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Mobile Apps and Travel Apps on the tourism journey

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Abstract

It is often stated that the world is a small village. This aphorism is strongly supported by many important facts. The modern world is a cradle of many changes that pervade all the aspects of our life. Among those uncountable scientific achievements and technological progressions it is possible to mention the outstanding evolution of the means of transportation (e.g. planes, aircrafts, boats, vans etc.) and the new wave of telecommunication that has joined hands with them to lessen distances and always keep people connected. These continuous changes have tapped into new markets including the travel industry or what it is so called tourism sector. It is widely recognized in the literature that all the steps of the tourism journey, from inspiration to post-travel phase, which are now being influenced by mobile technologies. The characteristics of mobile technology and its several Apps has thus revolutionized how tourists plan, experience and share feedback of their trips. Due to the fact that nowadays people are very comfortable with technology and devices, this research explores how Portuguese tourists use their mobile Apps before, during and after their trips. Based on the use of a quantitative research and in view of the fact that it intended to analyze attitudes, intentions and behaviours the data was collected through a questionnaire. A convenience sample was used consisting of 607 Portuguese tourists.

Keywords: Mobile technologies, trips, stages, security, privacy, Portugal.

Introduction

Technology is accessible to everyone and consumers go through various experiences simultaneously while they spend their days with their electronic gadgets in hand, namely smartphones and tablets. The internet and social media boom has become deeply rooted in the industry and proved itself to be very useful and practical to clients. This usefulness is not constrained to serving as a channel for travellers to seek for information but it also allows the visualization of travel products and services through video clips and graphical illustrations (Tsang, Lai & Law, 2010). In addition, these technologies have met the perceived value of the travellers during their trips by determining their needs and remarkably affected their travel behaviors and consequently they come up with further improvements to let the journey become an experience that is amazingly unforgettable.

The Portuguese population generally has technology everpresent in their lives as revealed by the Consumer Barometer with Google (2017b). In terms of technology, Portugal has 78% of the inhabitants connected to the internet, while just 69% of total population are connected by their mobile phones (Kemp, 2019). A large 85% of this population uses the internet every day for personal reasons and the average speed of mobile internet connections is 30.19MBPS (Kemp, 2019). Portugal is highly connected, standind at the 3rd place in the ranking EU28 in "*Broadband penetration*" by the European Innovation Scoreboard 2018 (EIS, 2018), and it

occupies the 13th position in "*Quality of overall infrastructure*" out of 137 nations (World Economic Forum, 2017).

Big companies like Uber, Google, Microsoft, Mercedes or Huawei are already in the country and other giants are yet to come (Econews, 2018). The investments are happening not only in the capital city but also in the other cities (Econews, 2018).

Compared to the worldwide average, Portugal appears to be a country that is very familiar with technology and this reassures the importance of studying these topics in the context of this market. A determinant factor to be successful in this market, is that technology is secure because, in Portugal, 94% of the people say that data privacy and data protection are very important to them (Google, 2017b).

Mobile Apps and Travel Apps

Mobile travel Apps provide travel related companies a direct channel to create and maintain the conversation with customers before, during, and after a trip (Ostdick, 2016). On average, the number of mobile Apps per user during the course of searching, booking and traveling is between 10-12 Apps (Travelport, 2018a). Along with smartphone penetration growth, mobile applications are also increasing in their popularity and usage, and more and more smartphone owners use these Apps for travel (Wang & Xiang, 2012; Wang et al., 2015; Agrebi and Jallais, 2015).

Mobile Apps are an integral part of the customer experience and consumers use Apps not only to provide information about destinations and attractions, but also for various roles in travel, such as travel agencies, translators, entertainment devices, checking-in for airline flights (Wang, Park & Fesenmaier, 2012; Wang & Xiang, 2012; Leon, 2018).

Mobile Development and Trends

Mobile applications, frequently referred to as apps, are a type of software application explicitly developed to run on a mobile device such as smartphones or tablets (Technopedia, n.d.). Traditionally, mobile apps often reflect similar services as the ones provided on a PC. However, some of the most successful apps are rather built on the concept of making use of the unique features of mobile devices. Today, mobile devices share a number of powerful characteristics such as big displays, Internet access, context-relevant push notifications, location tracking functionality (Want, 2009) and health tracking that enable consumers to enhance their every day activities. Outstanding examples of such companies range from mobile messaging apps such as What's App to last-minute booking apps like HotelTonight and location based services like Google Maps, all of which share the concept of "mobile first" meaning that the product was specifically designed for mobile usage.

Mobile applications were first popularized by Apple with the introduction of its App Store soon followed by Google's Play Store which both offer a storefront for developers to distribute their software to consumers since 2008. As of today, both Apple and Google feature some 1.2 to 1.3 million applications (Statista, 2013) in their respective app stores accumulating for total revenue of $ 26 billion in 2013 (Statista, 2013), a number which can be expected to rapidly grow within the next five years, according to Statista (2013), the world's leading statistics company on the Internet, which further forecasts mobile generated revenue to surpass the $ 75 billion mark by 2017. Other notable tech companies, which have recently followed up on the idea of creating an app ecosystem on its devices for their users, include Blackberry, Amazon, and Samsung, which are led by Windows with 300.000 apps as illustrated in figure 3 below. Thus indicating that the mobile world is far from being saturated and still sees vast potential for growth in the near future.

While mobile applications in their original form were designed to run on traditional mobile devices such as smartphones and tablets, recent developments in consumer electronics have foreshown the evolution of wearable technology, an industry believed to become a $ 1.6 trillion business in the near future, analysts at Morgan Stanley report, according to Derrick (2014). The main characteristic of so-called wearables is that they are worn on a user's body or are directly attached to their body, Derrick further explains. And while wearable devices are still at an early stage, we have already seen quite a diverse range of different wearable products. The most notable ideas include smart watches, fitness tracking wristbands and intelligent glasses.

Such devices, (Apple Watch for example), share the same fundamental idea as smartphones and tablets, meaning that they run mobile applications, often however in limited functionality, to enhance every day habits and challenges of its users. All in all, mobile devices with their inextricable apps have become a very integrated part of our every day lives and habits – with the average US smartphone owner spending more than 30 hours each month on mobile devices (Nielson, 2014) – ranging from reading the news and interacting with social media to booking a flight.

Relation to Hospitality and Tourism

Taking this thought further, a recent tourism study argues that smartphones play a significant role in mediating the touristic experience (Wang, Park and Fesenmaier, 2012). This results in a less distinct differentiation between travel and everyday live as travel-related activities, ranging from getting inspired on a social media page to checking flight rates on the go, have become directly available without any physical barriers to end-consumers. As such it is argued that the integration of smartphones into daily habits produced spillover effects and consequently influenced modern travel behavior (Wang, Xiang and Fesenmaier, 2014), thus making travel-related activities a more integrated part of everyday habits and therefore setting the basis for users actively using travel apps during the staged travel process. The very reasoning that travelling can no longer be seen as a completely separate entity to everyday life, thanks to smartphone usage leading to blur the barriers, can also be applied to different non-travel-related stages of a person's life.

The Oxford Dictionary (n.d.) defines daily life as "The activities and experiences that constitute a person's normal existence" and while routines may differ from person to person they often involve similar activities such as getting up from bed, having breakfast and leaving for work or school (and many more). In the mobile world, applications are traditionally clustered into different categories making it easier for users to identify their broader use and determining for which of a person's activity the app might be a good enhancement (i.e. alarm app for getting up, food recipe app for a healthy breakfast, checking bus arrival times via app). While the names of these categories slightly differ from platform (Apple) to platform (Android), the general idea stays the same. Logically, a person's day can only allow paying attention and actively using a certain limited number of apps during the day. Given the wide range of different applications in the mobile app industry, towards which travel apps are competing against in terms of time consumption, it is crucial to identify the relevance of travelrelated apps in relativity to the global app industry to get a better understanding of how important apps are to the mobile ecosystem and consequently to the endconsumers.

Downloading and uninstalling a travel App

Needing an App for an upcoming trip, feedback like good App store rating and recommendations from friends/family have huge importance on the decision of a traveler downloading an App (Travelport, 2018b). According to the same report by this company, the top reasons for downloading travel Apps are: searching and booking travel, checking flight status, getting a boarding pass, offer/promotions, keep the traveler updated with notifications,

hotel check-in, loyalty (reward points), feature only available to App and it's the favorite App. Many Apps have the features of integration with the company's websites and with the loyalty program (Wang et al., 2015). Hui et al. (2013) have found that using mobile promotions, such as coupons, could increase unplanned spending from mobile technology users. For example, more than 60% of United States travelers would consider an impulse trip based on a good hotel or flight deal (Google, 2017a). As seen before also, people are more keen for "holiday plans at the last minute" (Expedia/Future Foundation, 2016), therefore it's important to study this feature. Couponing is less discussed in literature but has been used since a long time ago as a popular promotional tool in the tourism industry and is important in creating a value-added mobile tourism App (Rivera et al., 2016). Mobile couponing is a convergence of traditional coupon promotions and mobile technology: it can be context sensitive, delivering the preferred types of coupons to tourists who are near or inside stores (Rivera et al., 2016). Tourists have been pressed to purchase action in real time when they are making decisions (Wehmeyer and Muller-Lankenau, 2005). Also, according to the latter authors, the three types of discount used are: cash rebate (e. g. 20% off, 20 euros off), rebate in kind (e.g. buy-one-get-one-free), bonus points (e.g. points of a loyalty scheme). Rivera et al. (2016) refer to the idea that the tourists' preferences indicate an inclination toward discounts that include a cash value and not a percentage discount when considering cash rebate coupons.

Downloading an App over using mobile web is only conceivable because mobile Apps diverge from traditional websites in a number of ways (Lu, Mao, Wang & Hu, 2015). Only Apps that are valuable to consumers make users search for them in App stores, where they have to install the App, wait for the download and even have to pay if the App isn't free (Lu, Mao, Wang & Hu, 2015). According to the research of Travelport (2018b), the reason for this to happen is that Apps can do more than a mobile web like getting a boarding pass, check-in, receive relevant push notifications or even access what travelers need offline. Real time accurate travel notifications are on the top of services that could improve the most travelling experience (IATA, 2018).

According to the report of Travelport Digital's 'How travelers are using mobile in 2019', the main reasons for deleting an App are: takes up to much space on phone; it was only needed for that specific trip; receiving too many notifications, having a bad user experience. The last-mentioned can be crucial for booking again with a travel brand, with 65% of travelers would be unlikely to do it (Travelport, 2018b). To guarantee a good experience of these applications, the hardware features of mobile devices must be considered during the App development stage (Rivera et al., 2016). Commonly, mobile devices have their restrictions in terms of battery life, screen size and processing power (Zarmpou et al., 2013). Limited screen size could disturb user experience, thus requiring App developers to adjust information presentation (Hammond, 2013; Zarmpou et al., 2013).

Methodology

Research objectives

The literature review has exposed the concepts in study. Based on this exhibition, the present research has started from the following research questions:

1 Are Mobile Apps and Travel Apps used on the tourism journey?

2 Is the booking process done on the mobile device?

3 How many Apps are used during a trip?

4 Does people Share and document the tourist experience?

Instrument, sample, and procedures

For the development of the investigation, we used the quantitative method of the survey type, with a self-completed questionnaire survey. The survey is suggested by Quivy and Campenhoudt (2008) as a method of gathering information, as a way to ascertain ways of life, behaviors, values, knowledge, expectations, opinions and attitudes towards options. Its use is recognized and applied in various fields of analysis, such as consumer behavior (Wimmer and Dominick, 1996), and therefore its design should be based on clear, concise questions, according to the research objectives. In other words, its structuring must, on the one hand, integrate clear and unambiguous questions and secondly, allow researchers to collect accurate information.

Regarding this last point, Quivy and Campenhoudt, (2008) report that the quantitative treatment of data resulting from the application of a questionnaire survey implies the pre-coding of the questions, aiming to establish limits of responses by the respondents. The use of the survey by questionnaire and the quantitative analysis of data by means of different techniques and statistical methods can be observed in a multiplicity of research work. The quantitative method is conclusive, and it aims to quantify a problem and understand its dimension. In short, this type of research provides numerical information about consumer behavior (Cunha, 2019).

The data collected through this method directly impacts upon decision making, as well as those provided by qualitative research. However, in practice, they can better express the information to be presented, especially when the objective is to convince themselves about some direction.

Because of its statistical nature, the sample size is very important for quantitative research and should be defined with great care. This is because quantitative research generates accurate metrics that are based on a given sample — they can even be replicated to the universe studied as a whole. The questionnaire in question consisted of two parts. Conventionally associated with the social area, the survey is, according to Babbie (1999), particularly similar to the type of research of 'census', where what differentiates the two surveys is that the survey examines a sample of the population, while the census usually implies an enumeration of the entire population.

A Survey, according to Babbie (1999), can have one of three purposes:

Description: It aims to discover the distribution of certain traits and attributes of the population studied. The investigator's concern is not the reason for the distribution, but with what it is.

Explanation: It aims to explain the observed distribution. In this case, the researcher is concerned about why the existing distribution.

Exploration: It aims to function as an exploratory mechanism, applied in an initial investigation situation of some theme, trying not to let critical elements cease to be identified, presenting new possibilities that can subsequently be worked on a controlled survey.

Results Analysis

With regard to the sample, it can be affirmed that a convenience sample was used. This technique is very common and consists of selecting a sample of the population that is accessible. That is, the individuals employed in this research are selected because they are readily available, not because they were selected by means of a statistical criterion. Usually, this convenience represents greater operational ease and low sampling cost.

Table 1. Nationality

Portuguese	100%
Other Nationalities	0%

Source: Own

In terms of characterizing the general profile of the sample, more specifically regarding age, the individuals were grouped into 5 age groups, as can be analyzed in table 2.

Table 2: Age groups

Variables	Categories	Frequency	Percentage
Age groups	18-25	105	17
	26-35	123	20
	36-45	197	33
	46-55	111	18
	56-65	58	10
	66-79	13	2
	Total	**607**	**100,0**

Source: own

Regarding the gender of the 607 individuals present in the sample, the existence of a balanced relationship between the two genders was verified. However, the existence of a number of women higher than the number of men does not have the pretension of a proportional statistical rigor, respecting, however, the tendency of Portugal signed by the National Institute of Statistics.

Table 3: Age groups

Variables	Categories	Frequency	Percentage
Sex	Male	235	39
	Female	372	61
	Total	**607**	**100,0**

Source: own

Regarding the sociodemographic characterization of the sample, it seems important to understand its origin at a professional level.

Table 4: Professional status

Variables	Categories	Frequency	Percentage
Professional status	Student	38	6
	Unemployed	82	14
	Self-employed	73	12
	An employee on behalf of another person	409	67
	Retired	5	1
	Total	**607**	**100,0**

Source: own

With regard to the academic level of the sample, the sample shows that 240 of its elements, (corresponding to 39.5% of the total of respondents) hold qualifications at the secondary level, 291 of the individuals (47.9% of the sample) have a university level and only 76 individuals (12.5% of the total sample) are holders of qualifications such as, post-graduate, master's or doctoral degrees.

Table 5: Academic level

Variables	Categories	Frequency	Percentage
Academic level	Secondary	240	39,5
	University	291	47,9
	Graduate	76	12,5
	Total	**607**	**100,0**

Source: own

As a way of completing the socio-demographic characterization, it is important to perceive its geographic origin. Thus, it is possible to verify that the sample in question is composed of individuals from the North Zone of Portugal in a total of 38%. The center of Portugal presents 41%, and the south with 17%, finally the islands of Madeira and the Azores emerge with only 32 individuals (5% of the sample).

Table 6: Area of residence

Variables	Categories	Frequency	Percentage
Area of residence	North Zone	228	37,6
	Central Zone	246	40,5
	South	101	16,6
	Islands	32	5,3
	Total	**607**	**100,0**

Source: own

Types of mobile devices used

The type of mobile device that is used to connect to the internet by the participants is illustrated in Table 7. The results express an almost unanimous use of smartphone with 89.1% and only 10.9% marked standard mobile phone. The sample of this study is undeniably integrating mobile devices into their lives. These results corroborate literature observations from Eastman (2014), Wang et al. (2014) and Google (2017b) on People behaviors as heavy mobile and specially smartphone internet users. The faster processors, increased memory, operating system that can run multiple Apps and familiarity of use (Miller, 2012) make this device the favorite to use.

Table 7: Types of mobile devices of the respondents

Smartphone	Standard mobile phone
89.1%	10.9%

Source: Own

Booking with mobile or Desktop

According to Murphy et al. (2016), consumers tend to switch to their Desktop in the final booking process, although they use mobile devices during search process.

Table 8: Final booking process

Mobile device	Desktop/Laptop
80.1%	19.9%

Source: Own

In the researchers' sample it is easy to see that the mobile is mostly used to search for a destination (while planning the trip). People plan traveling with devices in sporadic moments, lack of access to a desktop/ laptop and because they feel more comfortable using their device. But consumers tend to switch to their Desktops in the final booking process.

Table 9: Reasons for booking with the mobile

Booking Mobile device	Percentages
Sporadic moments	79%
Lack of access to a desktop/laptop	91%
Feels more comfortable with	68%
Practicality	52%
Easiness	49%
Quickness	39%
Other (s)	15%

Source: Own

Promotions/ last minute deals

When planning a trip in a mobile device i tis possible to see promotions or last minutes deals. The sample showed that promotions and last minute deals make people feel impulsive and encourages them to travel more. This is in line with Cunha (2014) who says that 80% of all of our shops are made by impulse.

Table 10: Promotions/ last minute deals influencing

Promotions	Last minute deals
71%	57%

Source: Own

Sharing and documenting the tourist experience

A total of 56% of the sample of Portuguese tourists document and share their touristic experiences against 44% who don't. Most of the sample, (69%) document and share their experience during the trip. And 31% do it just after the ends. The findings of this research clearly indicate that documentation and sharing are no longer just in the post-consumption stage, as Gretzel et al. (2006).

Table 11: document and share experience

During trip	After trip
69%	31%

Source: Own

The 56% of the sample, who document and share their experience prefer to do it on social media. As seen on table nr 11, Instagram is the prefered social media, followed by twitter and Facebook.

Table 12: document and share experience

Where?	
Facebook	52%
Twitter	76%
Instagram	89%
Others	49%

Source: Own

Number of mobile Apps used for searching

A small number of Apps are used for searching, between 2 and 5, says 39% of the sample. This consumers are folowed by the ones who use between 0 and 2 with 59%. All the other results are residual what tends to agree with the considerations risen by Wang, Park, & Fesenmaier (2012).

Portuguese people have high levels of acceptance of this method (76%), for exemple, to do their check-in in companies like TAP, Ryannair and others. When talking about Check-in/ check-out for hotel/hostel/apartment rooms things are a little bit diference. The sample shows that only 43% does it. The sample also showed that they dont feel secure on doing it.

Privacy and security

Portuguese people don't share personal information in exchange of better services and a more personalized travel experience. They believe that their data is being misused.

These results might be explained with the security scandals of 2018 (Grothaus, 2018), creating fear but also more awareness about these topics.

Table 13: Sharing personal information in exchange of better services and a more personalized travel experience.

Share information.	Dont share information…
39%	71%

Source: Own

Conclusions and Contributions

In order to answer the Investigation Questions and in a way of conclusion i tis possible to confirm that Mobile Apps and Travel Apps are used on the tourism journey. The results express an almost unanimous use of smartphone for this process People plan traveling with devices in sporadic moments, lack of access to a desktop/ laptop and because they feel more comfortable using their device. However the research also showed that consumers tend to switch to their Desktop in the final booking process, although they use mobile devices during search process. Meanning that the all process is not done on the mobile device.

It was also possible to see that only a small number of Apps (between 0 and 5) are used for Touristing. Portuguese people have high levels of acceptance of this method, for exemple, to do their check-in in companies like TAP, Ryannair and others, but low levels, when talking about Check-in/ check-out for hotel/hostel/apartment rooms.

By the sutdy of the sample i tis also easy to uderstand that Portuguese people don't share personal information in exchange of better services and a more personalized travel experience. They believe that their data is being misused.

There are limitations that should be mentioned and, if possible, mitigated in future contributions in this context. The questionnaire, made available online, proved to be quite extensive. Future contributions in this area are advised to simplify or even limit issue items.

With regard to data collection, although the sample was reasonable, it has some limitations, such as the fact that it is of convenience. A larger and more diversified sample may reveal other relationships between the variables in studies and make the results more robust.

The results obtained provide important guidelines for future investigations. It is recommended to develop the model presented, with successive interactions, with a view to be improved and rugged. A larger sample, if possible collected by a probabilistic criterion, with other statistical analyses, could give new visions and orientations.

In fact, the theme of social networks and their use is broad and essential in the current panorama of marketing, which makes pertinent the continuation of this line of research in the future.

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