotel in advance. It saves time and effort"* (Interview, 23).

Perceived informativeness has received attention in the context of e-commerce. Security mechanisms for financial transactions and unambiguous estimation of delivery times would most likely enhance a consumer's perception of a web vendor's competence and predictability (Gao and Wu, 2010). In the technology of hotel gamified applications, a participant said: *"In the case of perceived informativeness I like the fact that the application is informing me directly about the regulations of the hotel in case of a cancellation for example and so on, so instead of having to go online and look what will happen or what are the steps or even instead of calling the hotel there is a form of interactivity there"* (Interview, 1). This shows the importance of perceived informativeness as a motive to use the technology. Informativeness is likely to help customers compare products, or make informed purchases (Lin, 2007). In the context of e-commerce, studies have shown a positive effect of Perceived informativeness on trust (Gao and Wu, 2010), customer satisfaction (Lin, 2007), intention to use (Gao and Wu, 2010), and reuse intention (Li and Mao, 2015).

Perceived informativeness has showed an effect on the enjoyment of staying at the hotel. Participants argued that it is important for the technology to provide details with regard to the services and functions of the hotel. In the literature review, informativeness describes users' feelings that they are informed about a particular product or service, such as its technical capabilities and the likely experience associated with using that product or service (Li and Mao, 2015). Indeed, a hotel visitor mentions: *"it is important to me being able to contact the hotel through the application and find out about the services provided. This is something that other people won't be able to tell you, at least not most of them because they might have never used that service"* (Interview, 19). Furthermore, a participant mentions the importance of perceived informativeness when combined with hedonic elements of the application such as the avatar. *"I like the perceived informativeness because it will let me know the procedure to do certain things such as cancelling a room or maybe changing the date of my staying. It is another way for the company to create that personalisation I mentioned earlier. Especially if those rules and regulations pop in from this avatar here in the sense of she is speaking to me even better"* (Interview, 12). This point of view

agrees with the literature. Li and Mao (2015) argued that informativeness includes an awareness of what will be provided, how user expectations will be met and any foreseeable time-related issues, such as when benefits or problems can be expected. Being able to deliver users' expectations would contribute towards satisfaction, hence the enjoyment of using the technology.

Perceived Enjoyment/Fun

From the first list the construct of fun has shown great importance overall. The element of fun is an important feature that should be included in hotels' gamified applications used during the visit of hotel visitors in the hotel. Most of the participants declared that the element of fun is a strong motive in the continuation of using this technology. For example, a participant said: *"the element of fun is what makes this application unique and more interesting than other current reward programs that I am already aware of* (Interview, 17). Moreover, a participant adds: *"the fact that it looks so much like a game and that it is full of colours and everything going on makes it so much fun and enjoyable"* (Interview, 8). This shows the importance of the gaming element that the application can provide, reinforcing the hedonic behaviour of the user. Another participant said: *"yes it includes elements that make it fun such as the nice colours and the tasks so it is enjoyable. I like the fact that it speaks to me and it is something that more and more brands do nowadays"* (Interview, 21). Another participant mentions: *"oh yeah definitely. Even the fact that it looks so much like a game makes it fun and entertaining. It almost makes you forget that there is a hotel brand behind it"* (Interview, 19).

Additional attention is taken in the mechanic of the avatar, with participants arguing that it promotes the fun element and it makes the tasks more enjoyable. For example, a participant states: *"I see promoting that sense of fun such as the avatar that I can dress up and make look like me or someone I want to be. Also, the person popping in and giving me the tasks also incorporate the element of fun"* (Interview, 24). Another participant in the same point added: *"fun is what makes all of the previous interesting. I mean the fact that this avatar pops in and helps me to do certain things is making things more enjoyable"* (Interview, 12).

The motive of fun seems to have greater importance during the visit of the hotel visitor at the hotel since it is the point where they are more willing to follow the tasks. A

participant states: *"it is fun and makes you relax a bit more. This is the gaming aspect. I would say that the gaming characteristics are more applicable or attractive to say better during the visit at the hotel because the tasks will be interesting to do. Also I am more in the mood of being more active in this sort of thing"* (Interview, 10). Another participant adds more details of how the technology can influence the behaviour through the multiplayer opportunity that the technology incorporates. *"Maybe something I could do with friends as a group rather than a single behaviour. For me when it comes down to playing games and traveling also means some kind of group activity. For example, if I am going on holidays I would go with either my partner or best friend so if it is a game allows as playing together rather than separate that makes it even more fun"* (Interview, 7). This shows the importance of the motive of fun for this technology for users while being at the hotel.

The results agree with previous researches in similar contexts. Studies have shown a positive effect of perceived enjoyment on intention to use mobile shopping applications (Natarajan, Balasubramanian and Kasilngam, 2017; Natarajan, Balasubramanian and Kasilingam, 2018; Gurtner, Reinhardt and Soyez, 2014), intention to adopt online payment systems (Rouibah, Lowry and Hwang, 2016), intention to use mobile phone for purchases (Agrebik and Jallais, 2015) and intention to purchase tablet computer applications (Lee et al, 2018). Additionally in the context of gamification a study by Yoo et al. (2017) showed a positive effect of perceived enjoyment on intention to use Gamified Smart Tourism Applications; and a study by Yang, Asaad and Dwivedi (2017) showed a positive effect on customers' intention to engage in gamification. However, the results of this study do not agree with research by Rodrigues, Oliveira and Costa (2016) on how gamification and social cues influence bank customers to use gamified e-business applications, which showed a negative effect on the intention to use them. This could be a result of the different context that gamified application is applied such as the banking services.

Finally, participants agreed that the mechanics promoting fun in the technology are the elements differentiating this technology from current websites. For example, a participant said: *"overall though the most important out of these four characteristics is the element of fun you mentioned last because this is the element that will get me to come back and use the application. Otherwise it is just an application just like the booking.com we mentioned earlier. If this application can provide a fun element to me*

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then it gets my interest furthermore" (Interview, 3). The results support the literature review. People tend to engage in activities they find enjoyable and enjoyment is a predictor of users' attitudes toward technology usage (Kim and Preis, 2016). Perceived enjoyment will play a strong role in explaining the variance of the intention to use mobile commerce (Natarajan, Balasubramanian and Kasilngam, 2017). Consumers of smartphones who experienced pleasure or joy in using a technology are more likely to adopt the technology and to use it more extensively than others (Natarajan, Balasubramanian and Kasilingam, 2018).

With regard to game-like systems and other systems used for entertainment purposes, the enjoyment of using the system is shown to be an important factor affecting use intentions (Hamari and Koivisto, 2015). One important motive for playing games is to seek pleasure; players who perceive enjoyment in games are more likely to play more (Yang, Asaad and Dwivedi, 2017). Similarly, gamified application users will show similar behaviour because of the characteristics that the technology promotes. In addition, it has been found that the motive of perceived enjoyment is one of the biggest determinants of mobile games adoption, and since mobile gaming has been closely associated with gamified applications as they promote similar activities in terms of interaction, information retrieval and processing (Natarajan, Balasubramanian and Kasilingam, 2018), it showed that perceived enjoyment influences the behaviour of a hotel visitor towards intention to use a hotel gamified application.

Perceived Usefulness

The motive of perceived usefulness is an important feature that should be included in hotels' gamified applications used before the visit of hotel visitors in the hotel. Most of the participants argued about the importance of the technology being useful and how it would influence their behaviour. For example, a participant said: *"overall I would say that being useful is the most important element I would look for in this application. I do have a lot of applications on my phone but unless they are useful they are not there"* (Interview, 5). Another participant agreed: *"being useful of course is a main advantage, everything I download I do it for the usefulness of the application"* (Interview, 1). This shows the importance of the motive of perceived usefulness for hotel visitors when they would download this technology. Indeed, a participant mentioned: *"when it comes to usefulness everything else we have already talked about including the element of*

reward makes the application useful. Maybe usefulness is a bit more important at the first stages of the activity; I mean when I do the booking and I want the hotel to be close to the centre of the town or at least close to where I want to be (for example to the beach if I am going somewhere specifically for this). Anyway, in general it has to be useful" (Interview, 8). This shows how participants associated the motive of perceived usefulness with utilitarian activities before visiting the hotel.

The finding of this phase agrees with the literature. Indeed, Cheema, et al (2013) stated that perceived usefulness is considered as the utilitarian factor that affects online shopping. Users are more likely to continue using the Internet to make purchases when they perceive that the medium is useful and when consumers already have purchased successfully online, they are more likely to express a strong intention to repurchase on the internet (Izquierdo-Yusta, Martınez-Ruiz and Alvarez-Herranz, 2014). Accordingly, previous studies by Natarajan, Balasubramanian and Kasilngam (2017), Izquierdo-Yusta, Renny, Guritno and Siringoringo (2013), Martınez-Ruiz and Alvarez-Herranz (2014), Wang (2011), Ashraf, Thongpapanl and Spyropoulou (2016) and Sohn, (2017) have shown a positive impact of perceived usefulness on intention to use mobile shopping applications and intention to shop online.

Furthermore, individuals shape behavioural intentions towards e-shopping, based largely on a cognitive evaluation of how it will improve their shopping performance (Al-maghrabi et al 2011). Further research by Hamari and Koivisto (2015) in the context of gamification services indicates that utilitarian benefits are positively associated with attitude and continued use. In particular, the perceived usefulness is positively associated with attitude, as well as indirectly associated with continued use through attitude, hence since a hotel's gamified application is seen as e-shopping technology from the participants, it gains further value if it is considered as useful. As gamification describes a number of design principles, processes and systems used to influence, engage and motivate individuals, groups and communities to drive behaviours (intentions) or generate the desired effect (Yang, Asaad and Dwivedi, 2017), it appears that adding usefulness in this application would positively influence hotel visitors' behaviour towards using the technology.

When taken into further exploration perceived usefulness appears too generic in relation with other constructs. For example, participants argued *"I do not get the*

element of perceived usefulness to be honest. It is very generic. The fact that I can do certain activities easier than before gives it a sense of usefulness. As well as the fact that I can get the information I am looking for either directly from the hotel or others also make it useful so yeah, I want it to be useful but I think I have already explained it" (Interview, 7). Another participant said: *"in regards to the application being useful then I could say that it is combined with the other element of rewards. If the offers are high enough or let's say they represent the amount of money or effort I have put into this gaming experience then it is automatically becoming useful for me because it is saving me money"* (Interview, 2). This shows that perceived usefulness is seen as an important motive to use a hotel's gamified application; however, constructs such as reward, perceived informativeness, ease of use and trust contribute towards participants' understanding of the construct. For example, participants said: *"perceived informativeness contributes towards the application being useful"* (Interview, 9). Also, *"the application being easy and trustworthy makes it useful. Or the element of reward contributes towards to making the application useful"* (Interview, 10), and lastly: *"if the application is easy to use and rewarding then obviously it is seen as useful to me because it is saving me time and money"* (Interview, 14). This shows that these constructs contribute towards the meaning of usefulness in relation to the technology.

The results seem to agree with the literature review. Perceived ease of use has been empirically verified by many studies as a predictor of perceived usefulness (Lim and Ting, 2012). For example, researches by Lim and Ting (2012) and Shin (2004) have shown the significant positive effect of perceived ease of use on perceived usefulness; this is consistent with the TAM. Further research has shown that constructs such as perceived enjoyment and trust affect perceived influence in the context of e-shopping. Research by Ha and Stoel (2008) and Lim, Lim and Heinrichs (2008) in the context of consumer acceptance of e-shopping has shown that perceived usefulness is significantly influenced by trust, ease of use and enjoyment.

Ease of Use

The motive of ease of use is an important feature that should be included in hotels' gamified applications used before the visit of hotel visitors in the hotel. For example, participants argued *"the fact that it is easy to use is also a very important aspect because it is time efficient"* (Interview, 2). Another participant agreed, saying: *"being*

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easy saves me time and for the same reasons as familiarity is equally important" (Interview, 19). This shows how easiness of use contributes towards intention to use hotels' gamified applications. It also shows how it is associated with saving time which is important in this behaviour. Also, being easy is associated with the fact that this application is not seen as a game, but as a marketing tool instead. For example, one participant said: *"I mean ease of use and perceived usefulness are absolutely important but in the end of the day every application has to be unless we are talking about games, but this is different"* (Interview, 18). This shows that behaviours related with before visiting the hotel should be easy and fast to perform as at that point the application is a marketing tool.

Participants also agreed that easiness of use is very important, especially for activities related before visiting the hotel, such as making a booking and finding the right destination. For example, participants said: *"I value ease of use a lot for using this application on a regular basis. It would be frustrating if an application like this takes time to use. When you want to make a booking for holidays you want it to be quick and move on with your daily routine. The process of finding the right place and time takes time itself so if the application itself is not easy to function it makes things more time consuming which is never good thing"* (Interview, 25). Another participant agreed: *"being easy to use always helps to make a decision to use either an application or a website. I don't want to spend a lot of time doing these activities. I always find it stressful when I book holidays because I am visiting websites trying to compare prices and destinations […] in general it is time consuming, so on top of that if the application is frustrating to use as well, then I would not bother to use it. I would delete as soon as frustrates me"* (Interview, 21). This also highlights the fact that this technology should be easy to use when a hotel visitor decides to make the booking with the brand, with a few buttons to be the most appropriate. Indeed, a participant mentioned: *"it has to be easy to use. The way I see it, it has to do with graphics and tasks so I have to be able to do these things with the press of a button for example"* (Interview, 3).

The results of this research agree with the literature review. Perceived ease of use is a construct tied to an individual's assessment of the effort involved in the process of using the system (Venkatesh, 2000) and it is a prominent construct in tourism information systems research (Ozturk et al, 2016). The less effort a technology requires, the more tendency and intention consumers will feel to use it (Aren, S. et al

2013). It is also suggested that the clearer and more understandable online shopping sites are (which require less mental effort of their users to make a purchase), the more attractive for potential customers (than more complicated) they would be (Moslehpour, Amri and Promprasorn, 2017). Since perceived ease of use positively affects the intention to use smartphone apps (Ozturk et al, 2016), it is found that the more the users anticipate effortless use of a hotel gamified application, the more likely they are to use the application.

The results agree with previous research in similar contexts. Studies have shown a positive effect of perceived ease of use on intention to use technology (Venkatesh, 2000; Chen and Tsai, 2017), intention to use online shopping sites (Smith et al, 2011), repurchase intention at the same e-shop (Aren et al, 2013) and e-Purchase intention (Moslehpour, 2018). Furthermore, a study by Lu et al. (2015) in the travel industry has shown a positive effect of perceived ease of use on intention to use a travel application. Finally, in the context of the gamification study by Yang, Asaad and Dwivedi (2017), it showed a positive effect on customers' intention to engage in gamification, and a study by Yoo, et al. (2017) showed a positive effect on intention to use Gamified Smart Tourism Applications.

Rewards

The motive of reward (or extrinsic motive) is an important feature that should be included in hotels' gamified applications used before the visit of hotel visitors in the hotel. Actually, it has shown importance in downloading the application in the first place. A participant said: *"the reward is important as well especially as the first incentive to download the application. This is how people will start thinking the application as the first choice for choosing this hotel brand over another in the future as they see that the money spent so far is acknowledged and we get something back"* (Interview, 17). Furthermore, another participant added: *"the rewards are important for me in the continuation of using this application or preferring this brand instead of another, [...] I mean if the application is giving me a future discount for participating in some events or spending money in the facilities for future trips then yes I would consider them again in the future which means I would use the application again"* (Interview, 12). This highlights the importance of rewarding the hotel visitors through the application with tangible rewards such as future discounts and offers. It further

shows that as a motive it influences hotel visitors' behaviour not only before visiting the hotel but even before downloading the application, as they are looking to be rewarded from the application for spending money on the brand. The results of this phase agree with the literature review as prior research suggests that extrinsic and intrinsic motivators can be the key determinants of system-use behaviour (Wu and Lu, 2013). From a motivational perspective, rewards are among the most widely accepted motivations (Chang, Hsu and Wu, 2015). Individuals will engage in behaviour that they perceive will eventually lead to valued rewards (Chang, Hsu and Wu, 2015). Outcomes and rewards can be tangible, such as monetary bonus, certificate, prize and award, or intangible such as a skill that is perceived to be more useful or needed in the future or that improves one's special standing (Hansen, and Levin, 2016).

Other participants argued that the feature of rewards (or extrinsic motive) will influence their future behaviour towards the brand. For example, a participant mentions: *"it is always an important factor for using this application or coming back to the hotel. For example, if in the back of my head I know that by spending money in this application in some point I might be rewarded with a night in one of these hotels for free immediately I am giving this application an advantage"* (Interview, 3). This shows that the extrinsic motive of reward will have a positive impact towards intention to use the application, but also towards creating a customer relationship with the hotel visitor. Moreover, the feature of reward shows influence towards the sales of the brand through the application, as hotel visitors seek to gain future benefits from spending their money through the application. A participant said: *"it is very important the money I have spent in this application or in this brand to say better, to be acknowledged for future purchases. The more money I have spent the bigger the future discount has to be"* (Interview, 9). These statements highlight the importance of the rewards in creating a positive relationship between the hotel visitor and the brand, but it also highlights the influence of the rewards towards the sales of the brand through the application. Little research has been done on the significance of rewards towards intention to use, with the exception of studies by Lai (2009), showing that rewards will have a positive effect on intention to use Knowledge Management Systems, and Wang and Lai (2014) showing that rewards will have a positive effect on intention to reuse the Knowledge Management Systems, but there are researches showing the relationship between extrinsic motivators towards intention to use technology. Rewards have also been

used as a moderator in determining the impact of organizational commitment on the lecturers' job satisfaction (Fathorrahman, 2017), showing a positive effect. Relevant studies on extrinsic motives showed positive effects of the construct on intention to use social media (Hansen and Levin, 2016), and utilitarian systems (Wu and Lu, 2013). Extrinsic motives have also shown a positive effect on behaviour intention on mobile services (Ho, 2012), utilitarian systems (Wu and Lu, 2013) and use of computers in the workplace (Fagan, Neil and Wooldridge, 2008).

Another interesting finding is the fact that hotel visitors see the reward as a marketing tool. All participants agreed that the reward is the feature highly connected with utilitarian behaviour. For example, participants said: *"the reward is a critical concept for my overall experience. It is here that I draw the line for this application from being a game to a marketing tool. If the reward is not good enough to justify my time and money spent here the gameplay and fun experience is not enough to bring me back in here"* (Interview, 23). Other participants said *"the element of reward is also very important when using this application because it is still an application meant to sell products and services and this is what I am buying in the end, so being rewarded with something (bonus or discounts) makes it more valuable"* (Interview, 4) and *"in the end of the day I am spending money in this brand so I would appreciate a future payback as a recognition for my loyalty"* (Interview, 7). This shows the connection that the reward has with utilitarian behaviour as hotel visitors seek to have tangible rewards from using the technology. The users are seeing the application as a marketing tool when it comes to collecting the reward which highlights the connection that extrinsic motives have with utilitarian behaviour. Indeed, Hung et al (2011) suggested that there are three extrinsic motivators (economic reward, reputation feedback and reciprocity). The tangible rewards refer to material or monetary incentives that have substantial cash value, such as pay or fringe benefits, and intangible refer to a form of psychological income such as a feeling of belonging or friendships on the job (Chang, Hsu and Wu, 2015). Economic reward is the tangible reward, and reputation feedback and lastly reciprocity the intangible. The behaviour is no longer performed because it is interesting or fun; instead, it is carried out in pursuit of external rewards (Wu and Lu, 2013). Thus, there is a connection between the reward and the utilitarian behaviour. Both the literature review and participants agree that the addition of rewards in the system is promoting the utilitarian behaviour of the technology.

Finally, participants mentioned that they enjoyed the different way that the application is promoting the reward. For example, a participant said: *"I like the reward system which is not the old boring system where you just log in a website or an application make a booking and move on there is more into it. It looks like I am participating in something. I would actually bother to spend some time to learn how it works"* (Interview, 8). Another participant agreed: *"I like it because it promotes a sense of interactivity towards the reward which is always engaging. It goes beyond that boring marketing where you are sent emails with offers which I never read to be honest, or collecting points from different airlines which again there is nothing to increase my commitment to the brand"* (Interview, 20). This shows the importance of promoting the reward through a unique and interactive way such as the game mechanics for the success of the relationship between the hotel visitor and the brand. A participant actually highlighted that: *"if logging in daily means more points, therefore more chances to get a reward I would spend some time in doing it"* (Interview, 16).

The hospitality industry introduced loyalty programs, frequent-flyer programs and repeat customer programs, becoming common practices for customer-relationship management (Xie et al, 2015). These programs are activities that offer incentives (rewards) to customers, based on evidence of loyalty (purchase frequency or amounts). The goal of such reward programs is to develop a strong base of return customers who maintain loyalty to a particular business and thus secure its market share (Xie et al, 2015). The results of this research agree on the importance of the reward in such programmes. For example, participants mentioned: *"the reward is very important in using this application. It is actually a critical concept for my overall experience, because if I just want to have some fun I would play a game, but this is not just a game"* (Interview, 5). Loyalty programmes comprise integrated systems of marketing actions and communications that aim to increase loyalty, repeat buying and switching costs by providing economical, hedonist, informational, functional and sociological or relational rewards (Meyer-Waarden, Benavent and Casteran, 2013). This shows the importance of rewards for a marketing tool. As individuals see a hotel's gamified application as such it is important for the brand to maintain a sustainable rewarding system for the user in order to influence future decisions. However, the findings of this phase have shown that the users are more likely to be influenced by an interactive task-based reward system rather than a points-collection system. Hence

it is very important when designing this technology to incorporate game mechanics such as tasks when promoting services.

Perceived Risk

Finally, perceived risk is an important feature that should be taken into consideration when designing hotels' gamified applications. Indeed, perceived risk has been linked with the application being trustworthy before downloading the technology. For example, a participant argued: *"I want it to be trustworthy if that's what you mean. I am generally afraid of viruses when it comes down to downloading applications. I will look at people's reviews before downloading and if it has good reviews then yes I would do it myself. I do care about people's opinions"* (Interview, 6). Another participant added: *"perceived risk is mostly applicable to before the visit behaviour because in this stage it is where I am spending most of my money, in regards to my holiday's budget. So it has to be trustworthy otherwise I wouldn't use it for any reason. This is however something that goes away depending on the power and recognition of the brand"* (Interview, 19). More participants agreed on the importance of perceived risk, highlighting that a technology which requires uploading personal information such as ID and bank accounts has to be trustworthy in the first place before looking into further details. Participants said *"firstly it has to provide that element of being safe to upload private information such as bank account information and then everything else follows"* (Interview, 4) and *"every technology like this has to be trustworthy because it has to do with personal information such as my bank account or ID so it has to be trustworthy just like every other one"* (Interview, 17).

Taking into consideration the participants' arguments, it appears that when talking about the feature of perceived risk participants mainly highlighted the importance of the trust element. For example, participants said *"perceived risk is the number one in regards to using this application. I want to be able to trust this application, because I am sharing valuable information such as ID and most importantly things like bank accounts and financial details"* (Interview, 9). Accordingly, the definition of trust in the TAM was the interpersonal trust between consumers and sales providers or websites (Dieck et al 2017). A further definition of trust is the belief that one party will reliably keep its word or promise and fulfil its obligations in an exchange relationship (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012; Chemingui and Lallouna,

2013; Agag and El Masry, 2016). In the e-commerce field, several previous studies have confirmed the positive effect of trust in online services (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). Studies have shown the positive effect of trust on use intention for the channel in the banking services (Dimitriadis and Kyrezis, 2010), on the users' intention to use the mobile social software (Chimona, 2013) and on the behavioural intention to adopt m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016).

In the field of tourism and e-commerce this relationship has also been analysed and the conclusion has been reached that the influence is significant and positive (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015). For example, it has been found that the higher the level of trust in a virtual community, the greater the intention to share information and accept the information provided by other members of the virtual community (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012). Studies have shown a positive effect of trust on use intention for Travel 2.0 websites (Munoz-Leiva, Hernandez-Mendez and Sanchez-Fernandez, 2012), and travel online purchase intention (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015; Amaro, and Duarte, 2015; Agag and El Masry, 2016). This proves that if consumers have trust in an online seller, they expend less effort on searching for information about the online seller and on executing the online transaction (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015), decreasing also fears about opportunistic behaviour (Chemingui and Lallouna, 2013).

Furthermore, in the field of m-commerce it has been found that trust was an important determinant influencing a consumer's intention to use the internet to conduct online transactions and more generally the lack of consumer trust may create an impediment to the adoption of any form of electronic payment system including m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016). Considering that a hotel's gamified application is an m-commerce tool the results of this study further highlight the importance of promoting trustworthiness when designing this technology.

When looking into the feature of perceived risk in further detail it has been identified the importance of the brand towards promoting the element of trust. Most of the participants agreed that the more recognized the brand is the more willing they are to trust the application. Participants agreed, saying: *"even though I am experienced with*

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gaming applications and shopping applications I am always sceptical when it comes to add personal information in there. It has to be a brand that promotes trust" (Interview, 21), *"Yes it has to be trustworthy if that's what you mean by perceived risk. Otherwise, I wouldn't download it. I would actually be more willing to download this application if it belongs to a recognised brand rather than a medium size brand because there is a sense of trust there. They wouldn't risk to put their name behind this application unless it is safe for me to use"* (Interview, 8) and *"it takes me back to the point that this application might be more attractive for a recognised brand because you know that a brand like that would not allow their name to be attached with something not trustworthy"* (Interview, 24).

The findings of this research agree with the literature as lodging operators have turned their attention to branding, because brand names operate as a "shorthand" for quality by giving the guest important information about the product/service sight unseen (O'Neill and Mattila, 2004). Brand exists across all industries, ranging from product branding to services branding (Sumaco, Imrie and Hussain, 2014). It is crucial for both marketing practices and the operation of the service company (Hu, Ma and Kim, 2018). Olsen et al (2004) argue that in the mainstream marketing area brands are made up of marketing methods, which in turn influence consumer perceptions of products and services. Participants agreed with this statement: *"perceived risk is also important because I am still a bit afraid of uploading my bank information in a mobile application because you never know who is behind it which makes me believe that a higher branding would make my decision to upload this information easier"* (Interview, 13). This shows that the higher the branding the more likely the user will be encouraged to trust the technology and submit payment information.

Trust in websites plays an important role in e-commerce, because consumers are unlikely to shop online if they do not trust the seller's website on which they are shopping (Ponte, Carvajal-Trujillo and Escobar-Rodriguez, 2015; Amaro and Duarte, 2015). The successful branding development of a chain of hotels involves more than simply adding rooms and properties under the chain's name (Cai and Hobson, 2004). There are many aspects of branding that a hotel brand must deal with; from visible factors (i.e. brand name, physical features, etc.) and invisible factors (i.e. the service itself) (Sumaco, Imrie and Hussain, 2014). One of the challenges facing a globalising hotel industry is ensuring good marketing practices in terms of developing a clear

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brand message for hotels (Cai and Hobson, 2004). It is in this point that a hotel's gamified application will promote the branding of the hotel as a new technology.

Purpose (Altruism)

The last construct taken into further exploration in phase three was the motive of purpose (altruism). Phase two showed that this construct is not supported through the questionnaires, and phase three showed that indeed this element does not show importance for hotel visitors when using a hotel's gamified application; however it is seen as a good addition if everything else is there. Participants agreed that this technology is not seen as a gift card. For example, participants said: *"I can't see this application as a gift card, but it is good to be there"* (Interview, 24). More participants agreed saying *"if this application was already downloaded on my phone and being used then possibly I would use some of the rewards for friends and family. But that's about it. I would not download it or use it just to share gifts to friends"* (Interview, 5) and *"I think booking a weekend for the people you care about is a good idea but I would not download this application to make gifts to friends. If this is an additional element it is more than welcome"* (Interview, 20). This shows that the results of phase three agree with the second phase as the construct of purpose does not influence intention to use hotels' gamified applications. It only has value when every other motive is existing.

Altruism represents an individual's willingness to benefit the wellbeing of others on a voluntary basis without the anticipation of any form of return (Chen, Fan and Tsai, 2013; Cheng and Chen, 2011; Teng, Wu and Liu, 2015). Direct altruism occurs when an individual helps a person who has helped them, whereas indirect altruism occurs when individuals help those who help others (Kim, Lee and Bonn, 2016). In general, altruistic behaviour in social media manifests itself through knowledge sharing (Kim, Lee and Bonn, 2016).The results of this phase showed that individuals do not see a hotel's gamified application as a gift card, hence it appears that the motive of altruism is not enough to encourage intention to use a hotel's gamified application. For example, a participant said: *"I would not download and use an application like that just to make gifts to friends. I would say that it is the icing on the cake"* (Interview, 1). The results of this phase further support the results of the second phase, where the construct of purpose has been rejected.

However, the results of both phases do not agree with the literature review, as empirical hospitality research has shown that altruism is an important motivator for many hotel firms that have been involved in environmental schemes (Teng, Wu and Liu, 2015). In many cases, individuals help others whether or not they get anything in return, by providing help and achieving a sense of satisfaction from the action itself (Hung et al. 2011). In this point, participants admitted that they would use the application to get information about the brand and the services provided. For example, participants agreed, saying: "*the application itself informs me about certain things in regards to my staying there or the booking process, but I can also speak with other people and find out about this information*" (Interview, 25). This shows that participants would use the application to find information from hotel visitors who have been there already. Nonetheless, this does not mean that they would leave feedback to influence others. In fact, people can obtain abundant information and knowledge from communities, but there is no guarantee that they will share their knowledge without expecting a return (Chang and Chuang, 2011). Consequently, there is no proof that users would use the application to leave feedback to the application to help others, even though they would use the technology themselves for receiving this kind of information.

Generally, it has been agreed by participants that the application is not seen as an instrument of altruism. For example, participants said: "*I like the idea that I can book a weekend for a friend through the application but I can do it anyway with a phone call*" (Interview, 8). Another participant agreed: "*the purpose is not that important to me, there are other ways to make a gift to friends rather than following an application*" (Interview, 9). This shows that the motive of purpose is not sufficient to influence their decision on using the application, hence the results of this study do not agree with the previous literature.

4.3.2 Hotel visitors' perception of fun when using a hotel's mobile gamified application

The analysis of the third phase reveals the meaning of fun for hotel visitors when they use this technology. Generic finding of this phase with regard to the meaning of fun, but also the importance of the fun element towards using this technology, is the avatar mechanic and its importance in promoting the fun experience. Participants agree that receiving the tasks through the avatar promotes interactivity, and therefore a fun

experience. For example, a participant said, *"being interactive also is something that promotes the element of fun […] the fact that the avatar pops in giving me a task and then rewarding me for achieving that target makes it fun and it actually differentiates this application from any other application I know"* (Interview, 21). Another participant added, *"to be honest the way I see it and explaining the element of fun probably fun gets even more important in using this application. It gets more interesting and enjoyable to use especially on site"* (Interview, 4). This shows the contribution of the avatar on making the technology more fun, but it also highlights its importance in differentiating this technology from previous marketing strategies. Furthermore it has become clearer that the fun element is more important when using the application at the tourism destination than before or after.

However, it has been clarified by participants that even though they enjoy the fun implementation in the technology they would not behave as gamers, but as tourists. For example, participants agreed: *"I see myself as a tourist and not a gamer"* (Interview, 16). This becomes more important when considering the tasks promoted to the individual. For instance, a participant explained: *"in this application it might be harder to achieve implementing fun because there are other factors to take into consideration such as the fact that I am on holidays so I don't want to get out of my routine. If I have planned to go on the beach that day don't give me tasks that will interfere with that. I suppose that here is where the personalisation will come in handy as the application will know my activities the more I use it, hence it will be giving me tasks closer to my interests"* (Interview, 14). The result is that a hotel's gamified application has to firstly intrinsically motivate the users with activities that they like rather than focusing on the reward. According to Julliette (2014), intrinsic motivation drives behaviours that result in internal rewards like enjoyment, positive feelings and happiness; therefore, when people are intrinsically motivated, they have a genuine desire for the activity itself and enjoy it tremendously. Thus, the application has to be more personalised on the individual's habits, encouraging activities that are already planned or scheduled by the individual, to enhance the element of fun without frustrating the user.

An interesting finding is also the fact that some fun meanings are also highly related with the reward. It appears that elements such as achievement, challenge and competitiveness are promoting characteristics that contribute on the extrinsic motive

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of reward. For example, participants said: *"in this point I say that achievement, challenge and competitiveness are elements more lined to the reward site. For example, when I am encouraged to explore the surroundings of the hotel I would do it because I like it and because this is the reason I am there anyway (alongside relaxing), whereas these elements are more linked with winning and collecting points which the feeling that the more points I have or the higher the level the better the rewards"* (Interview, 18). Another participant agreed: *"the most fun element for me is the challenge, achievement and competitiveness. I would include them as one or better to say they are interdependent because challenge and competitiveness lead to achievement, and the higher the challenge the more valuable the achievement is, and the higher level the competitiveness the higher the achievement is. In this point I should mention that the higher the level or the challenge the higher the reward should be"* (Interview, 8). This shows that extrinsic motives are also important when designing this technology as users value the reward the higher they progress in the system. Based on the literature Marczewski (2014) identified a group of users (called players) which are motivated by rewards and they will do what is needed of them in order to collect rewards from the system. Choo (2014) adds that this group of individuals like to get the achievements in the system and have their names in the leaderboards. The fact that they want to achieve in the system is not the result of the intrinsic motivation, but the reward itself.

Previous literature on gamification defined the phenomenon restrictively, focusing only on the motivational power of competitiveness and achievement with the introduction of rewards, challenges and contests (Warmelink, 2014). Furthermore, Warmelink (2014) adds that this has led many gamification enthusiasts to target scoring systems, badges and leaderboards when building marketing efforts. Participants agreed that: *"to be honest challenge, achievement and competitiveness for me are more related with the reward. They are activities that I would do to collect points or rank up in the leaderboard in order to get a better reward, which still is a fun element, but not as much"* (Interview, 13).

Socialising

Socialising appears to contribute towards the technology becoming fun and enjoyable. Participants agreed that: *"to socialise is a nice activity during the visit because I am in*

the mood for talking with people and meeting new cultures and so on" (Interview, 4). Another participant agreed: *"the element of socialising because I like that aspect in general. It makes the application fun and probably it could make my holidays more enjoyable and memorable. Being able to socialise with others during my visit in a destination"* (Interview, 7). The results shows the importance of socialising towards the technology becoming fun. It also further highlights that socialising is more important when using the technology during the visit at the hotel. For example, participants mentioned, *"even though I am not the most social person in the world if this application encourage me to meet people while being on holidays it is a good thing to do. It is an excuse for to actually speak to someone. It might actually be the subject around our first meeting"* (Interview, 20).

The results of this phase agree with the literature as both Bartle (1996) and Marczewski (2014) identified groups which are enjoying using the system to socialise with others. According to Bartle (1996) socialisers are interested in people and what they have to say, and Marczewski (2014) adds that socialisers are motivated by Relatedness and they want to interact with others and create social connections. Similarly, hotel visitors commented: *"through this system you can socialise with the locals and learn more about them so it is certainly something that promotes fun during the holidays"* (Interview, 25). For socialisers the game is just a backdrop, a common ground where things happen to players (Bartle, 1996). Inter-player activities are very important: empathising with people, joking, listening, sympathising and entertaining (Bartle, 1996). Choo (2014) adds that these individuals want to interact with others and they are interested in parts of the system that enable them to accomplish this and they will promote and evangelize the internal social network. For hotel visitors this system will promote the same characteristics. For example, a participant recognized: *"for me the most important element when we are talking about fun is socialising. I like the fact that it would allow me to talk with other people in regards to solving a problem or achieving a task. Maybe reveal a secret or something* (Interview, 14).

The results of this phase also agree with the results of phase 1 when identifying the meaning of fun when using the system. For example, in phase 1 participants mentioned that: *"I would use it in order to ask them about the services of the hotel and their opinion about them. I mean it is good to know about a service from someone who has already used how so not too long ago"* (Interview, R). In this phase participants

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also agreed that they would use the technology to socialise with others in taking information about the brand and the services provided. For example, participants recognized: *"you can socialise for having fun meeting people and so on, but on the other hand you can also socialise and find information about the hotel from people who are already there or used some of the services recently"* (Interview, 24). This further highlights the importance of socialising through the application for the users to have fun, but also finding information and it proves that it is a valuable element when designing the technology.

Exploring

Exploring appears to contribute towards the technology becoming fun and enjoyable. *"The most important thing out of this list is by far the exploration, for me at least. It is going to help me as a tourist to find out about the destination. Explore the nature of the town and anything around the hotel"* (Interview, 3). All the participants agreed that the importance of exploring is highlighted when visiting the area surrounding the hotel or sometimes the hotel itself. For example, "*exploring is interesting in this case, since I am always a tourist visiting a foreign environment. Not so much in exploring the application itself but mostly the hotel and the local area of the destination"* (Interview, 23). More participants agreed with the importance of exploring the surrounding of the hotel: "*I like the fact that it encourages me to explore the surrounding of the hotel. I mean I am going to a destination as a tourist, therefore I am interested in visiting the artefacts around the hotels, hence if this application can actually inform me about what is going on around me and what I can see and also win a task for doing something like that this is more that perfect to me"* (Interview, 1). This further shows that the application is used for fun mostly during the visit at the hotel. Participants added: *"I like the exploring. I think this is an activity that I could do with my family when being on holidays to bring us together and have some fun. It will encourage us to come together, visit a destination, learn from it, achieve a task, enjoy all these elements coming with the achievement"* (Interview, 22).

The results of this phase seem to have a different meaning from the literature review. Bartle (1996) identified a similar category called explorers. In this category players would try to find out as much as they can about the virtual world. Even though initially this means mapping its topology, later it advances to experimentation with its physics

and are delighted in having the game expose its internal machinations to them (Bartle, 1996). However, hotel visitors do not show interest in exploring the virtual world and the system itself, but they are interested in using the application to explore the real world and the destination. Participants revealed that: *"exploring is interesting because I would be able to see the surroundings of the hotel and visit areas I have never before. It is also nice to have someone to guide you to visit places otherwise you wouldn't know"* (Interview, 7). Furthermore, participants added that it would be beneficial for the application to challenge them to explore the destination: *"I like the idea of exploring a lot and I can see the fun out of it because it encourages me to visit areas around the hotel and learn more about the local area which is why I am visiting a destination in the first place. I would like it thought to be combined with some kind of challenge so it is not strictly just go somewhere and see something but maybe that task of take a selfie and upload it on social media makes it more interesting"* (Interview, 8). This highlights that when it comes to the meaning of fun, exploring is used as a tourist and not as a gamer.

Additionally, the results of phase 1 agree with the results of this phase with regard to the meaning of exploring when using the system to enhance the fun element. For example, participants in phase one said: *"I mostly like the exploring part because that way I get the chance to see the hotel as well. So I would use it more if it was sending me to several places of the hotel because that would make me more active, and also I could explore the hotel or even artefacts close to the hotel […] exploring would get me to know more about the location, but also you are doing something not online, but you are physically doing something and going somewhere" (Interview* I); more participants agreed, saying: *"for example I like to visit new places and try new things so if this application is pushing me to go out and explore new places or tastes and give me an offer on top of it then I am more than happy to follow it"* (Interview, Q). Hotel visitors agreed, mentioning that: *"I find exploring as the most fun element here because when I go on holidays I would like to visit the areas around the hotels and meet the locals or meet the important artefacts of the local area. So, if the application is promoting or encouraging this activity for me it is making it more enjoyable to use"* (Interview, 16). This further highlights the importance of exploring through the application for the users to enhance the fun element. It proves that promoting exploration of the destination is important when building the tasks.

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Achieving

Achieving appears to contribute towards the technology to become fun and enjoyable. For example, participants agreed: *"I see myself being engaged in an activity that promotes achieving. I like the levelling up system and I would focus there"* (Interview, 7). More participants added, *"I like the levelling up and collecting points and badges element. As I said it is giving me a feeling of achievement. The tasks help towards that because they are clear and understandable making the experience more entertaining. So achievement definitely comes first as promoting the element of fun"* (Interview, 23). This shows the importance of levelling up and collecting points for users with preferences in the feeling of achievement. However, participants associated achievement with rewarding as they expect tangible rewards when collecting points. For instance, participants explained: "*the achievement is there as you have achieved to move on in levels or move beyond certain people. As long as the tasks are physically possible to do and not something big or stupid. It has to fit my preferences and what I like to do during my holidays. It is fun but allow me to say that the more engaged with the application and the gaming aspect I am the more important the tangible reward gets because I will be expecting more from the brand"* (Interview, 2).

The results of this phase agree with the literature as both Bartle (1996) and Marczewski (2014) identified a group enjoying using the system to achieve. According to Bartley (1996), this group of players are often accumulating and disposing of large quantities of high-value treasure, or cutting a swathe through hordes of mobiles. For achievers, a main goal is to gather points and rise in levels, and all is ultimately subservient to this. This further agrees with the findings of this phase as hotel visitors find: *"I like a lot the element levelling up and collecting points. The fact that they are related with clear and understandable tasks make the whole experience more entertaining. Also, the fact that tells you in advance a bit of what is coming if you progress is attractive. I like that sneak peek element that when you reach that level this is waiting for you. It makes you want to have it. So, achievement definitely comes first as promoting the element of fun"* (Interview, 5). In addition, for Marczewski (2014) achievers are looking to learn new things and improve themselves, by getting challenges to overcome. Choo (2014) adds that these individuals want to be perfect on the internal learning system and Zichermann (2010) explains that this kind of player wants to win and achieve the goal, therefore their motivation is the goal itself. Similarly,

hotel visitors described: *"for example, visit that destination (local museum) and get a certain amount of points, or if there is a task related to a certain destination then that is also very interesting. That sense of achieving for doing an activity which also helps you learn something about the destination is very good"* (Interview, 6).

The results of this phase also agree with phase 1. In phase 1 participants agreed on the importance of the reward, the higher they progress in the game and the more points they have collected. For example, a participant mentioned: "*I mostly like the experience points aspect, because it promotes the achievement. In this case, the more experience points I collect and the more achieved I am, the better the reward will be*" (Interview, T). In the same point of view, participants in this phase agreed on the importance of being rewarded when achieving a task. It has been added: *"in regards to achievement, well it is important mostly when it comes to what kind of rewards do I get for achieving a task"* (Interview, 4). This further highlights the importance of achieving through the application for the users to enhance the fun element. It also highlights the importance of promoting the appropriate reward based on the difficulty of the task and the level of achievement.

Imposition upon others

Imposition upon others is a meaning that appears not to contribute towards the technology becoming fun and enjoyable. Participants agreed that imposition upon others is a behaviour not liked in a hotel's gamified application. Participants identified: *"imposition upon others is something I would not do and also would not want others to do within the application. Let's say that someone is trying to brag about achievements he has done and try to minimize I would just stop using the application and delete it from the app no matter how good it looks"* (Interview, 2), *"the element of imposing upon others the way I understand it is not important for me at all. It is not fun. I would not do it for fun and I would accept it by others as well. It is a negative behaviour in regards to using this application"* (Interview, 4). Participants actually mentioned that imposition upon others is a behaviour that they would not like to do in this kind of system, but also in games to emphasise on the negativity it promotes. For example, *"the element of imposing upon others is not fun for me in any level. I would not do it in games and I believe I would not do it in an application like that. I mean it does not give me any value as a person"* (Interview, 7).

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The results of this study do not agree with the literature review in regards to the meaning of fun. In the gaming context Bartle (1996) identifies a group of players where they use the tools provided by the game to cause distress to other players. This category is called killers. Killers attack other players with a view of killing off their personae (characters), and the greater the distressed caused, the greater the killer's joy at having caused it, and normal point-scoring is only important as to become powerful enough to begin causing havoc in earnest (Bartle, 1996). The major difference here is that Bartle (1996) argues that killers are important for the environment of a game, because without the killers, socialisers would have little to talk about, but also because without evil as a contrast, there is no good (Bartle, 1996). However, in a hotel's gamified application users would react differently when users display similar characteristics in the system. For example, participants argued: *"imposing upon others it actually sounds negative in my ears. If someone is using this application to do this kind of thing I would just leave no matter of how much I have progressed in the game"* (Interview, 6). Other participants agreed identifying that *"imposition upon others is something that I do not see as fun to do or people to do to me. If there are people being salty and speak bad language in the application because they have the chance to do so I will find it frustrating and leave the application once and for all"* (Interview, 13). This shows a difference in how individuals would react in this environment between a game and a hotel's gamified application.

Furthermore, the results of this study show more similarities towards Marczewski's (2014) point of view. Marczewski (2014) identified a similar group of users when using a gamified application and called them disruptors. This group of users are motivated by change and in general they want to disrupt the system, either directly or through other users to force positive or negative change (Marczewski, 2014). The difference in opinions comes when building a sustainable gamified environment according to Marczewski (2014); disruptors should be identified and either try to change their behaviour or ban them from the system. They promote no value for the system toward other users. Phase 1 showed similar results with regard to imposition upon others. Participants there highlighted the fact that they would like to compete with others and win the best rewards, but nowhere is mentioned the elements of imposition. For example, a participant explained: *"as a gamer I like a lot the fact that you can get points and level up so you kind of progress and differentiate yourself from others. For*

the same reasons I also like the fact that I can be on the leader board so I can compare myself with others and my progression with theirs. And of course, I want to battle to be the best because that means the best reward as well" (Interview, H). Taking this into consideration it has been recognised that for a hotel's gamified application users with characteristics similar to killers or disruptors should be recognised and either forced to change their behaviour or banned from the system.

Challenge

Challenge appears to contribute towards a hotel's gamified application becoming fun and enjoyable. Participants said that: *"challenge is also very important highly associated with achieving, though. The fact that application would promote challenges to overcome and then achieve is very interesting"* (Interview, 5). Other participants agreed, *"the element of challenge is the more attractive as a fun element. I am a person who likes to be challenged and improve through a game or anything I do I would like to offer me something more as a person and you only get that when you are challenged"* (Interview, 21). This result agrees with the first phase findings, as participants also mentioned that they would like to be challenged when using the technology and it is something that further contributes towards the experience becoming fun and enjoyable. For example, participants described: *"but overall, I say that I like the fact that I have to fulfil a challenge, take points or badges in order to be rewarded. Is less boring"* (Interview, G). The results highlight that the fun experience promoted by the system is applicable when the user is at the destination. It appears even more that the application promotes hedonic behaviour on site rather than before and after activities.

Furthermore, participants further explained that the gameplay experience has to be balanced as they see themselves as tourists when being on site, and they would not be engaged in case the challenge interferes with their plans. For example, one participant clarifies: *"I kind of like the idea of being challenged as long as it is not something extreme. Also, I would like it to be something that will not take me out of the schedule I have planned already. Now if you challenge me to explore the surrounding area then yes it receives some value"* (Interview, 9). These results further prove that even though the user likes the gaming element of the technology, they still perform as a tourist at the destination, therefore the tasks have to be related with

experiences that promote the environment. Participants explained: *"I would like the application to challenge me to visit destinations around the hotel (maybe give me 10 locations to visit 7 of them) and take a picture of myself at the location as a proof that I have been there, and then I receive points for actually doing it. This is a high challenge for me because I would physically have to move around the hotel in destinations and visit places, but I don't care about competing with others who might have been in more locations than I have or even less locations"* (Interview, 15).

Interestingly, it has been found that users would like to learn from the system and improve their skills. Participants mentioned: *"The challenge element is something that I like a lot. I mean the fact that the application is trying to push me to be better in some point is also attractive. This is something that games do as well and it seems to work"* (Interview, 2). This result agrees with first phase, as participants also agreed that they would like to learn and improve while using the technology. For example, *"well I like the fact that it is challenging. It would push me to do things in order to win. For example, if I was a regular traveller and there was a challenging task to fulfil, I would use it even more"* (Interview, F). This highlights the importance of challenge for users as they would like to learn something from the application while using it. This further proves the importance of challenging through the application for the users to enhance the fun element.

Competitiveness

Competitiveness contributes towards the technology becoming fun and enjoyable. For example, participants said: "*I like the idea of competing with others as I see the leaderboard here*" (Interview, 3). Other participants also highlighted on the mechanic of the leaderboard to add to the element of competitiveness: "*competitiveness is important if reaching the top spot of a leaderboard and competing with others to reach there shows some form of acknowledgement. Then I would see how it will make it fun to me*" (Interview, 21). However, participants also explained that reaching the top (or close to the top) should be something achievable and not frustrating. For instance, "*the competitiveness is important because let's say for example I am missing 1000 points or maybe a couple of tasks from skipping a couple of people in the leaderboard is another motive to use the application*" (Interview, 2). The results of this phase agree with phase 1 when participants also agreed on the importance of competitiveness for

the system to be fun. For instance, a participant explained, "*I like it because I am a competitive person. I mean I like the fact that I can see how many points I have and how many points the leader has in order to have an idea about how much more effort I have to put through in order to reach the top. As I said before I like to get better and compete with others […] the highest I will get to the ranking the most I would stick with the company*" (Interview, Q). This further highlights the importance of competing through the application for the users to enhance the fun element. It also highlights the importance of the leaderboard when designing a hotel's gamified application, as users with characteristics of competing would look for that mechanic.

Interactivity

The results of this phase further proved the importance of interactivity in the system. It is in this point that participants further agreed that the interactivity of the system should be a given, otherwise the system loses value. For example, "*I like this idea of having immediate feedback when something is asked*" (Interview, 9). Furthermore, another participant explained, "o*bviously for me the most important characteristics here is the element of interactivity. I mean as I said it is more when you can act and achieve towards the reward rather than the boring current activities. It creates that feeling of accomplishment*" (Interview, 10). This further proves the importance of interactivity for a hotels' gamified application, and it appears that it is a very important element for the system to be enjoyable and fun. Participants said: *"being interactive is kind of a given to me. I mean it is a mobile application, it tracks my information and performance on the spot so I would expect the results to come in straight away. It is not something that contributes towards making it fun. It is actually contributing towards not being fun if it is not interactive"* (Interview, 6). This further showed that lack of interactivity would have a negative impact on the system.

Another finding in this phase is the interdependence of interactivity with the gaming element for the participants. For instance, participants said: *"in regards to the application being interactive definitely the fact that it responds back immediately or the fact that when finishing a task, you get a badge or whatever but again I could say it a bit generic and maybe more functional in regards to how games work"* (Interview, 7). Other participants agreed, "b*eing interactive is also fun because it creates that sense of gaming. Games are always interactive and doing an activity and straight away being*

recognised for doing it is good" (Interview, 4), and: "*I think interactive is the most important because it makes it more interesting rather than sending you information is more give and take. More like games actually. It makes me feel like part of something greater"* (Interview, 17). These results highlight the importance of interactivity for a system that wants to apply gaming elements.

The results of this phase further agreed with phase 1 when participants also agreed that interactivity is an important element that contributes towards the system to be more fun. For example, participants said: *"yes, I would definitely become loyal to this brand, because it is an easy platform and even though I am sure that this kind of big chain hotels have already some reward schemes I find this more interactive and it gets more interesting. It is not someone somewhere saying oh this guy has stayed with us this amount of time so we will give him something in return. But in this case, you can see your progress. It puts the ball in your court"* (Interview, T). The results further highlight the importance of interactivity for the system to be more fun and create an engagement between the brand and the hotel visitor.

Personalisation

The results of this phase further proved the importance of personalisation in the system to make it more fun. Participants said *"it is talking directly to me it is sending me tasks more attractive to me. It creates that feeling that I am important as a person to the brand, which for me is more similar to how games have created that form of personalisation. I mean a game knows in the majority of the situation what kind of activities you like to do and what kind of tasks you will be more interested to perform, hence the appropriate engagement is chosen"* (Interview, 10). Other participants agreed *"personalisation is something interesting due to the fact that someone is talking to me in first person giving me these tasks directly is actually nice and it does make it fun"* (Interview, 12), and: *"the element of personalisation because I like the fact that it talks to me and gives me the reward directly and immediately"* (Interview, 15). The results of this phase agreed with phase 1 as participants also agreed that personalisation is an important concept on the meaning of fun for this system. For instance, participants explained: "*I like the fact that it is personal. I mean the way I see here it is speaking directly to me […] I would say that it is more attractive to me because it is speaking directly to me*" (Interview, J). Another participant said "*I like the fact that*

it is now talking to me in the first person because I get the feeling that the application knows me and cares about me a bit more" (Interview, S). As a result, it appears that the sense of personalisation further contributes towards the meaning of fun for users when using a hotel's gamified application.

Furthermore, participants agreed on the importance of the avatar mechanic on personalising the experience. For example, participants said: "*I like that it is more personalised with the form of the avatar*" (Interview, 1). Other participants agreed, *"personalisation is also something that I find fun and entertaining in this case because I like the idea of the avatar. I would bother to work with it and make it look either like me or someone I like"* (Interview, 4) and *"personalisation is important because as I said I have played games in a similar concept and I like the fact that I can pick an avatar dress, it and so on"* (Interview, 18). The importance of the avatar towards personalising the experience is further showed from the results of the first phase. Participants also agreed "c*reating your own character that you look out of it and getting a reward […] it makes it more personal and this is always fun to have something personal to come along with you as long as getting you rewards"* (Interview, A). Another participant agreed: "*I like the fact that I can build my own avatar. I see it as a personal fact and I would enjoy it*" (Interview, F). The results of both phases agree with the literature review. Marczewski (2014) identified a group of users called Free Spirits. This group of users want to create and explore, and hence are not willing to be restricted in how they go through their personal journey, and most often they are the most creative users having the fanciest avatar, they will create the most personal content (Choo, 2014). The results further highlight the importance of personalisation for the system to be more fun and enjoyable.

Reviewing the differences between the meaning of fun when playing games and using a hotel's gamified application a table is presented. Due to the limited literature appearing in relation to the meaning of fun when using hotels' gamified application, but also to the subjectivity of the topic itself, a comparison between the meaning of fun by gamers as collected from the first phase of data and the meaning of fun by hotel visitors' perception of fun when using a hotels' mobile gamified application as collected from the third phase is presented to overview the similarities and differences.

Meaning of fun when playing games (Gamers)	Hotel visitors' perception of fun when using a hotels' mobile gamified application
Personalization	Personalisation
Challenge	Challenge
Achieving	Achieving
Socialising	Socialising
Exploring	Exploring
Competitiveness	Competitiveness
	Interactivity

As table presents, six out of seven elements are overlapping showing the similarities of the two concepts. Fun seems to mean personalization, challenge, achieving, socialising, exploring and competitiveness in both cases, possibly due to the game mechanics used in the visual material. However, these similarities further highlight the hedonic value of hotels' gamified applications and the importance of applying game mechanics to promote these experiences. Considering the table above one difference appears in the meaning of fun between the two and this is the element of interactivity. Speaking with gamers to understand the meaning of fun when playing games, the element of interactivity did not appear. As the definition of games presented in the literature review by Kapp, (2012:9) states "A player gets caught up in playing a game because the instant feedback and constant interaction are related to the challenge of the game, which is defined by rules, which all work within the system to provoke an emotional reaction and, finally, result in a quantifiable outcome within an abstract version of a larger system". This shows that the element interactivity is given in a game and does not enhance the overall fun experience. Reviewing definitions of gamification as presented in the literature such as "Gamification is a careful and considered application of game thinking to solving problems and encourage learning using all the elements of games that are appropriate" by Kapp (2012:15) the element of interactivity is not considered as given factor, although it affects the fun experience based on hotel's visitors' opinion. It could also be assumed that the gameplay experience is

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important for a gamified application as it enhances the element of fun even though the gameplay is not part of gamification definition.

Reviewing the literature, further differences appear for the meaning of fun when playing games and the results of hotels' visitors when using hotel gamified applications. Fun is difficult to describe within a game, as it offers a special intrinsic satisfaction to the player, leading ultimately to the purchase of further games, more than simply being amused in a detached way, or more than being enhanced by a digital system (Davis, 2014). In terms of the relationship of play and games, Salen and Zimmerman (2004) identify that there is a complex relationship, depending on the way it is framed. Within gaming literature, it is seen that play theorists have identified several types of players, each with a different need that gets met by the type of game play (Klug and Schell, 2006). Klug and Schell, (2006), identify some more prominent types are identified as: the competitor, the explorer, the collector, the achiever, the joker, the director, the storyteller, the performer and the craftsman as discussed in the literature review. There are similarities and differences between this taxonomy of players and the taxonomy as emerged from the findings of this thesis. For example, achieving has been described from hotel visitors similarly to The Achiever as defined by Klug and Schell (2006). Socialising also appeared as a meaning of fun by hotel visitors similarly to The Joker as described by Klug and Schell (2006) and competitiveness similar to The Competitor and The Storyteller appears characteristics of a personalise experience. However, players categories such as The Collector, The Director, The Performer and The Craftsman do not show similarities with the characteristics arose from hotel visitor's opinion of meaning of fun when using a gamified application. Lastly, The Explorer as described by Klug and Schell (2006) presents difference in the core of the definition with a gamified application user since The Explorer wants to explore the game itself, where exploring as identified in this thesis occurs when the user explores the physical world. This is to show that not all players' categories can be applied from the gaming industry to a concept such as a gamified application.

As games develop age and gender are ways to group potential players (Schell, 2008). Still, when grouping people by external factors (age, gender, ethnicity, income), something internal is sought like what each group finds pleasurable. This is called

psychographics and it is important, for ultimately, the motivation for every human action can be traced back to some kind of pleasure seeking. Even though there are many kinds of pleasures in the world, and no one seeks only one kind, it is recognised that people have their pleasure preferences (Schell, 2008) and game designer Marc LeBlanc proposed a list of eight pleasures that he considers the primary "game pleasures"; called Leblanc's taxonomy of game pleasure and these are Sensation, Fantasy, Narrative, Challenge, Fellowship, Discovery, Expression and Submission. These pleasures have been reviewed by the literature to affect the meaning of fun when applied in a game. Some of these pleasures seem to overlap and affect the meaning of fun when users use gamified applications. For example, Fellowship is pleasure influenced by socialising, Challenge is a pleasure influenced by challenge and Expression is a pleasure influenced by personalisation. Although, Discovery is a pleasure influenced by exploring, appears a meaningful difference in the concepts core since in games discovery has to do with items within games, where exploring in a hotel gamified application is applied by exploring the physical world. Lastly, the rest of the game pleasures do not show similarities with the meaning of fun as defined by hotel visitors. This further highlights the importance of understanding the meaning of fun for a concept similar to games but not identical.

Furthermore, in the context of games, Richard Bartle (1996) has conducted research in the areas of game design and game development, also exploring players' personality types for massively-multiplayer online games, to identify and describe four approaches to playing MUDs (multiplayer online games). Abstracting the various points that had been raised, a pattern emerged: that individuals habitually found the same kinds of thing about the game and that was the element of "fun". Bartle (1996) identified four characteristics of individuals (as gamers), suggesting that the element of fun seemed to have different meaning in the game, based on players' profile. These four activities are: achieving, exploring, socialising and imposing upon others. It becomes apparent that this research focuses in a specific type of games (MUD), which could explain the fact that only four typologies of players are identified comparing it with the previous two taxonomies. Comparing Bartle's (1996), taxonomy of players it shows that meanings of fun such as challenge, competitiveness and personalisation have not influenced the meaning of fun when playing MUD games but do enhance the meaning of fun when using a gamified application. The element of imposition upon

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others it is found to have a negative effect when applied to a hotel gamified application in contrast with a MUD game and the element of exploring seems to follow the same pattern as the previous two taxonomies since the meaning of it differs in the fact that gamers want to explore the game where gamified application users want to explore the physical world. Lastly, the element of interactivity influences the meaning of fun in a hotel gamified application, but not a game since it is assumed as a given in the gaming industry.

Lastly, literature reviewed Yee's (2006) components, a study to articulate the motivations of play among MMO (similar to MUD) players, and to explore how these motivational factors can provide game designers with analytical tools to describe and understand the preference for and effects of gameplay for different kinds of players. Interestingly, the factor analysis in Yee (2006) revealed that play motivations in MMORPGs do not suppress each other as Bartle suggested, meaning that if a player scored highly on the achievement component, it did not mean scoring low on the social component. The results of Yee's study revealed ten motivation subcomponents that are grouped into three overarching components (achievement, social and immersion). Achievements sub-categories includes: Advancement, Mechanics and Competition Social sub-categories includes: Socialising, Relationship and Teamwork and Immersion sub-categories includes: Discovery, Role-playing, Customization and Escapism. Comparing Yee's (2006) categories (and sub-categories) with the results of this thesis shows that several similarities become apparent like: advancement is similar to achieving, competition with competitiveness, socialising, relationship and teamwork with socialising and customization similar with personalisation. Again, the element of discovery shows the same difference depending on the medium used and interactivity is assumed to be a given for a game provided by the definition of a game.

It is very important to maintain the element of fun when developing a game and similarly maintaining the element of fun when developing a hotel gamified application appears to be significant as well. In the case of games enhancing the element of fun leads to the purchase of further games (Davis, 2014), and in the case of gamified application it will lead to the continuation of the system.

4.3 Summary

This chapter presented the results of semi-structured interviews that were conducted as a further exploration of phase 2, with the primary aim of identifying individuals' motivations when using a hotel chain application and understanding what fun means for them. The purpose of the qualitative analysis is to further investigate and support the results of the quantitative questionnaire survey which explored levels of behavioural intention and the gap between them amongst hotel visitors. Following the results of phase two, the semi-structured interview design was developed. Utilizing the semi-structured interview approach allowed flexibility in the order of questions depending on the flow of the conversation, to address the specific issues of the research and further exploration of the research question and objectives (Saunders, Lewis and Thornhill, 2012).

The discussion of the interview results has been divided into two parts:

- The motives of hotel visitors to use a hotel gamified application
- The meaning of fun when using a hotel gamified application

The analysis of the third phase revealed primary findings about the main motives influencing the intention to use hotels' gamified applications. In this phase, an in-depth understanding of hotel visitors' explanations of the constructs has been taken. The results further explored why certain constructs have been rejected. The first general finding revealed that a hotel's gamified application is a complex application and has different purposes at different stages. Utilizing a hotel's gamified application before visiting the hotel promotes behaviour with utilitarian characteristics as it takes into consideration budget elements, payment procedures, and decision making. However, utilizing the application during the stay at the hotel promotes behaviour with hedonic characteristics as it promotes the element of fun and enjoyment. That has also been apparent since the discussion around the meaning of fun was focused on during the visit activities at all interviews showing the importance of the element for during the visit behaviour.

To further clarify the difference in usage, participants were asked whether they see the application as a marketing tool or a game. Participants agreed that they were

seeing this application as a marketing tool, and emphasize the utilitarian aspects of the technology. Oppositely participants who highlighted the game elements of the application pointed out the hedonic characteristics of the technology. However, there were no clear results on whether this technology is seen as a marketing tool or a game, but it further proved the different behaviour it promotes at different stages of usage. This is due to the fact that participants have been focusing on the utilitarian aspects of the application for before visiting the destination activities, and hedonic aspects for during the visit activities.

Based on this phase's findings, hotel visitors would use this technology with utilitarian behaviour before going to the hotel for the functionality that it offers. Conversely, hotel visitors would use this technology with hedonic behaviour during the stay at the hotel because of the gameplay it offers through the tasks. The results showed clarification in regards to the results of phase two. It appears that the constructs being rejected in phase 2 do not lack in importance towards the motives in using a hotel's gamified application, but they appear in different stage of usage of the application.

When clarifying that both lists are important in using a hotel's gamified application, an in-depth understanding of hotel visitors' explanations of the constructs was taken as have emerged from phase two. The constructs had been divided into two lists (supported and not supported). This was not revealed to the participants to make sure that the participants would not be influenced and alter their responses. Each construct from both lists was discussed to get visitors' points of view and the value it offers.

The results of this phase have shown similarities with the previous phases and the literature review. Indeed, constructs such as perceived usefulness, perceived ease of use, trust and reward have seen utilitarian meaning when using hotels' gamified applications and seen most usage before visiting the hotel. They have been seen as motives for using the technology for activities such as booking the hotel room and finding the appropriate destination for holidays. Constructs such as fun, familiarity, perceived informativeness and socialising have seen hedonic meaning when using the hotel's gamified application and seen most usage during visiting the hotel. The construct showed different results in the three phases is the motive of purpose. The results of both phases do not agree with the literature review as empirical hospitality research has shown that altruism is an important motivator for many hotel firms that

have been involved in environmental schemes (Teng, Wu and Liu, 2015). Phase 2 did not support the construct of purpose and phase 3 actually agreed on that result. Hotel visitors agreed that the construct of purpose is not strong enough to motivate them to use the technology as the application is not seen as a gift card. However, participants agreed that the element is a good overall addition to the system.

The second aim of this phase was to understand the meaning of fun from hotel visitors when they would use a hotel's gamified application. The results have been compared with phase 1 and the literature review, showing similarities in opinion. Meanings such as achieving, socialising, challenging, competing, interactivity and personalisation as derived from phase 1 presented identical results in this phase. Meanings such as achieving and socialising have further showed similarities with the literature review as explained by both Bartle (1996) and Marczewski (2014). The meaning of personalisation also agreed with previous literature and Marczewski's (2014) identification of gamification users called Free Spirits.

Differences appeared in the meanings of exploration and imposition upon others for different reasons. Firstly, exploration has seen great importance towards the meaning the fun with the difference on the understanding of the definition. In the literature review both Bartle (1996) and Marczewski (2014) agreed that exploring is important for gamers or gamified application users as they will be interested to explore the technology and find the secrets of the system. Even though exploring appears as a result in this phase hotel visitors agreed that exploring the system is not fun, but exploring the destination during the holidays would be the meaning of fun for them. Hence, it is found that for hotel visitors exploring is fun when the hotel's gamified application encourages them to explore the physical environment rather than the virtual. The results of both phase 1 and 3 agreed on that.

The second difference appears with regard to the importance of imposition upon others. Both phase 1 and 3 agreed that imposition upon others is not seen as fun by the users and it would result in negative behaviour towards the system. In addition participants agreed that if other users promote these characteristics it would contribute towards them leaving the system and possibly the brand as well. These results do not agree with Bartle (1996), who argues that this category is important for the environment of a game, because without that, socialisers would have little to talk

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about, but also because without evil as a contrast, there is no good. However, the results of this study show more similarities towards Marczewski's (2014), point of view. Marczewski (2014) identified a similar group of users when using gamified application and called them disruptors. This group of users are motivated by change and in general they want to disrupt the system, either directly or through other users to force positive or negative change (Marczewski, 2014). The difference in opinions comes when building a sustainable gamified environment; according to Marczewski (2014), disruptors should be identified and either try to change their behaviour or ban them from the system. They promote no value for the system toward other users. Thus, it is advised that for a hotel's gamified application users who like to impose upon others should be recognised and either forced to change their behaviour or banned from the system.

All things considered, it appears that eight motives should be taken into consideration when designing a hotel's gamified application. Motives such as perceived usefulness, perceived ease of use, trust and reward should be taking into consideration as they are influencing users' decisions before visiting the hotel. They appear important in activities such as booking the hotel room or finding the appropriate destination for their holidays. Also, motives such as perceived informativeness, fun, socialising and familiarity appear important when hotel visitors use the technology during their visit at the hotel. Participants mentioned that these elements would make a hotel gamified application more attractive to them, and therefore they would be more interested in using it and engaging with it.

It appears that the element of fun is a key motive for individuals to use hotel gamified applications. Participants in this research expressed seven meanings of fun (socialising, achieving, competitiveness, challenge, explore, interactivity and personalisation) when using the system during their visit at the destination. Higher importance should be taken into consideration when applying exploration tasks, as hotel visitors showed great interest in exploring the destination, therefore they would be engaged in a system that encouraged the activity. Hotels should consider the nearby unique sightseeing and the history of the location as well as the meanings of fun as emerged from the participants to create a unique and fun gamified application. Further attention should be taken for users that show characteristics of imposition upon others as they would have a negative impact in the system. As participants

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specified, if they noticed users with these characteristics in the system they would leave the application and most possibly the brand in total. Thus, it is advised to either force them to change their behaviour or ban them from the system.

Chapter Summary

This chapter focused on presenting the data collected and discussing the findings. It is divided into three sections, each one explaining each phase of the research. After reviewing the literature and setting up the methodology the first phase aims to understand individuals' motives to use a hotel's gamified application based on opinions collected from participants with experience in gaming. The aim of the second phase was to present the results of the data and apply analysis techniques to validate the measurement items and structure of the proposed model, as well as to test the set hypotheses. Five factors have not been supported, therefore it was considered useful to contact another round of data collection to further investigate and support the results of the quantitative questionnaire survey. The final phase further explored hotel visitors' behaviour towards the hotel's mobile gamified application. The table below demonstrates the results of each phase.

The aim is to investigate hotel visitors' motives when using a mobile hotel gamified application and understand what fun means for them								
Section 1 (Phase 1) **Objective:** Understand the key motives that contribute towards intention to use hotels' gamified applications and the perception of fun when they use the system				**Section 2 (Phase 2)** **Objective:** Explain the relationship between the themes		**Section 3 (Phase 3)** **Objective:** Understand hotel visitors' motives when using a hotel chain application and understand what fun means for them.		
Sub. Obj.: 1	**Sub. Obj.: 2**	**Sub. Obj.: 3**	**Sub. Obj.: 4**	**Sub. Obj.: 1**		**Sub. Obj.: 1**		**Sub. Obj.: 2**
Understand the key motives when they play games	Understand the meaning of fun when they play games	Understand the key motives that contribute towards intention to use a hotel's gamified application	Understand individuals' perception of fun when using a hotel's gamified application	Measure hotel visitors' motives when using hotel gamified applications.		Investigate and support the results of the quantitative questionnaire survey		Understand individuals' perception of fun when using a hotel's gamified application
				Supported	**Not Supported**			
Escape from daily routine (immersion), Socialise (social influence), Fun, Progress (effort), Accessibility	Personalisation, Challenge (flow), Achieving, Socialising, Competitiveness, Exploring	Perceived Enjoyment (fun), Perceived Ease of Use, Perceived Usefulness, Socialise (social influence), Direct Feedback (interactivity), Perceived Innovativeness, Trust	Socialising, Achieving, Competitiveness, Challenge (flow), Exploring, Interactivity, Personalisation	Familiarity, Socialising, Perceived Innovativeness, Fun	Perceived Usefulness, Perceived Ease of Use, Reward, Perceived Risk and Purpose	During the staying at the hotel (Hedonic) Familiarity, Socialising, Perceived Informativeness, Fun	Before staying at the hotel (Utilitarian) Perceived Usefulness, Perceived Ease of Use, Reward, Perceived Risk and Purpose	Achieving, Socialising, Challenging, Competing, Exploring, Interactivity, Personalisation

Chapter 5: Conclusion

Introduction

The previous chapter focused on presenting the data collected and discussing the findings, providing data analysis, results and discussion between the three phases. This chapter provides a conclusive evaluation of the findings drawn from the three phases, further discussing these results and comparing it in relation with previous literature. In the end, a section with theoretical and managerial implications of the findings will discuss the contribution of the research for academic and practical reasons. The purpose of this research is to propose and test a model to clarify the factors that motivate hotel visitors to use hotel gamified applications in the field of m-commerce. The second objective of the research is to understand the meaning of fun when the hotel's visitors use the hotel's gamified application.

5.1 First Objective: Motives to use hotels' gamified applications

The literature review demonstrates that motives are an important element of consumer behaviour. Thus, the aim of this chapter is to present the motives behind intention to use hotels' gamified applications and the meaning of fun for the users when using the technology. Semi-structured interviews were conducted with the primary aim of identifying individuals' motivations when using a hotel chain application and understanding the meaning of fun for them. Following that, a survey was developed in order to explain the relationship between the themes and validate the structure of the proposed model, as well as to test the set hypotheses. Finally, the second round of semi-structured interviews were developed, to further investigate and support the results of the survey which explored levels of behavioural intention and the gap between them amongst hotel visitors. The surprising results of the survey indicated that a new round of qualitative research is appropriate to get an in-depth understanding of hotel visitors' explanations of the constructs as have emerged from phase two and explore why certain constructs have been rejected.

The first general finding in the third round of data collection shows that a hotel's gamified application is a complex information system, which has different purposes at different time stages. The first round of data collection coming from participants with experience in gaming indicated eight motives affecting intention to use a hotel's

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gamified application (perceived usefulness, perceived ease of use, perceived enjoyment, trust, interactivity, reward, social influence and perceived innovativeness). Developing the survey instrument (questionnaire) and reviewing the literature, three more factors were considered important to be put into test (mastery, autonomy and purpose), as they are determined as relevant.

Based on the review of the literature, the research model (figure 1) proposed and the following hypotheses were established.
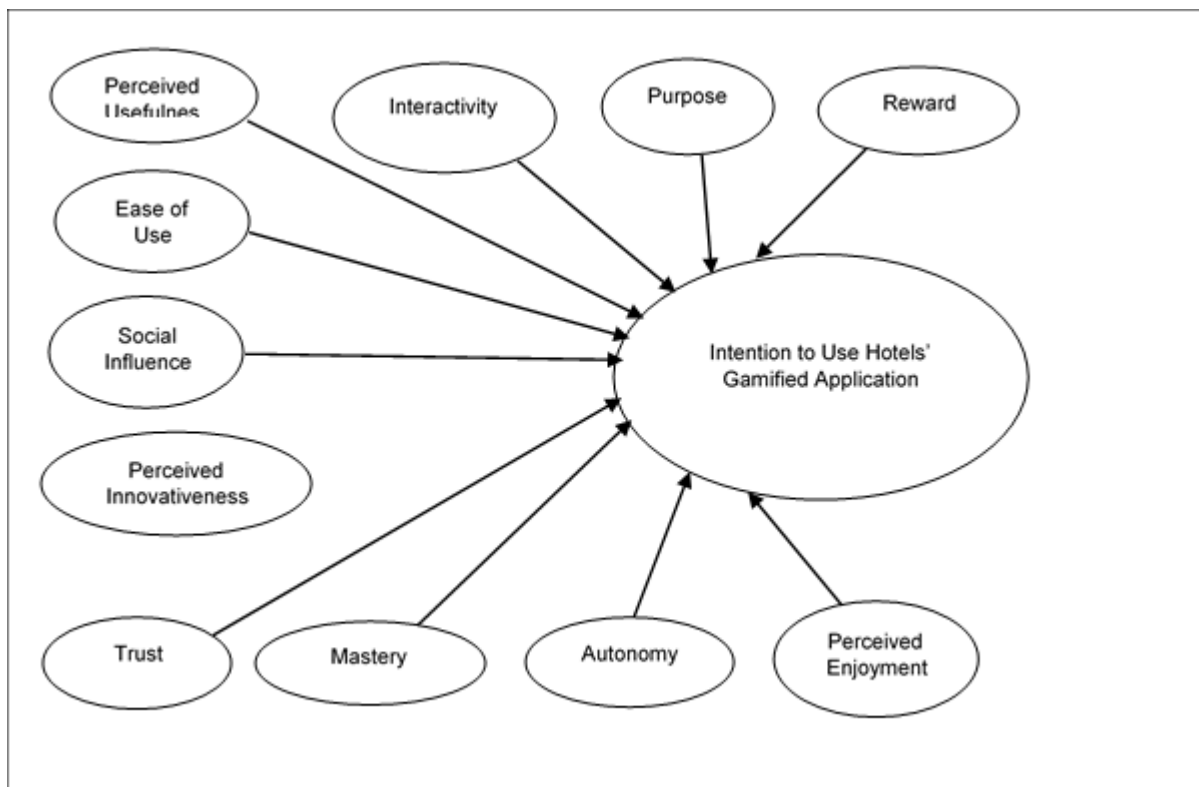
Research Hypotheses

H1: Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.

H2: Perceived ease of use has a positive influence on the intention to use hotel gamified mobile applications.

H3: Perceived Enjoyment has a positive influence on the intention to use hotel gamified mobile applications.

H4: Perceived Innovativeness has a positive influence on the intention to use hotel gamified mobile applications.

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H5: Social Influence has a positive influence on the intention to use hotel gamified mobile applications.

H6: Trust has a positive influence on the intention to use hotel gamified mobile applications.

H7: Reward has a positive influence on the intention to use hotel gamified mobile applications.

H8: Autonomy has a positive influence on the intention to use hotel gamified mobile applications.

H9: Mastery has a positive influence on the intention to use hotel gamified mobile applications.

H10: Purpose has a positive influence on the intention to use hotel gamified mobile applications.

H11: Interactivity has a positive influence on the intention to use hotel gamified mobile applications.

Principal component analysis revealed the presence of ten components with Eigenvalue exceeding 1, explaining 44.4%, 6%, 5.4%, 3.3%, 3.2%, 2.5%, 2.4%, 2.1%, 1.8% and 1.8% of the variance respectively. To aid in the interpretation of these ten components an oblimin rotation was performed. The rotated solution showed that ten items (PU1; Fun2; Trust1, Trust3, Trust2; Innov2, Innov3, Innov1; EOU4, EOU5) were not loading and one item (ITR1) cross-loading. In this stage it was decided that the ten items not loading were to be removed. Based on the earlier findings, it was decided to perform the EFA again, but this time the number of factors was forced to be loaded as ten factors rather than based on the Eigenvalue in SPSS. The rotated solution revealed the presence of a simple structure, with all components showing a number of strong loadings, but few variables merging. These variables have been renamed. As a result of EFA, a new hypothesis framework was developed.

As a result of merging factors research hypothesis have been updated

H1: *Familiarity has a positive influence on the intention to use hotel gamified mobile applications.*

H2: *Socialising has a positive influence on the intention to use hotel gamified mobile applications.*

H3: *Fun has a positive influence on the intention to use hotel gamified mobile applications.*

H4: *Rewards have a positive influence on the intention to use hotel gamified mobile applications.*

H5: *Perceived Risk has a positive influence on the intention to use hotel gamified mobile applications.*

H6: *Perceived Ease of Use has a positive influence on the intention to use hotel gamified mobile applications.*

H7: *Purpose has a positive influence on the intention to use hotel gamified mobile applications.*

H8: *Perceived Informativeness has a positive influence on the intention to use hotel gamified mobile applications.*

H9: *Perceived usefulness has a positive influence on the intention to use hotel gamified mobile applications.*

The model in this research was tested with a survey using a web-based questionnaire involving 763 respondents. The empirical findings indicated Familiarity (β=.258) as the most important factor influencing hotel visitors' intention to use hotel gamified applications. Both Socialising (β=.205) and Perceived Innovativeness (β=.135) are confirmed as significant factors affecting intention to use hotel gamified applications. Furthermore, Fun was found to be the least significant factor (β=.099) influencing intention to use a hotel gamified application. Surprisingly, five factors (Perceived Usefulness, Perceived Ease of Use, Reward, Perceived Risk and Purpose) have not been supported. Hence, it is considered useful to contact another round of data collection to further investigate and support the results of the quantitative questionnaire survey exploring levels of behavioural intention and the gap between them amongst hotel visitors.

Analysing the third phase's data collection, it was found that participants agreed that using the system before visiting the hotel has utilitarian characteristics as it takes into

consideration budget elements, payment procedures, and decision making. In this stage of using the system participants agreed that the factors being rejected in the survey are more applicable and useful. On the other hand, using the system during the stayi at the hotel promotes hedonic characteristics as it promotes the element of fun and enjoyment. In this stage participants clarified that the factors being accepted are the applicable ones. Taking this into consideration it is advised that the hotel's gamified application should promote all nine factors as they are important motives even at different usage stages. Participants agreed that they would use this application for the utilitarian aspect of it before going to the hotel for the functionality that it offers. For example, it was pointed out that: *"the way I think of it, list one has more elements associated with behaviour being at the hotel. You are in holiday mood and you are using the application to have some extra fun or find out about services provided in the hotel, where the second list has more functional elements that you want when making the booking"* (Interview, 25). Conversely, using the application during the stay at the hotel would serve hedonic purposes, through the tasks and gameplay it offers. As a result of this phase it shows a clarification with regard to the results of phase two. It is shown that the constructs being rejected in the previous phase do not lack in importance towards the motives in using a hotel's gamified application, but they appear in a different stage of usage of the application. Hence, two models are proposed as factors affecting intention to use a hotel's gamified application depending on the stage and the purpose the user is using the system.

5.1.1 Motives to use a hotel's gamified application at the destination

Nearly all participants stated that they are seeing this application as a game while they are in the hotel. For example, participants stated: *"it is more a marketing tool before doing the booking, or before being at the hotel and then is a game as soon as you got in the hotel and you want to start achieving tasks and exploring the area"* (Interview, 8). This shows that the factors supported in the survey are factors motivating hotel visitors to use the system during their stay at the destination. It also shows that these factors are mostly promoting hedonic behaviour and hotel visitors are looking to use the system as a game. The first model includes the factors being supported in phase 2, and this section will discuss these factors as motives to use a hotel gamified application at the destination.
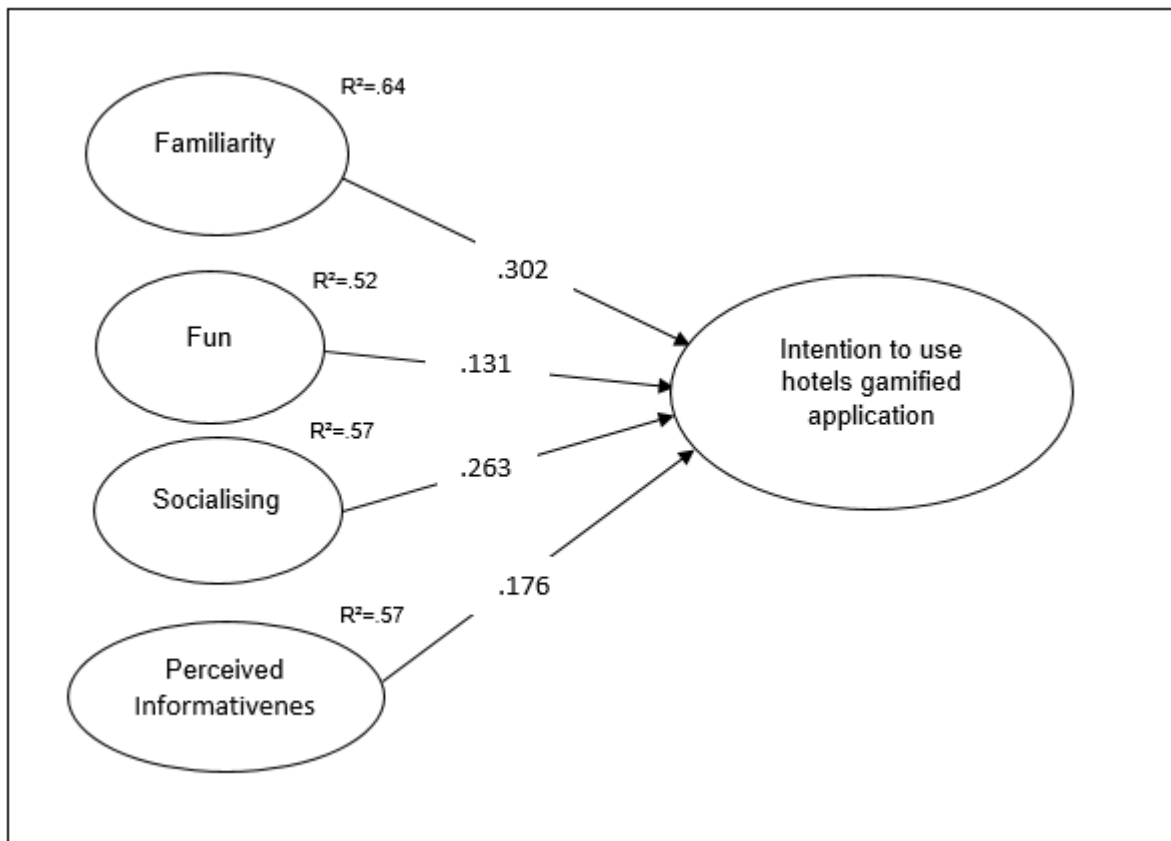
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Figure 5. 1 Factors influencing behaviour during staying at the destination

The figure above shows the factors affecting intention to use a hotel's gamified application at the point of the destination. This model includes the R^2 and beta values, since they are the factors being supported in phase 2 and the survey. The empirical findings indicate that Familiarity (β=.258) is the most important factor influencing hotel visitors' intention to use hotel gamified applications, followed by Socialising (β=.205) and Perceived Innovativeness (β=.135), which are also confirmed as significant factors affecting intention to use hotel gamified applications. The last factor affecting intention to use hotel gamified applications is Fun (β=.099). This means that when hotel visitors are at the destination they would use the system, since they have previous experiences with it. Also, the fact that the system is designed to learn what, why, where and when hotel visitors do what they do is the most important factor to motivate the users to use it. The ability of the system to let users socialise with each other is seen as the second most important factor to use the application at the destination. The third important factor affecting intention to use the hotel's gamified application is the ability of the system to inform customers about product alternatives, including information timeliness, accuracy, usefulness and completeness. Lastly, the

least important factor affecting hotel visitors' intention to use the system at the destination is the ability of the system to promote fun and enjoyment.

Familiarity

Familiarity is found as the most important feature (β=.258) that should be included in hotels' gamified applications when users use the system while being in the hotel. One of the participants stated: *"I like the idea of familiarity because I see that the application is talking to me in first person and explains to me every single task which makes it more enjoyable"* (Interview, 1). This construct shows hedonic value as it is associated with behaviour close to personal likes of individuals. Familiarity also promotes its hedonic meaning when it is linked with games. For example, a participant explained: *"familiarity is also saving me time as the more I am using the application the easier will be to me to do the things I want, just like a game gets easier the more you play it. Despite the difficult the higher you level up. The gameplay experience is still familiar to you regardless"* (Interview, 14). Participants' responses match the definition of familiarity as given by Gefen (2000) and Gefen and Straub (2004), in the context of e-commerce as an understanding often based on previous experiences, interactions and learning of what, why, where and when others do what they do. This finding contributes to the body of literature as it proves that familiarity has a direct positive effect on intention to use technology through hotel gamified applications.

Socialising

Socialising is found as the second most important factor (β=.205) that should be included in hotels' gamified applications used during the visit of hotel visitors in the hotel. Participants said: *"The socialising aspect is important in the point I could ask others about what can I see nearby. Where they have been and what they liked. Is mostly related with me during staying activity"* (Interview, 3). Another participant mentions: *"…socialising should be considered as fun when I am in the hotel because I am in the mood of speaking with others anyway"* (Interview, 19). This proves the hedonic value that the element of socialising promotes to the application. The participants' statements here highlight the importance of socialising with others to find information and opinion about the brand. This study found that the term socialising is more related with the term informational social influence. Social influence occurs when individuals' behaviour is influenced by those around them and it relates to being

frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao, Chen and Wang, 2016). The concept of informational social influence describes an influence to accept information obtained from another as evidence about reality (Harn et al, 2014). This finding contributes to the body of literature as it proves that socialising (as informational social influence) has a direct positive effect on intention to use technology through hotels' gamified applications.

Perceived Informativeness

Informativeness is found as the third most important factor (β=.135) that should be included in hotels' gamified applications at the point of the destination. Participants agreed: *"the perceived informativeness is also important due to the fact that the application itself informs me about certain things in regards to my staying there or the booking process"* (Interview, 3). This finding shows the hedonic value of the factor as it promotes the element of intrinsic motivation, since the application has a direct contact with the users, making sure that the needs of the hotel visitor will be met at the destination when they arrive. Participants' quotes agree with the definition of informativeness given by Lin (2007) as a measure of value perceived by a customer of the output produced by a website, with characteristics such as being up-to-date, accurate, useful, complete and its presentation to be viewed as important determinants of perceived information quality (Lin, 2007). This finding contributes to the body of literature as it proves that perceived informativeness has a direct positive effect on intention to use technology through hotels' gamified applications.

Perceived Enjoyment/Fun

Fun is found as the least important factor (β=.099) having a significant effect on intention to use hotels' gamified applications at the point of the destination. Most of the participants identified that the element of fun is a strong motive in the continuation of using this technology. For example, a participant said: *"the element of fun is what makes this application unique and more interesting than other current reward programs that I am already aware of"* (Interview, 17). Another participant clarifies: *"the fact that it looks so much like a game makes it fun and entertaining. It almost makes you forget that there is a hotel brand behind it"* (Interview, 19). This finding also proves the hedonic element of the fun motive. Also, it declares the link between the gaming designs of the system with the element of fun. Participants agreed the motive of fun

derives from the fact that the system reminds them of a game. This finding contributes to the body of literature as it proves that the element of fun has a direct positive effect on intention to use technology through hotels gamified applications.

5.1.2 Motives to use hotels gamified applications before going to the destination

Using a hotel's gamified application before visiting the hotel promotes behaviour with utilitarian characteristics, as users take into consideration budget elements and payment procedures before the final decision making. For example, a hotel visitor said that: *"…I would use it before going to the hotel for booking the room, but also find information in regards to what is there for me to do and sort out a way of planning for my holidays"* (Interview, 10). This finding proves the utilitarian aspect of the system before visiting the destination, showing that the factors not supported in the survey are factors motivating hotel visitors to use the system before making their final decision. Figure (5.2) shows these factors affecting intention to use a hotel's gamified application. The fact that these factors had not been supported led to the third phase of data collection as it shows conflict with the literature, and for further in-depth understanding it was decided to conduct a further phase. Since in phase 1 the data sample has been primarily with participants with experience in gaming and not visiting hotels it was decided to conduct a new qualitative phase, of data collection this time with participants with experience in visiting hotels and their perception of using the system. This new round of data collection clarified that the factors being not supported in the survey do not lack in importance when using hotels' gamified applications, but they will be relevant in a different stage of use. The figure (5.2), suggests a second model with motives affecting intention to use a hotel's gamified application, this time though before going to the destination with factors considered mostly utilitarian.
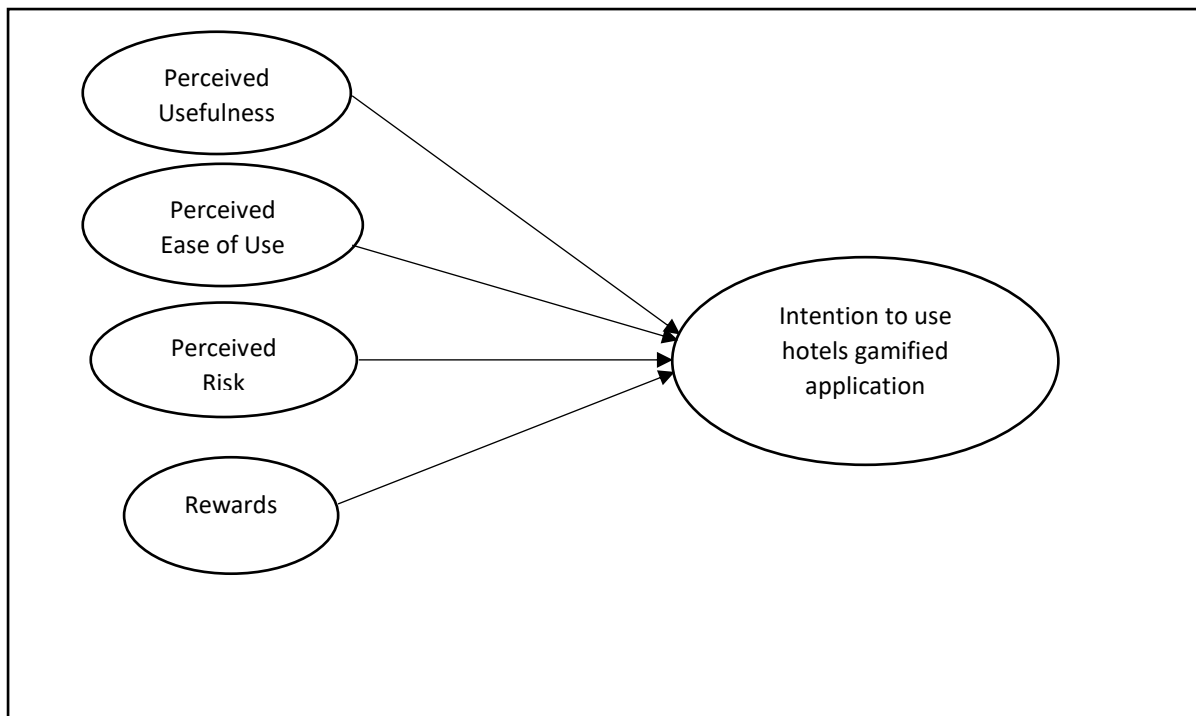
Figure 5. 2 Factors influencing behaviour before visiting the destination

However, since those factors have not been supported no R² and beta values are shown in the figure. This study suggest that a new quantitative round of data collection should be conducted to explain the relationship between the variables, this time with the understanding that these factors are influencing decision making before visiting the destination. An explanation of each factor is presented below.

Perceived Usefulness

Most of the participants argued about the importance of the technology being useful and how it would influence their behaviour. The motive of perceived usefulness is an important feature that should be included in hotels' gamified applications used before the visit of hotel visitors to the hotel. Participants agreed: *"being useful of course it is a main advantage, everything I download I do it for the usefulness of the application"* (Interview, 1). This shows the importance of the motive of perceived usefulness for hotel visitors when they would download this technology. This shows how participants link the motive of perceived usefulness with 'before visiting the hotel' utilitarian activities. The findings of this phase agree with the literature in definitions given by Cheema et al (2013), that perceived usefulness is considered as the utilitarian factor that affects online shopping. Users are more likely to continue using the internet to make purchases when they perceive that the medium is useful and when consumers

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already have purchased successfully online, they are more likely to express a strong intention to repurchase on the internet. As gamification describes a number of design principles, processes and systems used to influence, engage and motivate individuals, groups and communities to drive behaviours (intentions) or generate the desired effect (Yang, Asaad and Dwivedi, 2017), it appears that adding usefulness in this application would positively influence hotel visitors' behaviour towards using the technology.

Perceived Ease of Use

Most of the participants agreed on the importance of the technology being easy to use and how it would influence their behaviour. The motive of perceived ease of use is considered an important factor included in hotels' gamified applications as participants agreed that they are more likely to book with the brand if doing it within the system is easier than other ways. Participants agreed: *"the fact that it is easy to use is also a very important aspect because it is time efficient"* (Interview, 2). This shows that perceived ease of use does contribute towards intention to use hotels' gamified applications. It also shows how it is associated with saving time, which in this case is seen as utilitarian behaviour. Participants agreed that being easy is associated with the fact that this application is not seen as a game, but as a marketing tool instead. For example, participant said: *"I mean ease of use and perceived usefulness are absolutely important, but in the end of the day every application has to be unless we are talking about games, but this is different"* (Interview, 18). Since perceived ease of use positively affects the intention to use smartphone apps (Ozturk et al, 2016), it is found that the more the users anticipate effortless use of a hotel gamified application, the more likely they are to use the application.

Rewards

Participants agreed that the system should be rewarding to influence their behaviour. Rewards as extrinsic motives are considered important factors to be included in hotels' gamified applications, as participants agreed that it is more likely they would book with the brand if doing it within the system means that some kind of reward is expected in the future. The importance of reward is seen even before downloading the application, as participants agreed that knowing that using this application means that it is easier to be rewarded by the brand in the future. *"The reward is important as well especially as the first incentive to download the application. This is how people will start thinking*

the application as the first choice for choosing this hotel brand over another in the future as they see that the money spent so far is acknowledged and we get something back" (Interview, 17). This highlights the importance of rewarding the hotel visitors through the application with tangible rewards such as future discounts and offers. It further shows that as a motive it influences hotel visitors' behaviour, not only before visiting the hotel but even before downloading the application, as they are looking to be rewarded from the application for spending money in the brand. From a motivational perspective, rewards are one of the most widely accepted motivations (Chang, Hsu and Wu, 2015). Individuals will engage in behaviour that they perceive will eventually lead to valued rewards (Chang, Hsu and Wu, 2015). Outcomes and rewards can be tangible, such as monetary bonus, certificate, prize and award, or intangible, such as a skill that is perceived to be more useful or needed in the future or that improves one's special standing (Hansen, and Levin, 2016). This finding proves the connection that the reward has with utilitarian behaviour, as hotel visitors seek to have tangible rewards from using the technology. The users are seeing the application as a marketing tool when it comes to collecting the reward which highlights the connection that extrinsic motives have with utilitarian behaviour. Finally, the fact that individuals see hotels' gamified applications as a marketing tool increases the importance for the brand to maintain a sustainable rewarding system for the user in order to influence future decisions.

Perceived Risk

Finally, participants agreed that the system should be trustworthy to influence their behaviour before visiting the destination. Perceived risk has been linked with the application being trustworthy before downloading the technology. For example, a participant argued: *"I want it to be trustworthy if that's what you mean. I am generally afraid of viruses when it comes down to downloading applications. I will look at people's reviews before downloading and if it has good reviews then yes, I would do it myself. I do care about people's opinions"* (Interview, 6). This finding further highlights the importance of this factor towards intention to use the system before visiting the destination. Mostly, participants argued that technology which requires uploading personal information such as ID and bank accounts has to be trustworthy in the first place before looking into further details. In the field of m-commerce it has been found that trust is an important determinant influencing consumers' intention to use

internet to conduct online transactions and more generally the lack of consumer trust may create an impediment to the adoption of any form of electronic payment system including m-payment services (Phonthanukitithaworn, Sellitto and Fong, 2016). Considering that a hotel's gamified application is an m-commerce tool, the results of this study further prove that hotels' gamified applications have to be trustworthy.

5.1.3 Motives rejected to use a hotel's gamified application

Purpose (Altruism)

The last construct taken into further exploration in phase three was the motive of purpose (altruism). This construct had been added in the conceptual framework from the literature based on Marczewski's (2014) taxonomy of gamification users. Phase two showed that this construct is not supported and phase three showed that indeed this element does not show importance for hotel visitors when using a hotel's gamified application; however, it is seen as a good addition if everything else is there. Participants agreed that this technology is not seen as a gift card. For example, participants said: *"I can't see this application as a gift card, but it is good to be there"* (Interview, 24). Generally, it has being agreed by participants that the application is not seen as an instrument of altruism. Altruism represents an individual's willingness to benefit the wellbeing of others on a voluntary basis without the anticipation of any form of return (Chen, Fan and Tsai, 2013; Cheng and Chen, 2011; Teng, Wu and Liu, 2015).The results of this phase showed that individuals do not see the hotel's gamified application as a gift card, hence it appears that the motive of altruism is not enough to encourage intention to use the hotel's gamified application.

5.1.4 Summary

Analysing the third and final phase's primary findings revealed the main motives influencing the intention to use hotels' gamified applications. The results further explored why certain constructs have been rejected. The first general finding revealed that hotels' gamified applications are complex applications and have different purposes at different stages. This research suggests two different motives with factors influencing hotels visitors' intention to use a hotel's gamified application. The first model includes the factors being supported from the survey and phase three highlighted that these factors are significant to affect intention to use a hotel's gamified application when the users are at the destination. These motives are Familiarity,

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Socialising, Perceived Informativeness and Fun. The survey further explained that the stronger influencer is Familiarity (β=.258), followed by Socialising (β=.205), Perceived Informativeness (β=.135) and finally the element of Fun (β=.099). The results also suggest that participants would use the application during the stay at the hotel since it promotes behaviour with hedonic characteristics.

On the other hand, using hotels' gamified applications before visiting the hotel promotes behaviour with utilitarian characteristics as it takes into consideration budget elements, payment procedures and decision making. The second model includes the factors being rejected by the survey, and phase three highlighted that these factors are significant to affect intention to use a hotel's gamified application before users visit the destination. These motives are Perceived Usefulness, Perceived Ease of Use, Rewards and Perceived Risk. However, since these factors have been rejected by the survey, this study suggests that a new quantitative round of data collection should be conducted to explain the relationship between the variables, this time with the understanding that these factors are influencing decision-making before visiting the destination.

5.2 Second Objective: Meaning of fun when using the hotel's gamified application

5.2.1 Introduction

The second aim of this research is to understand the meaning of fun from hotel visitors when they would use a hotel's gamified application. The results of phase 3 have been compared with phase 1 and the literature review, showing similarities in opinion. Meanings such as achieving, socialising, challenging, competing, interactivity and personalisation as derived from phase 1 presented identical results in this phase. Differences appeared in the meanings of exploration and imposition upon others for different reasons. This section will discuss these meanings of fun.

Socialising

Socialising proved to have meant of fun when hotel visitors use the technology. Participants agreed that: *"socialising is a nice activity during the visit because I am in the mood of talking with people and meeting new cultures and so on"* (Interview, 4). It also further highlights that socialising is more important when using the technology

during the visit at the hotel. The results of this phase agree with the literature as both Bartle (1996) and Marczewski (2014) identified a group which enjoy using the system to socialise with others. Choo (2014) argues that these users want to interact with others and they are interested in parts of the system that enable them to accomplish this, and they will promote and evangelize the internal social network. For hotel visitors this system will promote the same characteristics. This finding adds to the body of literature with regard to the meaning of fun.

Exploring

Exploring proved to contribute towards the technology becoming fun and enjoyable. Participants agreed: *"the most important thing out of this list is by far the exploration for me at least. It is going to help me as a tourist to find out about the destination. Explore the nature of the town and anything around the hotel"* (Interview, 3). All the participants agreed that the importance of exploring is highlighted when visiting the area surrounding the hotel or sometimes the hotel itself. This further shows that the application is used for fun mostly during the visit at the hotel. However, the results of this research seem to have a different meaning from the literature review. Bartle (1996) identified a similar category called explorers. In this category players would try to find out as much as they can about the virtual world. Even though initially this means mapping its topology, later it advances to experimentation with its physics, and they are delighted in having the game expose its internal machinations to them (Bartle, 1996). However, hotel visitors do not show interest in exploring the virtual world and the system itself, but they are interested in using the application to explore the real world and the destination. Participants in both phase 1 and 3 agreed that exploring is a fun element when using the system, if this is combined with exploring the physical world at the destination and not the virtual world of the system. This proves the importance of exploring through the application for the users to enhance the fun element. Also, it clarifies that promoting exploration of the destination is important when building the tasks.

Achieving

Achieving also proved to contribute towards the technology becoming fun and enjoyable. For example, participants agreed: *"I see myself being engaged in an activity that promotes achieving. I like the levelling up system and I would focus there"*

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(Interview, 7). Tasks help towards promoting achieving behaviour making the experience more entertaining for users with these characteristics. The results of this phase agree with the literature, as both Bartle (1996) and Marczewski (2014) identified a group enjoying using the system to achieve. According to Bartle (1996), this group of players are often accumulating and disposing of large quantities of high-value treasure, or cutting a swathe through hordes of mobiles. Choo (2014) adds that these individuals want to be perfect on the internal learning system, and Zichermann (2010) explains that this kind of player wants to win and achieve the goal, therefore their motivation is the goal itself. Hence, levelling up and collecting points are important for users with preferences in the feeling of achievement. However, participants agreed that tasks should be physically possible to do and not something extreme. It has to fit their preferences during holidays. It is fun as long it allows the users be engaged with the application and the gaming aspect, but not interfere with their holiday schedule. Also, the tangible reward has to represent the achievement because they expect more from the brand. This finding proves the importance of achieving through the application for the users to enhance the fun element. It also highlights the importance of promoting the appropriate reward based on the difficulty of the task and the level of achievement.

Challenge

Challenge also contributes towards hotels' gamified applications becoming fun and enjoyable. Participants agreed: *"the element of challenge is the more attractive as a fun element. I am a person who likes to be challenged and improve through a game or anything I do I would like to offer me something more as a person and you only get that when you are challenged"* (Interview, 21). Furthermore, participants further explained that the gameplay experience has to be balanced, as they see themselves as tourists when being on site and they would not be engaged in case the challenge interferes with their plans. These results further prove that even though the user likes the gaming element of the technology, they still perform as a tourist at the destination, and therefore the tasks have to be related to experiences that promote the environment. This finding proves the importance of challenging the users through the application for them to enhance the fun element. This finding adds to the body of literature with regard to the meaning of fun.

Competitiveness

Competitiveness contributes towards the technology becoming fun and enjoyable. Participants agreed that competing with others is important when they understand the meaning of fun, using a hotel's gamified application. As they explained: *"I like the idea of competing with others as I see the leaderboard here"* (Interview, 3). This finding proves that competitiveness is a very important element when designing tasks in a hotel's gamified application, because it is contributing towards making the system fun. Furthermore, it has been found that the most important game mechanic promoting the feeling of competitiveness is the leaderboard. Participants agreed: *"competitiveness is important if reaching the top spot of a leaderboard and compete with others to reach there shows some form of acknowledgement. Then I would see how it will make it fun to me"* (Interview, 21). This shows that the leaderboard is a very important game mechanic to be added in a hotel's gamified application, as it attracts users with the behaviour of competing with others.

Interactivity

It is found that the feeling of interactivity is very important when users understand the meaning of fun in a system like a hotel's gamified application. Participants agreed: *"being interactive is kind of a given to me. I mean it is a mobile application, it tracks my information and performance on the spot so I would expect the results to come in straight away. It is not something that contributes towards making it fun. It is actually contributing towards not being fun if it is not interactive"* (Interview, 6). This finding shows that the users want immediate feedback from the system, otherwise the sense of it being fun is decreased. It is found that the system being interactive contributes towards making it fun, through the gaming aspect it promotes. It makes it more interesting because the information received by the system is coming with the sense of being in a gaming environment rather than exchanging emails. This finding adds to the body of literature with regard to the meaning of fun in both games and gamified applications.

Personalisation

Lastly, it is found that personalisation contributes towards the technology becoming fun and enjoyable. In a hotel's gamified application, personalisation is seen in two ways. Firstly, through the ability of the system to identify users' characteristics and

preferences and talk to them in the first person: *"it is talking directly to me it is sending me tasks more attractive to me. It creates that feeling that I am important as a person to the brand, which for me is more similar to how games create that form of personalisation. I mean a game knows in the majority of the situations what kind of activities you like to do and what kind of tasks you will be more interested to perform, hence the appropriate engagement is chosen"* (Interview, 10). This shows that it is very important for the system to send out the tasks on a personal level, because it promotes the feeling that the application knows and cares about the user more. Secondly, personalisation is promoted through the mechanic of the avatar: *"personalisation is important because as I said I have played games in a similar concept and I like the fact that I can pick an avatar, dress it and so on"* (Interview, 18). This characteristic shows that it is important for a hotel's gamified application to include the avatar mechanic when designing the system, as it is likely to attract users with this behaviour. This finding adds to the body of literature with regard to the meaning of fun in gamified applications.

5.2.2 Summary

The first objective showed that the element of fun is a key motive for individuals to use hotel gamified applications. Following that, the second objective tried to understand the meaning of fun when using a hotel's gamified application in order to help design the system to attract users with different behaviours. Participants in this research expressed seven meanings of fun (socialising, achieving, competitiveness, challenge, explore, interactivity and personalisation) when using the system during their visit at the destination. Through the discussion with the participants it is understood that significant importance should be taken into consideration when applying exploration tasks, as hotel visitors showed great interest in exploring the destination, and therefore they would be engaged in a system that encourages the activity. Furthermore, several mechanics have been linked with users with different behaviours. For example, a leaderboard has been highly linked with users with a preference for competing with others; points and levelling up are important for users with a preference in achieving, and avatars are very important for users with characteristics linked with personalisation. However, since this research followed a qualitative path, it is suggested a quantitative future research could generalise the results and explain the relationship of the mechanics with the users' types.

5.3 Research Contributions

Introduction

The findings of this study provide unique theoretical and managerial contributions for m-commerce use intention in the hospitality industry through the context of gamified applications. To explain factors affecting intention to use a new technology, the present study uses an inductive approach divided into three phases to propose a model. Data collected from phase 1 were taken into generalisation and further explanation in phase 2, leading to a third and final exploration phase for a better understanding of those motives affecting hotel visitors' behaviour towards using hotel gamified applications.

5.3.1 Theoretical Contributions

This research makes few theoretical contributions. Firstly, many studies have explored users' initial adoption of e-commerce (Cheema et al, 2013; Aren et al, 2013; Venkatesh, 2000; Harn et al, 2014) and m-commerce (Kim and Preis, 2016; Sohn, 2017; Ortzuk et al, 2016; Agrebik and Jallais, 2015), but little has been done about influencing factors of continuance intention towards gamification (Yang,Asaad and Dwivedi, 2017; Yoo, et al, 2017) and users' behavioural intention to try new mobile gamified applications in the context of the hospitality industry. The sustainability and success of a gamified application rely on users' continuance usage rather than first-time adoption behaviour. Thus, it is more likely to create an engaging experience when the users' motives are identified when designing games, serious games and gamified systems (Marczewski, 2014). Considering that there is insufficient research into the identification of those motives influencing intention to use a hotel's gamified application, this research tries to fill this gap and enlighten existing gamification research by investigating the predictors of users' continuance intention towards hotels' gamified applications. Furthermore, existing studies focus on investigating key influencing factors of gamification (Hamari and Koivisto, 2015; Rodrigues, L.F., Oliveira, and Costa, 2016), yet none of the existing studies investigate users' intention to use gamified systems directly in the hospitality industry. The behavioural intention of a gamified application is rarely examined in the hospitality literature; therefore, this study fills the gap regarding users' intention towards hotels' gamified applications by focusing the data collection (both qualitative and quantitative) on hotel visitors' point

of view with the help of visual material. For future researchers with interest in studying users' behavioural intention to use gamification, the new models may serve as reference.

Secondly, the present study reinforces the role of a hedonic dimension in technology acceptance in the consumer context such as m-commerce, especially when the hotel visitor is at the holiday destination. Hotels visitors' behavioural intention is determined not only by their perception of the technology, but also by the time and purpose fit. Based on the incorporation of the third phase's data collection, this research identified that behavioural intention towards a hotel's gamified application is influenced by the stage it is used. Participants clarified that a gamified system promotes hedonic dimensions at the holiday destination, whereas utilitarian dimensions are mostly related with before visiting the destination. The finding of this research highlights the importance of the hedonic dimension during visiting the destination, especially since recent references still recognise that there is limited empirical research about tourists' motives for engaging with gamified technology in the vacation context, even though the potential of gamified technologies for meaningful tourist experiences has been recognized (Aebli, 2019).

Hedonic dimensions are equally important to utilitarian dimensions since they promote a continuation of use of the system. As games use the element of fun, immersion, social interaction and aesthetics to reinforce the usage of the system similarly it is found that hotel gamified applications could use the elements of fun, familiarity, socialising and perceived informativeness to reinforce the usage of the system. This will lead to a broad collection of behavioural data per user making future activities more personalise and effective. Reviewing the literature, it is seen the example of a game presented be Hasting et al (2009), and items provided to the gamer based on previous preferences and activities. The fitness of a given weapon design is inferred from the behaviour of the player during the game progress; if the player uses a weapon frequently, similar weapons are made available, and where a weapon is left unused, it appears less frequently (Sorenson, Pasquier and DiPaola, 2011). This means that the user is more likely to be engaged with the system as they recognise their preferences and problem-solving mechanics in the game. These individual preferences lead to more engagement and sustainability. Similar advantages will provide the analytic behaviour of the individual for a hotel gamified application. For

example, if the user uses SPA facilities frequently, similar offers will be made available, and where an offer is left unused, it will appear less frequently. This will lead to the user to become more engaged with the system as they will recognise their preferences in the application. In this note it should be mentioned that a hotel gamified application will comply with GDPR rules in similar rules like any other mobile application, some of the steps discussed in literature review. Therefore, it is believed that this research enriches the current literature that is mostly focused on utilitarian perceptions of users, by identifying that two models are appropriate towards predicting intention to use hotels' gamified applications based at the time of use.

Thirdly, this research added to the knowledge of the meaning of fun. The present study extended understanding of fun elements when using hotels' gamified applications. Previous studies focused on understanding the meaning of fun when playing games (e.g. Bartle, 1996) or gamification systems (e.g. Marczewski, 2014), yet none of the existing studies focus on understanding the meaning of fun when using a gamified system in the context of the hospitality industry. Using the visual material this study fills the gap regarding the meaning of fun when using hotels' gamified applications, contributing to the perception of fun for hotel visitors and consequently affecting the intention to use the system. For future researchers with interest in understanding the perception of fun, these factors may serve as a strong reference.

5.3.2 Managerial Contributions

This research indicated a number of findings with regard to the factors influencing the users' intention to use hotel gamified applications during or before their holidays. These findings lead to a number of valuable practical implications, providing a useful tool for managers to understand hotel visitors' drivers of acceptance in order to classify users' profiles and promote mechanics that may be more likely to influence users' future decisions. Overall, the present study provides hotel gamified application developers with an overall understanding of users' behaviour, especially depending on the time of use. To highlight the importance of this finding a comparison with an existing hotel mobile application is made. Appendix 8 presents visual material of a hotel mobile application developed during this research by a global brand, applying several game mechanics (points, badges) and game thinking (personalisation, progress and rewards). However, it is found that even though this hotel mobile

application presents few gamified characteristics does not qualifies to be a gamified application based on definition by da Silva Brito et al (2018), stating that gamification is the use of technologies engaged in promoting intrinsic motivations by using diverse characteristics of games in other domains outside the entertainment industry, such as marketing and it is an emerging trend derived from the huge popularity of games and their intrinsic ability for call to action to solve problems or enable learning in different fields and in people's lives. Comparing this hotel application with the motivational factors found in the literature to influence gamers playing a game it becomes apparent the it lacks on delivering the motivational factors of **Immersion** (through pleasures of fantasy or narrative), **Social Interaction** (absence of any social mechanic) and **Fun** (absence of any tasks, promotion of challenge). Also, definition by Maedche, Botzenhardt and Neer (2012: 186) presented in the literature review "The use of game design elements and mechanisms in non-game contexts to create a sense of playfulness […] so that the participation becomes enjoyable and desirable" promotes the element of playfulness for gamification, thereafter a gamified application, which is delivered by promoting tasks, and interactivity with the system. The existing hotel application appears to be lacking on delivering those elements hence the sense of playfulness.

The present research identified behavioural differences between using the system before visiting the holiday destination and during the visit at the hotel. The difference is linked to the purpose of using the system, which is described as fun during the visit at the hotel fulfilling the hedonic needs of the users, compared to before visiting the hotel, which is determined by the functional values connected with m-commerce and fulfilling the utilitarian needs of the user. Comparing an existing hotel application (Appendix 8) with the visual material used for the purpose of this research (Appendix 1) it seems that currently hotel applications are focused on the utilitarian purposes of the technology (making a booking, finding a hotel, reward the user) ignoring the hedonic needs of the users (fulfilling a task, sense of achievement, exploring the surrounding artefacts of the hotel) during their visit at the destination. This highlights the importance of this research, demonstrating the duplicate usage of the system depending on the time of use. The present study suggests that hotel gamified application developers should focus on building an experience through their mobile application that equally satisfies users' hedonic and utilitarian needs through

mimicking the experience of a gaming system. However, equally important for the developers is to promote the appropriate experience at the right time of use, since users identified with different needs at different time of use.

Secondly, it is found that familiarity is the most important factor (β=.258, p < 0.000), affecting hotel visitors' behavioural intention at the holiday destination, which implies that users' behaviour is mainly determined by website recognition, personalization and visual aspects, values connected with m-commerce. As participants agreed: *"familiarity is also saving me time as the more I am using the application the easier it will be for me to do the things I want, just like a game gets easier the more you play it".* Thus, the gamified application developers in the hospitality industry should develop accepted tasks, mechanics and visual aspects which will be compatible with the users' life style, and hotel visitors should find these applications personalised and recognisable. Also, they should meet customers' needs by designing easy and achievable tasks, which will provide quality information for them on an 'anytime and anywhere' basis.

Thirdly, beside the promotion of familiarity through the application, the results show the importance of perceived informativeness in using such technology. This is reflected in some participants' responses, *"the perceived informativeness is also important due to the fact that the application itself informs me about certain things in regards to my staying there or the booking process",* whilst others have said: *"it answers my questions around my holidays before they even arise if that makes sense".* As a result, gamified application developers in the hospitality industry should encourage the users to use their mobiles when conducting the brand as all the information regarding their visit is included in the system. To do so, incentives should be promoted, either as part of a task or individually, and such incentives could include an extra 5% discount of a service at the destination or an extra advantage for the application users.

Furthermore, to increase the intention to use the system in the hospitality sector, social influence and socialising should be considered, as some participants said: *"The socialising aspect is important as I could ask others about what can I see nearby; where they have been and what they liked".* This implies that the element of socialising is important when developing a hotel's gamified application; hence a function that

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would allow the users to communicate with each other is a beneficial tool for the system. Also, brands and especially marketing managers should consider the social issues in their marketing communication activities and campaigns to encourage the users to use their gamified application while they conduct their staying process.

Finally, fun is found to be a sufficient factor to influence hotel visitors' intention to use the hotel's gamified application. Thus, hotel brands and gamified application developers should keep in mind that the system has to promote the element of fun for the users at the destination. The more fun tasks and mechanics the system promotes, the better the customers will perceive it and thus increase their intention to deploy it. Consequently, the more willing the users will be to make a purchase from the system.

With regard to the second objective of understanding the meaning of fun when hotel visitors use the gamified application, this research indicated a number of implications. Firstly, findings suggested a relationship between system interactivity and the meaning of fun through the mechanic of tasks. This research identified that the mechanic of tasks has a significant role in the users' perception of fun and the overall engagement with the technology. Hotel gamified application users need to be able to access their account at any time and receive tasks appropriately constructed. Hence, the timely update of users' accounts is needed, especially in terms of the frequently visited data, such as tasks achieved, and destination explored. Any delay of the information will undermine the users' experience and reduce the level of fun for users.

Secondly, the element of exploration for the users' perception of fun has a significant implication for the brand and more specifically for each hotel. Participants agreed that: *"the most important thing out of this list is by far the exploration,"* whilst others added "*exploring is interesting in this case, since I am always a tourist visiting a foreign environment. Not so much in exploring the application itself but mostly the hotel and the local area of the destination".* This implies that the hotel managers should be aware of the sightseeing around the hotel and include tasks in the system to encourage users to visit several areas at the destination. This will enhance the perceived fun for the user and increase the engagement with the system. Furthermore, there is a second implication deriving from the exploration, as it implies that hotel managers will have to develop a collaboration between the hotel and other local businesses. This research suggests that hotel managers will seek to develop a relationship with local business

owners such as local restaurants, tourist guides, museums and transportation in order to increase the sustainability of the system. For example, it is advised to work together with local tourist guides to improve the sense of exploration for the visitor. This implies that the local community will benefit from international tourists arriving at the destination, leading to further collaboration with the hotel and possible better deals with the suppliers.

5.4 Study limitations

This section describes the limitations of this research. Firstly, the limited (if any knowledge) of the sample in relation to the context of hotel gamified applications led to the development of visual material (see appendix 1) by the researcher and the discussion around them. Therefore, the sample's opinions with regard to needs and motives to use a system like that are based on having the product in front of them, which is a development of the researcher and not an existing product. Even though existing examples of gamification were considered to put into the research, the limited examples of hotel gamified application led to the decision of developing one from scratch, even on paper. The development of the visual material is a product of an extensive literature review around the concept of gamification and its best application to the context of hospitality and hotels. Furthermore, the first phase of this research (gamers) aimed to lead the sample (as experts) to add further factors in the visual material in case they felt it would help engagement with the users.

A second limitation was encountered during the second phase of data collection and the questionnaires. Unfortunately, 89.9% of the respondents belong in the group age of 18-34 years old, leaving a huge gap the of age population out of the sample. This means, that the results of this phase are based on younger generations rather than an overall point of view. Moreover, with regard to the demographics of the sample in phase 2, 77.6% of the sample come from four countries (Cyprus: 23.1%, United Kingdom: 23.1%, China: 16.3% and Austria: 15.1%), meaning that it is not a worldwide sample as intended, but more of a representative one.

A further limitation in the second phase comes from the researcher's limited previous experience with statistics and the SPSS 24 software. It was acknowledged that the results of the first phase had to be empirically tested, and therefore quantitative methods of analysis had to be conducted. Due to limited previous knowledge of

statistics, the researcher read a few books and attended multiple meetings with people with experience in the field before putting this learning into practice.

In conclusion, there were several limitations but none of these restricted the findings too much. Hence, it is difficult to determine whether a similar set of results would occur if it was run again with different visual material (in phase 1) or a different sample demographic (in phase 2).

5.5 Future Work

Developing a new quantitative research for the motives affecting intention to use hotel gamified applications before going to the destination

This research has suggested that motives towards using hotel gamified applications will involve two different models based on the time of use of the system. This round of data collection clarified that the factors not being supported in the survey (phase 2) do not lack in importance when using hotels' gamified applications, but they will be relevant in a different stage of use. However, since those factors have not been supported, no R^2 and beta values are shown in the figure proposed earlier on. Therefore, this study suggest that a new quantitative round of data collection should be conducted to explain the relationship between the variables, this time with the understanding that these factors are influencing decision making before visiting the destination.

Alternative populations

This research's approach was to study users' behaviour when using hotel gamified applications: investigating hotel visitors' motives towards using the system. The sample of both qualitative phases (1 and 3) required participants to be experienced with games (phase 1) and experience in staying at hotels (phase 3). However, there were no exclusion criteria with regard to the age of the participants. Therefore, the sample primarily entailed college students. Similarly, phase 2 (as mentioned in the limitations section) unfortunately failed to collect a sample for ages over 35 years, hence it is proposed that future research should explore the concepts within alternative populations.

Linking gamers' profiling with game mechanics

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Even though game mechanics have been identified and explained in chapter 2 (Literature review), no taxonomy has been made towards the users' profiling. In particular, the use of game mechanics and game thinking as they relate to user profiling needs further investigation to show the appropriate game mechanic for each user characteristic, which will increase the effectiveness of the system.

5.6 Summary

This chapter provides a conclusive evaluation of the findings drawn from the three phases, further discussing these results and comparing them in relation with previous literature. The second section of the chapter was to present the theoretical and managerial implications of the findings. The purpose of this research has been to propose and test a model to clarify the factors that motivate hotel visitors to use hotel gamified applications in the field of m-commerce. The second objective of the research is to understand the meaning of fun when a hotel's visitors use the hotel's gamified application. This chapter summarised that hotel gamified applications have dual purposes based on time and purpose of use. Participants agreed that their behaviour towards the system before visiting the destination or before making the booking is linked with utilitarian behaviour, whereas their behaviour while at the destination is linked with hedonic behaviour. Thus, this research proposes eventually two models instead of one, depending on the time of use for the user. Furthermore, understanding the meaning of fun for hotel visitors when using the system indicated that it is important for the hotel managers and gamified system developers to be aware of the sightseeing around the hotel, and to promote tasks relating to exploration of the local environment to enhance the element of fun for the users. However, this also implies that hotel managers should be able to create relationships and collaborations with local businesses as a bond of exchange for hotel visitors.

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Appendix 1: Visual Material for phases 1 and 3

Appendix 2: Phase 1 Interview Plan

Interview Plan

Have you ever used a hotel application before? (i.e. booking, check room availability or price)

- o If yes for what reason
- o If yes how did you find it (easy, useful)
- o If yes would you use that again

- ▪ If no why?
- ▪ Would you use it in the future?
- ▪ Do you find it difficult? Not useful? Boring?

Do you know what Gamification is?

- ▪ If yes what is gamification?

Have you ever used a gamified application in the past for any kind of purchase or point collection?

- o If yes what kind of gamified application have you used?
- o If yes was it an application related to hotels or tourism destinations?
- o If yes how did you find the experience?
- o If yes have you used this application more than once? How many times?
- o If yes what do you think about the specific application? (Exciting, boring, nothing interesting).
    - ❖ If yes what did you find exciting?
    - ❖ If no why was it boring?
- o If yes would you rather use that application for booking a hotel rather than the current hotel application?
- o If yes do you think that this application is enough to create engagement with you?
- o If yes do you think that this application is enough for you in order to influence your future decision making in the hotel's benefit?

If no show material about gamified application

- What do you think about this gamified application?
- What do you think about this application in relationship with the previous one?
- Do you find this application more interesting/fun?
    - ❖ If yes what is the interesting/fun element?
    - ❖ If no why this application is not interesting for you?
    - ❖ If no what elements would make this application more interesting?
- Would you use that application to book a room in a hotel of the specific brand?
- Do you find this application easy to use?
- Do you find this application useful?
- Would you use that application before visiting the hotel? During the visit? After the visit?
- Would you use that application for a non-commercial reason?
- How important is the element of gameplay for you in order to use this application?
- Is this application enough for you in order to visit the brand in the future?
- Is the reward the most important element in the decision making or the gameplay itself?

What kind of games do you play? (Mobile, console) (Online, offline) (Multiplayer, single player) (Facebook)

Do you have any preference in a specific game? Why?

How often do you play this game?

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Appendix 3: Phase 3 Interview Plan

Interview Plan

Are you familiar with the term Gamification?

Have you ever used a gamified application for any reason?

- o If yes was it an application related to hotels or tourism destinations?
- o If yes how did you find the experience?
- o If yes do you think that this application is enough to create engagement with you?
- o If yes do you think that this application is enough for you in order to influence your future decision making in the hotel's benefit?

If no show material about gamified hotel application

- What do you think about this hotel gamified application?
- Do you find this application interesting/fun?
  - ❖ If yes what is the interesting/fun element?
  - ❖ If no why this application is not interesting for you?
  - ❖ If no what elements would make this application more enjoyable?
- Would you use that application before visiting the hotel? During the visit? After the visit? Why?
- Do you see this application more as a useful tool or a game?
- Would you treat this application as a booking application or as a game?

List 1	List 2
Familiarity	Perceived Usefulness
Socialising	Ease of Use
Perceived Informativeness	Rewards
Fun	Perceived Risk
	Purpose (Altruism)

- Which one of this list of motives do you see more applying in your personality in regards of using a hotel mobile gamified application?
- Why do you consider this group more important?

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- How important is the element of familiarity for you when using a hotel gamified application?

- How important is the element of rewards for you when using a hotel gamified application?

- Out of the nine which one do you find as the most important in regards of using a hotel gamified application?

- What do you think of perceived usefulness and ease of use in terms of an application like that?

- Will you use it for utilitarian purposes or hedonic purposes?

- If the application was applying the elements in the left column will it be enough to create engagement with you?

- If this application was applying the elements in the right column will it be make any difference to you? Will it be enough to create engagement with you?

Understanding the meaning of fun from a hotel visitor's perspective

- Looking at the visual material what element do you consider as fun and why?

Meaning of Fun	
Challenge	Socialising
Explore	Achieving
Interactive	Personalisation
Competitiveness	Imposing upon others

- How important is the element of challenge for you in explaining fun when using a hotel gamified application?

- How important is the element of exploring for you in explaining fun when using a hotel gamified application?
- Which ones are the most important elements to describe the experience as fun?
- Is these element enough to motivate you to use the application?
- Which one of them would mostly affect your decision?

Gamification has been described as the use of game-based mechanics aesthetics and game thinking to engage people, promote learning, motivate action and solve problems. Also as the use of game design mechanics to influence people out of a game context

Utilitarian Benefits (financial incentives, convenience benefits)

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Hedonic Benefits (aesthetic, experiential and enjoyment)

Familiarity: Understanding of what is happening, the context and what will occur next. Understanding often based on previous interactions, experiences and learning of what, why, where and when other do what they do.

Socialising: The enjoyment of shopping with friends and family, socialising while shopping and bonding with others while shopping. For example, a buyer may obtain enjoyment by sharing her good Amazon shopping experience with others via a social network website.

Perceived Informativeness: The ability to inform customers about product alternatives. Includes information timeliness, accuracy, usefulness and completeness. For example, complete contact information and return policy add credibility and thus perceived integrity.

Fun: Enjoyment can be defined as the fun or pleasure derived from performing activities either actively or passively, regardless of the quality of the performance attained

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Appendix 4: Survey items including the removed after pilot test

Code	Item	Author, year	Used, not used
Fun1	Using a hotel gamified application should be fun for its own sake	Terry L. Childersa, Christopher L. Carrb, Joann Peckc, Stephen Carsond (2001)	Used
Fun2	Using a hotel gamified application should be boring	Terry L. Childersa, Christopher L. Carrb, Joann Peckc, Stephen Carsond (2001)	Used
Fun3	Using a hotel gamified application should be fun and pleasant	Cheol Park (2004)	Used
Fun4	I have to find my hotel gamified experience interesting	1. Marios Koufaris (2002); 2. Terry L. Childersa, Christopher L. Carrb, Joann Peckc, Stephen Carsond	Used
Fun5	I have to find my hotel gamified experience exciting	Marios Koufaris (2002)	Used
Fun6	Compared to other things I could have done the time I want to spend using the application has to be truly enjoyable	Barry J. Babin, William R. Darden, Mitch Griffin (1994)	Not used
Fun7	I like to try new services and hotels for fun	Andrew J. Rohma, Vanitha Swaminathan (2004)	Not used
Fun8	I like to try new technologies and applications for fun	Andrew J. Rohma, Vanitha Swaminathan (2004)	Not used
Fun9	The gamified application is visually appealing	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Not used
Fun10	I have to find my gamified experience fun	Marios Koufaris (2002)	Not used
Fun11	I have to find my gamified experience enjoyable	1. Marios Koufaris (2002); 2. Terry L. Childersa, Christopher L. Carrb, Joann Peckc, Stephen Carsond	Not used
R1	I would use a hotel gamified application for tangible rewards (Discounts, Offers)	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Used
R2	I would use a hotel gamified application for intangible rewards (Badges, Points)	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Used
R3	I would use a hotel gamified application for the unexpected rewards	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Used
R4	I would use a hotel gamified application for expected rewards	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Used
R5	I would use a hotel gamified application for the completion task rewards	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Used
R6	I would enjoy looking for discounts on a hotel gamified application	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
R7	when I use a hotel gamified application I do it for the performance reward	Edward L. Deci, Richard Koestner, Richard M. Ryan (2001)	Not used
R8	I enjoy hunting for bargains when I shop on this gamified application.	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Not used
R9	My gaming experience was rewarding	Eric N. Wiebe, Allison Lamb, Megan Hardy, David Sharek (2014)	Not used
R10	For the most part, I go shopping (or booking) on this gamified application when there are sales.	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Not used
PU1	I want using a hotel gamified application to save me money	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used

		Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	
PU2	I want using a hotel gamified application for booking to increases the productivity of my booking tasks	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007) Joaquin Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
PU3	I want using a hotel gamified application to increases my shopping effectiveness	Marios Koufaris (2002)	Used
PU4	I want using a hotel gamified application to improve my shopping performance	Marios Koufaris (2002)	Used
PU5	I want to find a hotel gamified application useful	1. Marios Koufaris (2002) 2. Lemuria Carter, France Bélanger, (2005) 1. Marios Koufaris (2002); 2. Lemuria Carter, France Bélanger, (2005)	Used
PU6	Using the gamified application for booking increases the productivity of my booking tasks	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Not used
EOU1	I want to be able to use a hotel gamified application without the help of an expert	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
EOU2	I want to find it easy to learn how to use a hotel gamified application	1. Marios Koufaris (2002); 2. 2. Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
EOU3	I want it to be easy to use a hotel gamified application to find hotels that i want to book	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
EOU4	My interaction with a hotel gamified application has to be clear and understandable	Marios Koufaris (2002)	Used
EOU5	I want a hotel gamified application to present information easy to understand	Chung-Hoon Park, Young-Gul Kim (2003)	Used
EOU6	I have to find the application easy to use	1. Marios Koufaris (2002); 2. Mary Wolfinbarger, Mary Gilly	
Social1	I would use a hotel gamified application with my friends and family to socialise	1. Esmaeil Daliri, Sajad Rezaei, Wan Khairuzzaman Wan Ismail, (2014); 2. Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
Social2	I want to find using a hotel gamified application a bonding experience	1. Esmaeil Daliri, Sajad Rezaei, Wan Khairuzzaman Wan Ismail, (2014); 2. Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
Social3	I want to use a hotel gamified application to get to know other people	Emese Domahidi, Ruth Festl, Thorsten Quandt, (2014)	Used
Social4	I would use a hotel gamified application to find new friends	Emese Domahidi, Ruth Festl, Thorsten Quandt, (2014)	Used
Social5	I would use a hotel gamified application because I prefer socialise with others than being alone	Jeroen Jansz, Lonneke Martens (2005)	Used
Social6	I enjoy socialising with others when I use the hotel gamified application	Esmaeil Daliri, Sajad Rezaei, Wan Khairuzzaman Wan Ismail, (2014)	Not used
Innov1	I am generally cautious about accepting new ideas	Moez Limayem, Mohamed Khalifa, and Anissa Frini (2000)	Used
Innov2	I must see other people using innovations before I consider them	Moez Limayem, Mohamed Khalifa, and Anissa Frini (2000)	Used
Innov3	I think I would be the first in my circle of friends to know about the hotel gamified application	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
Innov4	I think I would be the first in my circle of friends to use a hotel gamified application	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
Innov5	I think I would use a hotel gamified application even if I did not know anyone who had done it before	Enrique Bigne-Alcaniz, Carla Ruiz-Mafe, Joaquın Aldas-Manzano and Silvia Sanz-Blas (2007)	Used
Innov6	Usually I am among of the first to try out a new application	Hans H. Bauer, Stuart J. Barnes, Tina Reichardt, Marcus M. Neumann (2005)	Not used

Innov7	Often I try new applications before my friends do.	Hans H. Bauer, Stuart J. Barnes, Tina Reichardt, Marcus M. Neumann (2005)	Not used
DF1	I would use a hotel gamified application if it responds my questions immediately	Mary Wolfinbarger, Mary Gilly	Used
DF2	I would use a hotel gamified application if it provides me up-to-date information	1. Chung-Hoon Park, Young-Gul Kim (2003); 2. Esmaeil Daliri, Sajad Rezaei, Wan Khairuzzaman Wan Ismail, (2014); 3. Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014) Young-Gul Kim (2003)	Used
DF3	I would use a hotel gamified application if it provides me up-to-date service information	Chung-Hoon Park, Young-Gul Kim (2003)	Used
Auto1	I would use a hotel gamified application if i could control information i receive	Mary Wolfinbarger, Mary Gilly	Used
Auto2	I would use a hotel gamified application if it could let me Do-things-myself	Mary Wolfinbarger, Mary Gilly	Used
Auto3	I know how to find what I am looking for on the app stores	Han-Jen Niu, Chun-Tao Chang (2015)	Used
Purpose1	I would like shopping on the hotel gamified application for others, because when they feel good, i feel good	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
Purpose2	I would feel good to book a hotel on the gamified application for the special people in my life	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
Purpose3	I would enjoy booking a hotel on a gamified application for my friends and family	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
Purpose4	The hotel gamified application has to show a sincere interest in solving customer problems	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Used
Purpose5	The hotel gamified application has to be willing to help customers	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Used
Purpose6	I enjoy looking around on this gamified application to find the perfect destination (hotel) for someone	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Not used
Purpose7	I will recommend this gamified application to other people	Chung-Hoon Park, Young-Gul Kim (2003)	Not used
Master1	I like to have a great deal of information before i buy	Andrew Rohm, Vanitha Swaminathan (2014)	Used
Master2	I want to be shown lots of choices before i buy	Mary Wolfinbarger, Mary Gilly	Used
Master3	I do not like to browse, i like to go straight for what i want when i book a hotel	Charles Dennis, Alesia Morgan, Len Tiu Wright , Chanaka Jayawardhena (2010)	Used
Master4	When i use a hotel gamified application i want to recognize things of myself	Jeroen Jansz, Lonneke Martens (2005)	Used
Master5	I like browsing for the social experience	Mary Wolfinbarger, Mary Gilly	Not used
Trust 1	I want a hotel gamified application to be trustworthy	1. Gwo-Guang Lee, Hsiu-Fen Lin (2005); 2. Lemuria Carter, France Bélanger, (2005)	Used
Trust 2	I want a hotel gamified application to instill confidence in customers	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Used
Trust 3	I want payment information to be protected in a hotel gamified application	Chung-Hoon Park, Young-Gul Kim (2003)	Used
Trust 4	I rarely download applications i know nothing about	Han-Jen Niu, Chun-Tao Chang (2015)	Used
Trust 5	I am afraid that my private information will be used in an unwanted manner	Chung-Hoon Park, Young-Gul Kim (2003)	Used
Trust 6	Based on my experience with the online vendor in the past, I know it is honest	David Gefen, Ellena Karahanna, Detmar W. Straub (2003)	Not used

Trust 7	Based on my experience with the online vendor in the past, I know that it cares about the customers	David Gefen, Ellena Karahanna, Detmar W. Straub (2003)	Not used
Trust 8	Based on my experience with the online vendor in the past, I know it is not opportunistic	David Gefen, Ellena Karahanna, Detmar W. Straub (2003)	Not used
ITU1	I want to use the gamified application not because I will have to, but because I will want to	Barry J. Babin, William R. Darden, Mitch Griffin (1994)	Used
ITU2	I would use the hotel gamified application for gathering information for hotels	Lemuria Carter, France Bélanger, (2005)	Used
ITU3	I would use the hotel services provided by the gamified application	Lemuria Carter, France Bélanger, (2005)	Used
ITU4	If I download a hotel gamified application in the next 30 days, i will use it	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Used
ITU5	I strongly recommend that others use the gamified application	Gwo-Guang Lee, Hsiu-Fen Lin (2005)	Not used
ITU6	My general intention to use mobile marketing services is very high	Hans H. Bauer, Stuart J. Barnes, Tina Reichardt, Marcus M. Neumann (2005)	Not used
ITR1	I will not change my holiday shopping application in the future	Chung-Hoon Park, Young-Gul Kim (2003)	Used
ITR2	I will continuously book hotels at this hotel gamified application in the future	1. Hans H. Bauer, Stuart J. Barnes, Tina Reichardt, Marcus M. Neumann (2005); 2. Chung-Hoon Park, Young-Gul Kim (2003) Young-Gul Kim (2003)	Used
ITR3	I plan to continue using the hotel gamified application to book my hotel	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
ITR4	I will consider a hotel gamified application to be my first choice for transactions in the future	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used
ITR5	It is likely that i will continue purchasing products (or services) from this application in the future	Chao-Min Chiu, Eric T. G. Wang, Yu-Hui Fang, Hsin-Yi Huang (2014)	Used

Appendix 5: Questionnaire

Gamified applications for hotels

Who is conducting the Research

This research is being conducted as part of the research project 'Gamification in Hospitality' as part of a PhD thesis. The overall aim of the project is to understand customers' opinion about using gamified applications on mobiles.

Purpose of the research

This is a survey to understand your usage and opinions toward using a gamified application of a hotel in the future. Your feedback is important to assist us to understand customer preferences with regards to using gamified applications. Gamification is the use of game design metaphors to create more game-like and engaging experiences. A hotel gamified application is translated to a mobile application as a marketing tool aiming to create a customer relationship between YOU (customer) and the company (hotels) through a similar design to games.

Research procedures

For this example, please think of (imagine) a gamified application, as it could be provided by a chain hotel company. Users could use the hotel gamified app to perform tasks such as book a hotel room, book a spa treatment or reserve a table in one of the restaurants and make purchases such as souvenirs. Every action in this mobile application is part of a game experience so think about it as playing a game that gives you the ability to do all the above interactions with the hotel.

The entire survey should take approximately 10 minutes to complete

RISKS

There are no foreseeable risks for participating in this research.

BENEFITS

There are no direct benefits to you as a participant other than to further research in the gamification hospitality area.

1. Gender
2. Age
3. Ethnicity
4. When was the last time you visited a 5* hotel in the past

Within the last year

2-3 years ag

4-5 years ago

More than 6 years ago

Never

5. What was the reason for visiting a 5* hotel in the past

Leisure

Business

Both

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Using a hotel gamified application should be fun for its own sake					
Using a hotel gamified application should be boring					
Using a hotel gamified application has to be fun and pleasant					
I have to find hotel gamified experience interesting					
I have to find my hotel gamified experience exciting					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would use a hotel gamified application for tangible rewards (Discounts, offers)					
I would use a hotel gamified application for intangible rewards (Badges, Points)					
I would use a hotel gamified application for unexpected rewards					
I would use a hotel gamified application for expected rewards					
I would use a hotel gamified application for the completion task rewards					
I would enjoy looking for discounts on a hotel gamified application					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Using a hotel gamified application would save me money					
Using a hotel gamified application increases the productivity of my booking tasks					
Using a hotel gamified application increases my shopping effectiveness					
Using a hotel gamified application to improve my shopping performance					

I find a hotel gamified application useful					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think I will be able to use a hotel gamified application without the help of an expert					
I think I will find it easy to learn how to use a hotel gamified application					
I think it is easy to use a hotel gamified application to find hotels that I want to book					
My interaction with a hotel gamified application has to be clear and understandable					
The hotel gamified application presents hotel information easy to understand					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would use a hotel gamified application with my friends and family to socialise					
I think I would find a hotel gamified application a bonding experience					
I would use a hotel gamified application to get to know other people					
I would use a hotel gamified application to find new friends					
I would use a hotel gamified application because I prefer socialising with others than being alone					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am generally cautious about accepting new ideas					
I must see other people using innovations before I consider them					
I think I would be the first in my circle of friends to know about a hotel gamified application					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think I would be the first in my circle of friends to use a hotel gamified application					
I think I would use a hotel gamified application even if I did not know anyone who had done it before					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would use a hotel gamified application if it responds to my questions immediately					
I would use a hotel gamified application if it provides me with up-to-date information					
I would use a gamified application if it provides me with up-to-date SERVICE information					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would use a hotel gamified application if I could control the information I receive					
I would use a hotel gamified application if it would let me do-things-myself					
I know how to find what I am looking for on the app stores					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would like shopping on the hotel gamified application for others, because when they feel good I feel good					
I would feel good to book a hotel on the gamified application for the special people in my life					
I would enjoy booking through a hotel gamified application for my friends and family					
The hotel through a gamified application has to show a sincere interest in solving customer problems					
The hotel through a gamified application has to be willing to help customers					

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I like to have a great deal of information before I buy					
I want to be shown lots of choices before I buy					
I do not like to browse, I like to go straight for what I want when I book a hotel					
When I use a hotel gamified application I want to recognise things of myself					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Hotel gamified applications are trustworthy					
A hotel gamified application instils confidence in customers					
Payment information will be protected in a hotel gamified application					
I rarely download applications I know nothing about					
I am afraid that my private information will be used in an unwanted matter					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I want to use a hotel gamified application not because I have to, but because I want to					
I would use a hotel gamified application for gathering information for hotels					
I would use the hotel services provided through the gamified application					
If I download a hotel gamified application in the next 30 days, I will use it					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I will not change my hotel shopping app in the future					

I will continue to use hotel gamified applications in the future				
I plan to continue using the hotel gamified application to book my hotel				
I will consider a hotel gamified application to be my first choice for transactions in the future				
It is likely that I will continue purchasing products (or services) from a hotel gamified application in the future				

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Appendix 6: Wording for merging factors

	Author, Year	Title	Code	Wording
Familiarity	Gefen, D. (2000)	E-commerce: the role of familiarity and trust	Fam1	I am familiar with searching for books on the Internet
			Fam2	I am familiar with buying books on the Internet
			Fam3	I am familiar with Amazon.com
			Fam4	I am familiar with the processes of purchasing books on the Internet
			Fam5	I am familiar with inquiring about book ratings at Amazon.com
	Gefen, D. and Straub, D. W. (2004)	Consumer trust in B2C e—Commerce and the importance of social presence: experiments in e-Products and e-Services	FAM1	I am familiar with searching for books on the Internet
			FAM2	I am familiar with buying books on the Internet
			FAM3	I am familiar with Amazon.com
			FAM4	I am familiar with inquiring about book ratings at Amazon.com
Perceived Risk	Chopdar, P. K. and Sivakumar, V. J. (2019)	Understanding continuance usage of mobile shopping applications in India: the role of espoused cultural values and perceived risk	PR1	I am concerned over the security of personal information exchange on mobile shopping apps
			PR2	I am concerned that my personal information may be shared with business without my consent as a result of purchasing on mobile shopping apps
			PR3	I am concerned that the information I disclosed to this mobile vendor maybe misused
			PR4	I am worried about the security of financial transactions carried out on mobile shopping apps
			PR5	Using mobile shopping apps would lead to potential fraud of my bank account

|			PR6	Using mobile shopping apps would subject my bank account to financial risks
Perceived Informativeness	Lin, H-F. (2007)	The impact of website quality dimensions on customers satisfaction in the B2C e-Commerce context	PI1	The online retailer provides up-to-date information
			PI2	The online retailer provides accurate information
			PI3	The online retailer provides useful information
			PI4	The online retailer provides complete information
	Gao, Y. and Wu, X. (2010)	A cognitive model of trust in e-Commerce: Evidence from a field study in China	PI1	E-Commerce websites are good sources of product information
			PI2	E-Commerce websites are very informative about products and services they offer
			PI3	E-Commerce websites supply relevant product information

Appendix 7: Normality tables

Item	Mean	Median	SD	Skewness		Kurtosis	
	Statistic	Statistic		Statistic	Std. Error	Statistic	Std. Error
Fun1	3.97	4.00	.796	-1.330	.089	3.300	.177
Fun2	2.48	2.00	1.246	1.074	.089	-.029	.177
Fun3	4.12	4.00	.775	-1.520	.089	4.491	.177
Fun4	4.17	4.00	.767	-1.614	.089	5.030	.177
Fun5	4.15	4.00	.774	-1.115	.089	2.283	.177
R1	4.25	4.00	.739	-1.193	.089	2.883	.177
R2	3.95	4.00	.930	-.806	.089	.392	.177
R3	3.75	4.00	.959	-.363	.089	-.375	.177
R4	3.89	4.00	.903	-.522	.089	-.070	.177
R5	3.72	4.00	.930	-.299	.089	-.412	.177
R6	3.94	4.00	.918	-.872	.089	.778	.177
PU1	3.97	4.00	.798	-.838	.089	1.309	.177
PU2	3.89	4.00	.862	-.635	.089	.437	.177
PU3	3.64	4.00	.973	-.194	.089	-.446	.177
PU4	3.59	3.00	.989	-.100	.089	-.522	.177
PU5	4.13	4.00	.816	-1.009	.089	1.558	.177
EOU1	4.09	4.00	.836	-1.352	.089	2.653	.177
EOU2	4.06	4.00	.795	-1.183	.089	2.351	.177
EOU3	4.01	4.00	.820	-1.032	.089	1.719	.177
EOU4	4.38	4.00	.685	-1.605	.089	5.533	.177
EOU5	4.27	4.00	.730	-1.247	.089	3.292	.177
Social1	3.37	3.00	1.192	-.250	.089	-.937	.177
Social2	3.07	3.00	1.292	.127	.089	-1.178	.177
Social3	2.88	3.00	1.356	.292	.089	-1.146	.177
Social4	2.78	2.00	1.374	.382	.089	-1.098	.177
Social5	2.97	3.00	1.305	.221	.089	-1.015	.177
Innov1	3.31	3.00	1.184	-.078	.089	-1.077	.177
Innov2	3.07	3.00	1.243	.270	.089	-1.180	.177
Innov3	3.64	4.00	1.076	-.684	.089	-.239	.177
Innov4	3.67	4.00	1.066	-.741	.089	-.073	.177
Innov5	3.85	4.00	.906	-.995	.089	1.228	.177
DF1	4.32	4.00	.738	-1.457	.089	3.779	.177
DF2	4.36	4.00	.730	-1.534	.089	4.092	.177
DF3	4.38	4.00	.730	-1.528	.089	3.950	.177
Auto1	4.21	4.00	.733	-1.287	.089	3.784	.177
Auto2	4.13	4.00	.767	-1.129	.089	2.537	.177
Auto3	4.21	4.00	.771	-1.199	.089	2.518	.177
Purpose1	3.61	4.00	1.030	-.483	.089	-.069	.177
Purpose2	3.69	4.00	.960	-.386	.089	-.099	.177
Purpose3	3.69	4.00	.956	-.354	.089	-.138	.177
Purpose4	4.03	4.00	.954	-.674	.089	-.154	.177
Purpose5	4.22	4.00	.877	-1.058	.089	.966	.177
Master1	4.30	4.00	.786	-1.436	.089	3.262	.177
Master2	4.34	4.00	.757	-1.672	.089	4.715	.177
Master3	3.92	4.00	1.076	-.985	.089	.239	.177
Master4	4.01	4.00	.881	-1.012	.089	1.437	.177
Trust1	3.93	4.00	.840	-.651	.089	.748	.177
Trust2	3.95	4.00	.785	-.748	.089	1.311	.177
Trust3	3.99	4.00	.824	-.755	.089	1.077	.177
Trust4	3.60	4.00	1.064	-.244	.089	-.823	.177

Trust5	**3.29**	**3.00**	**1.202**	**.132**	**.089**	**1.307**	**.177**
ITU1	**4.07**	**4.00**	**.752**	**-.944**	**.089**	**2.199**	**.177**
ITU2	**4.01**	**4.00**	**.776**	**-1.056**	**.089**	**2.285**	**.177**
ITU3	**3.98**	**4.00**	**.753**	**-.794**	**.089**	**1.675**	**.177**
ITU4	**3.77**	**4.00**	**.880**	**-.801**	**.089**	**.745**	**.177**
ITR1	**3.53**	**4.00**	**.931**	**-.567**	**.089**	**-.143**	**.177**
ITR2	**3.69**	**4.00**	**.782**	**-.675**	**.089**	**.889**	**.177**
ITR3	**3.77**	**4.00**	**.750**	**-.887**	**.089**	**1.641**	**.177**
ITR4	**3.65**	**4.00**	**.835**	**-1.018**	**.089**	**1.482**	**.177**
ITR5	**3.70**	**4.00**	**.807**	**-.965**	**.089**	**1.540**	**.177**

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Appendix 8: Existing mobile application with reward programme
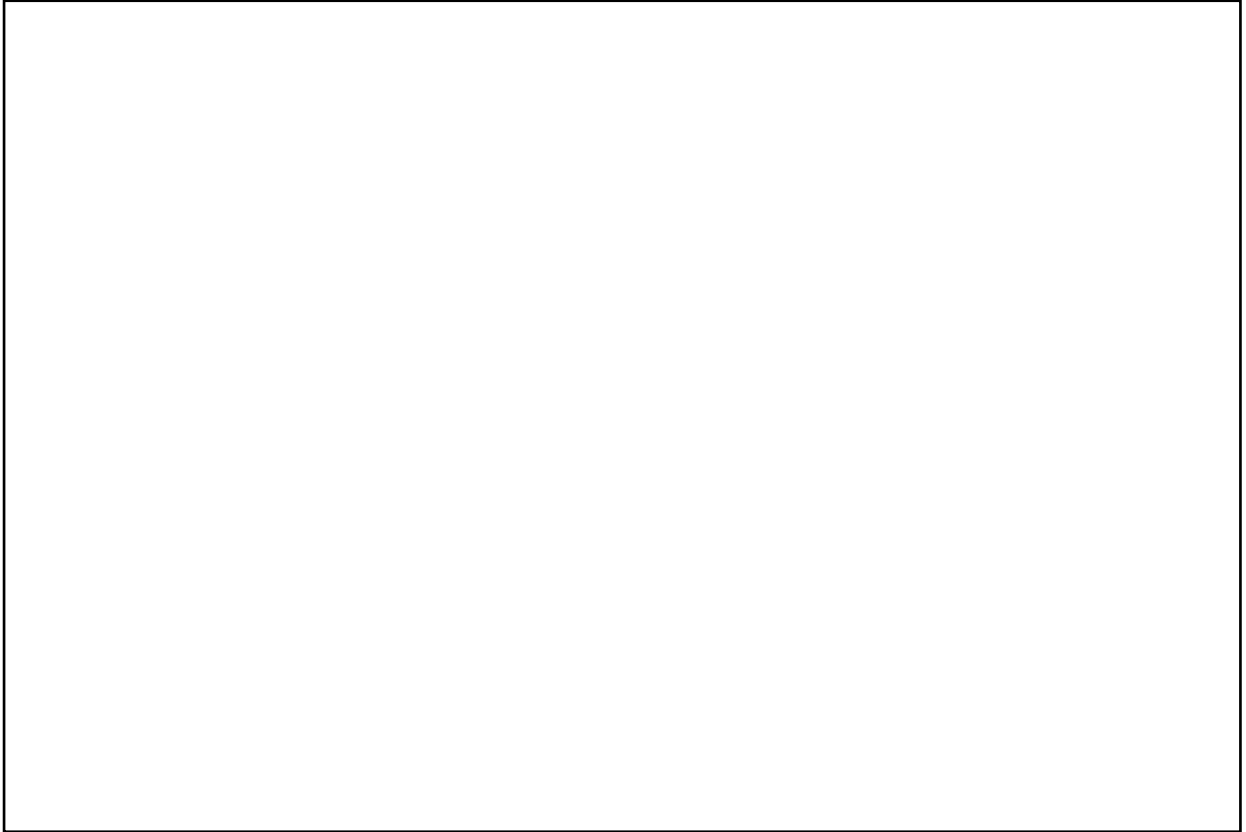
Figure 6 Content removed due to copyright reasons