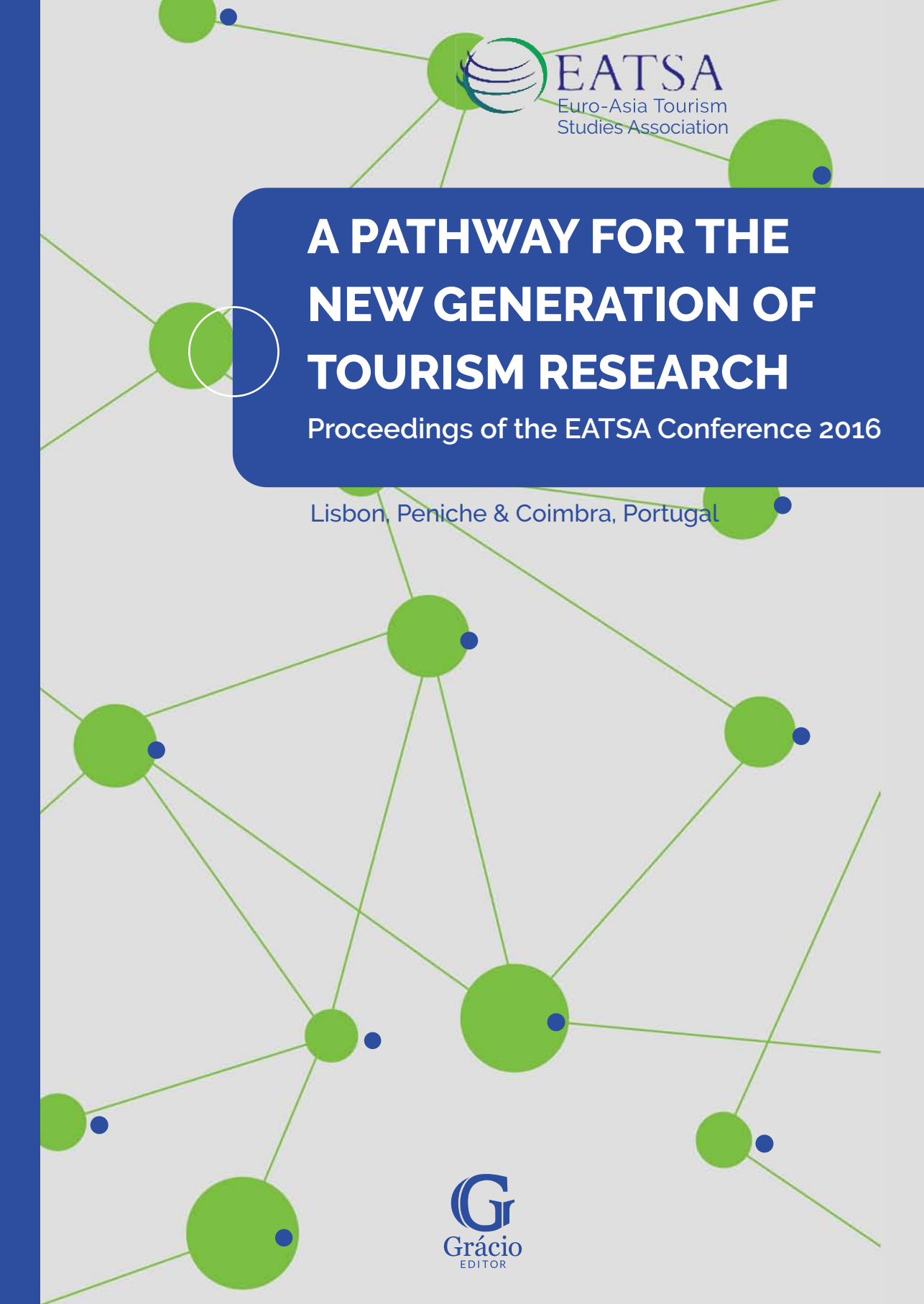

A PATHWAY FOR THE NEW GENERATION OF TOURISM RESEARCH

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INTENTIONS TO USE A PILGRIMAGE APP: WHICH FEATURES REALLY MATTER?

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ABSTRACT

Although there are several studies focusing on the use of mobile devices by tourists, there is limited research regarding the use of new technologies by pilgrims, frequently recognized as religious tourists. The features provided by travel apps could be particularly useful for pilgrims along their pilgrimage, providing them with information such as the best route to take or a place to stay. Therefore, the main aim of this study is to examine which features pilgrims most value in a pilgrimage app and to determine which ones influence pilgrims' intention to use a pilgrimage app. The study employed a qualitative and qualitative approach to understand pilgrims' needs during their journey and their use of new technologies. First, 11 in-depth interviews were conducted to collect information regarding pilgrims' use of smartphones and their needs while conducting a pilgrimage on the Camino de Santiago. An online questionnaire was than designed in which respondents were asked to rate the importance of 24 possible features for a pilgrimage mobile app. A total of 1,140 valid responses were obtained. A factor analysis was conducted and several dimensions of app features were identified. A multiple linear regression was than conducted to evaluate if these dimensions could predict pilgrims intentions to use a pilgrimage app. The findings of the study will be useful for pilgrim app developers, in particular for the Camino de Santiago, to design apps adapted to the pilgrim's needs and to develop strategies to encourage pilgrims to use the app.

KEYWORDS

Camino de Santiago; Factor Analysis, Interviews, Multiple Linear Regression, Pilgrimage Mobile App, Religious Tourism

Introduction

Nowadays we live in a society of information, where people are always connected while they are on the move [12]. The increase demand for mobile devices is related to the increased availability of wireless data services and mobile apps. In 2009, 2.52 billion mobile apps were downloaded and are estimated to reach 268.69 billion in 2017 [20].

With the development of new technologies, new types of touristic experiences appeared [13]. For instance, during a trip, travellers may choose to access their mobile device to search for information instead of using guidebooks. A new kind of travel experience emerged with the use of travel mobile apps [16].

Mobile apps can be useful for pilgrims, because they need to access maps and want to explore the local culture along their pilgrimage. A mobile app can be helpful to indicate, for example, the best route to take, points of interest, restaurants, places of leisure or a place

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to rest. There are many studies about the use of mobile devices by tourists, but little is know about the use of technology by pilgrims, specifically which features are more important in a pilgrimage app and if they affect pilgrims' intentions to use a pilgrimage app.

In order to fill this gap, the main aim of this study is to examine which features pilgrims most value in a pilgrimage app and to determine which ones influences pilgrims' intention to use a pilgrimage app. The empirical results were obtained from a qualitative and quantitative approach.

Literature Review

Camino de Santiago

Pilgrimage to Santiago de Compostela is an emerging market in the tourism sector. Year after year, thousands of pilgrims that walk through the Camino arrive to Santiago. Since the IX century, Galicia became a center of pilgrimage due to the discovery of the tomb of Santiago, Jesus' disciple. Santiago de Compostela is one of the most important Christian pilgrimage sites, after Rome and the Holy Land. After the discovery of Santiago's tomb, many people walked to the sacred place in devotion to Saint James. Nowadays, people walk to Santiago not only for religious motives, but also for spirituality [1]. When pilgrims walk to Santiago the most important is not the destination but the entire route that offers the contemplation of nature, cultural heritage and inner peace [18][8].

The Camino de Santiago has become one of the most popular tourist products in Spain. Local and regional government work to promote the route and the cities that belong to the route in order to enhance economic growth in the tourism sector [9]. Due to the beauty of the landscape, in 1985 UNESCO declared Santiago de Compostela World Heritage [2]. In 1987, the Saint James pilgrimage routes were declared the first European Cultural Itinerary by the Council of Europe [3]. In 1993, UNESCO also considered segments of the routes in Spain and France World Heritage, because of the amount of roman, gothic, baroque and neoclassical architectural traces.

According to the available data from the Pilgrim's Welcome Office (2016), 262,459 pilgrims arrived to Santiago in 2015. Most took the way walking (90.19%), followed by cycling (9.66%). Less than 0.5% came on horseback or in a wheelchair. Pilgrims to Santiago indicate that their motivations are mostly cultural-religious (54.09%), followed by religious (37.98%) and cultural (7.93%) motivations [17].

Pilgrims use of mobile devices

An initial search for relevant literature, i.e. addressing the use of new technologies by pilgrims, revealed that research on this topic is scarce. Only one paper by Nickerson, Austreich and Eng (2014) was found. The aim of their research was to examine the diffusion of mobile technology and smartphone apps among people that had walked the Camino de Santiago. They found that 69% of the respondents carried mobile devices and only 17% had used Camino specific smartphone apps. Respondents preferred to use paper-guides rather than smartphone apps and 71% of respondents agreed that the use of mobile apps on the *Camino* is not important. They conclude that the adoption of technology on the Camino is not clear and suggest including motivations as a moderator in future analyses.

Since only one study specifically addressed pilgrim's use of new technologies, research on tourists' use of mobile devices was conducted. Although tourists have different behaviours from pilgrims, several authors consider that it is difficult to distinguish them [5][22]. Indeed, pilgrims frequently carry out touristic behaviours, such as visiting historical or cultural places, experiencing nature, adventure or sport. At the same time, tourists often include in their journey visits to churches, temples and holy sites [5]. Turner and Turner's (1978) frequently quoted statement that "a tourist is half a pilgrim, if a pilgrim is half a tourist" (p 20) reflects the difficulty in distinguishing a pilgrim from a tourist.

The Tourism industry has a new communication channel through mobile applications to transform the travel experience [11]. Mobile applications have become an important key role in everyday life and tourist experience providing relevant information such as weather, restaurants, maps [11] [24] [25].

The emerging mobile recommender systems are also substantially enriching tourist experiences [6] by helping tourists to discover and select points of interest that best fit their preferences [7].

Methods

Qualitative analysis: interviews

Before developing the questionnaire for the quantitative analysis of the current study, eleven structured interviews were conducted with people that had already travelled the Camino de Santiago at least once. Since there is scarce literature regarding the use of technology by pilgrims, the interviews were crucial to examine their pilgrimage experience and their use of mobile device during the pilgrimage. According to Dunn (2010), interviews are important to gather information, opinions and experiences.

Table 1: Main interview questions and purpose of each question

Interview questions	Purpose of the questions
1. During the pilgrimage, do you use mobile device with Internet access?	To understand the relationship of mobile technology and pilgrims.
2. During the pilgrimage, do you connect to Internet? For what?	To know about Internet usage and the intentions for.
3. Do you use the Internet during or previous the pilgrimage to view information about the Way?	To understand the impact of the use of Internet to gather information about the Way.
4. Do you know any pilgrimage mobile app? Have you use any of them? For what?	To realize if pilgrims know and use pilgrimage apps.
5. What do you think about a mobile app with some features regarding the Way, like information about the stages, pilgrim's hostels, and guesthouses?	To explore about what pilgrims consider important to be in a pilgrimage mobile app.
6. What do you think about touristic features in the app?	To understand if pilgrims want touristic features in the app to visit touristic places in the pilgrimage route.
7. What other features do you consider important to be in the pilgrimage mobile app?	To know other features that pilgrims want in the app.
8. Do you consider the graphical design important?	To understand if the graphical design is important to pilgrims.
9. What do you think about seeing videos and photos in the app?	To know if pilgrims consider media contents important to be in the app.
10. What do you think about having a social network in the app to share own contents with other pilgrims?	To understand the relationship between social networks and pilgrims.

The interviews were conducted during June of 2015, face-to-face, following a semi-structured format, based on a set of ten questions. These questions and the purpose of each one are detailed in Table 1.

Respondents gave permission for their interview to be recorded. Interviews averaged 15 minutes and were recorded for analysis.

The main questions in the interview process were to understand informants' use of smartphones while travelling the *Camino de Santiago.* The respondents agreed that a possible mobile app with features addressing the *Camino de Santiago* would be interesting. When informants were asked if they knew of any pilgrimage mobile app and if they had ever used them, only informant 8 answered that he knew of a pilgrimage route mobile app but had never used it. The remaining 10 informants were not aware of any Camino de Santiago mobile apps.

When asked, "What other features do you consider important to be in the pilgrimage mobile app?" the respondents answered that the app should give information about pilgrimage stages, accommodation, places to eat and touristic places. Informant 2 said that the app should feature monuments' locations and contacts, and that it would be very useful if it had pilgrims hostels' schedules and availability. Regarding graphical design, respondents said that the app should be easy to use and visually appealing in order to attract pilgrims to adopt the app.

Quantitative analysis: Measures, data collection and data analysis

Based on the literature review and on the interviews conducted, a questionnaire was designed to distribute to Camino de Santiago pilgrims. The main aim of the questionnaire was to gather information to examine the features that pilgrims consider important for a mobile app. A set of 24 items capturing pilgrimages' needs was available on the questionnaire for pilgrims to rate using a 5-point Likert-type scale where 1 represented "not important" and 5 "very important". The items, shown in Table 2, were based on the interviews and on studies about mobile technology for tourism [6] [19] [21] [23].

A question regarding the pilgrims' intention to use a pilgrimage app: "I intend to use a Saint Jame's Way app" was also included in the questionnaire using a 5-point Likert-type scale, where 1 represented "totally disagree" and 5 "totally agree". The final part of the questionnaire dealt with demographic information such as gender, age, residence, education, and marital status.

The questionnaire was available in English, Portuguese, Spanish, French and German because these are the nationalities of most of pilgrims according to Pilgrims Welcome Office (2016). The online survey was chosen because of its economic viability and to reach pilgrims from all over the world.

Pilgrims were targeted using several approached. First, a link with the online questionnaire was placed on several Camino de Santiago groups existent on Facebook and Twitter. The Associations of Pilgrims was also contacted and shared the survey among pilgrims. During August and September 2015, a total of 1140 valid surveys were collected.

Table 2: List of items used for analysis

Items
Information about stages of the pilgrimage
Information about degree of difficulty of stages
Suggest alternative ways (for example, bad condition of route due to rain)
Information about public services contacts or emergency (for example, police, fire station, hospital)
Information about places nearby
Information about hostels, guesthouses or hotels
Information about availability of hostels
Look for new places off of my route, but nearby
Look for different places of leisure
Suggestions about local points of interest according to the weather
Get photos of the pilgrim route
See videos about pilgrim route
Virtual tour about some parts of the Way
Cultural guides
Learn about local history/monuments and symbols
Suggest cheaper places to stay and sleep
Suggest cheaper places for meals
Information about religious places
Information about mass schedule in the villages of the Way and in Cathedral of St. James
Information about pilgrim rituals, for example, what should be done in Holy Year
Information about return transport (railway, bus, airplane)
Available in different languages (Portuguese, English, French, Spanish, Italian, German)
Ability to use app without a cellular connection (off line)
Location identification through GPS

The data collected was analyzed using SPSS Version 21.0. Descriptive analysis was used to examine the profile of the respondents as well as their main reasons to travel the *Camino de Santiago*. The statistical analysis for the study was undertaken in two stages. The first stage involved a factor analysis to reduce the 24 items into a smaller set of components. In the second stage, Pearson test was used to study the correlation between the factors and the dependent variable - intentions to use a pilgrimage app. Finally, multiple linear regression was conducted to evaluate if the factors could predict pilgrims intentions to use a pilgrimage app. All the statistic analysis were tested at 0.05 level of significance.

Results

Profile of respondents

The respondents were pilgrims that had traveled the *Camino de Santiago* at least once. Most of them were Portuguese (31.7%), followed by the Spanish (17.9%), the Dutch (12.6%), the French (6.1%), Brazilians (6.0%) and Americans (5.6%). The remaining 20.1% were from 39 other nationalities. The average number of times pilgrims had taken the *Camino* was 2.69, ranging 1 time to 74 times. More than 90% of the respondents had travelled by foot and 13.2% by bicycle. The main motivation to take the camino is spiritual (61.7%), followed by cultural (36.3%) and religious (30.4%). Male respondents were 56.6%, female 43.4% and 48.2% of them reported being married, followed by 30% single. The age group with the most significant number of responses was the age group 45-54, with 26.9% of the total of responses. The respondents are highly educated, since more than 57% have at least a bachelor degree.

Table 3: Respondent Profile of Pilgrims

Demographic profile	Frequency	Percent
Gender		
Male	495	43.4
Female	645	56.6
Total	1140	100
Age		
18-25 years	61	5.4
26-34 years	141	12.4
35-44 years	249	21.8
45-54 years	307	26.9
55-64 years	268	23.5
65 years and over	114	10
Total	1140	100
Marital Status		
Single	342	30
Married	550	48.2
Divorced	127	11.1
Non-marital partnership	100	8.8
Widowed	21	1.8
Total	1140	100
Education Level		
Less than high school	37	3.2
High School	291	25.5
Bachelor	391	34.3
Master's Degree	215	18.9
Doctorate/PhD	54	4.7
Professional Qualification	152	13.3
Total	1140	100

Factor Analysis

A factor analysis was conducted using the principal component to examine the 24 rating scale items and identify different dimensions of features considered important by pilgrims to be present in a mobile app. The factor analysis was carried out with a Varimax rotation to make the factor structure more interpretable [10]. The Bartlett Test of Sphericity indicated that the correlation matrix had significant correlations among the variables to conduct factor analysis, 222 of the 276 correlations (80%) are significant at the 0.01 level [10].

The value of Bartlett's Test shows that the factor analysis was applied precisely with value 25016.017 and a p-value<0.01. The Kaiser-Meyer-Olkin measure of sampling adequacy had a highly acceptable value of 0.959, which means the sample size is adequate to conduct a principal component analysis on 24 items. The resultant factor solution was three factors account 69.48 percent of variance in the data. As shown in Table 4, the items have a loading above 0.5 and the reliability and internal consistency of factors are good because the alpha values are above the recommended level of 0.6 for all factors [13]. The items with a factor loading above 0.50 are retained for further analysis.

Table 4: Factor Loadings

Dimension and Items	Mean	Factor Loadings	Sum Square Loadings	% of Variance	Cron-bach's alpha
Factor 1: General Way Features	3.825		8.531	35.546	0.962
Information about stages of the pilgrimage		0.764			
Information about degree of difficulty of stages		0.730			
Suggest alternative ways		0.755			
Information about public services contacts or emergency		0.697			
Information about places nearby		0.722			
Information about hostels, guesthouses or hotels		0.817			
Information about availability of hostels		0.799			
Factor 2: Cultural Features	2.923		4.931	20.548	0.904
Look for different places of leisure		0.633			
Suggestions about local points of interest according to the weather	0.596				
Get photos of the pilgrim route		0.768			
See videos about pilgrim route		0.845			
Virtual tour about some parts of the Way		0.821			
Cultural guides		0.610			
Factor 3: Religious Features	3.118		3.213	13.387	0.896
Information about religious places		0.810			
Information about mass schedule in the villages of the Way and in Cathedral of St. James	0.886				
Information about pilgrim rituals, for example, what should be done in Holy Year	0.795				

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Factor 1 represents general Way features. Respondents who score highly on this factor are pilgrims that have interest in an app containing information about the Way in general, mostly about stages of pilgrimage, hostels and places for meals. Factor 2 represents cultural features. Respondents who score highly on this factor are interested in information about places of leisure, photos and videos of the route. Factor 3 is about religion features. Respondents who score highly on this factor are interested in religious places, mass schedule and pilgrim rituals.

Determinants of intentions to use a pilgrimage app

Based on the factors obtained, three hypotheses were tested to examine if the different types of app features had an effect on intention to use a pilgrimage app:

H1: General Way Features have a positive effect on intentions to use a pilgrimage app.

H2: Cultural Features have a positive effect on intentions to use a pilgrimage app.

H3: Religious Features have a positive effect on intentions to use a pilgrimage app.

Multiple linear regression analysis was used to test the hypotheses. Correlation analyses were first carried out, before conducting multiple linear regression, as shown in Table 5. There was a significant relationship between the independent variables General Way Features, Cultural Features and Religious Features with the dependent variable "I intend to use a Saint James Way app". As shown in the correlation matrix there are no high intercorrelations among the independent variables, which means that multicollinearity is not a problem for multiple regression analysis.

Table 5: Correlations

	1	2	3	4	α
1. General Way Features				0.644**	0.000
2. Cultural Features				0.354**	0.000
3. Religious Features				0.162**	0.000
4. I intend to use a Saint Jame's Way app					

Multiple linear regression conducted with the three factors explained 56.4% of Intention to use a Saint James app variance. This is shown by R^2, the measure that represents the proportion of the variation in the dependent variable explained by the independent variables [13]. The result indicates that if the pilgrimage app have general features about the way, cultural features and religious features there is a high probability of pilgrims to accept and obtain the app. The final regression model produced by enter method for intention to use a Saint James app is:

Intention of use of a pilgrimage app = 3.368 + 0.946**General Way Features* + 0.516**Cultural Features* + 0.234* *Religious Features.*

The obtained standardized beta coefficients values indicates "General Way Features" (b=0.946) is the most contribution to the intentions of use of an app about the Way, followed by "Cultural Features" (b=0.516).

Conclusions and future research

Mobile technology offers new and unique opportunities for organizations and businesses that are interested in attracting pilgrims. Indeed, a pilgrimage mobile app could be useful to pilgrims, but could also be a channel to promote businesses and cities along the route. In order to attract pilgrims to use the app, it is crucial to understand what features that they value the most.

This study provides a better understanding about the features that pilgrims consider most important in a pilgrimage app. It identified three dimensions of features: General Features, Cultural Features and Religious Features. The general features about the *Camino* are the most significant ones concerning the adoption of a pilgrimage app, followed by the cultural features and the religious ones. Features like information about the stages of *Camino*, accommodation, monuments, places to have meals or about transportation positively influences the adoption of a pilgrimage app. Information about religious events, rituals or places has a less significant influence on the acceptance of the app.

The results support all the hypotheses regarding how features are associated to pilgrims' intentions to use a mobile app. General Way Features (β=0.946) appear to be the most influential determinant of intentions to use of a pilgrimage app, followed by Cultural Features (β=0.516). Surprisingly, the religious features are less important. A possible explanation is that many pilgrims do not walk the way only for religious motives.

The final model of linear regression explained 56.4% of the total variation of intention of use of a pilgrimage app. This means that the model might have missed out some important variables influencing the intention of use. To achieve a higher explanation, other variables should be identified and included in future research.

One of the limitations was that this study did not differentiate between different types of pilgrims, such as different nationalities, ages or travelling motivations. Hence, future studies could attempt to understand if the intention of adopting a pilgrimage app is influenced by these factors. This study could be applied to other pilgrimage routes to compare with the results obtained in this study.

Another line of research would be to conduct a cluster analysis to examine if pilgrims can be divided in different groups regarding their use of technology during a pilgrimage. Each segment could then be characterized based not only on demographic variables, but also regarding their motivations and preferences of features in an app.

Despite the limitations, the findings of this study contribute to enhance the understanding of which features pilgrims most value in a pilgrimage app for mobile app developers, in particular for the *Camino de Santiago,* to develop a helpful mobile app. For example, to date, an efficient app to help pilgrims on the Portuguese Way is inexistent. This study offers useful insights for the development of such app. Pilgrimage app developers should invest resources to provide detailed information of each stage of the *Camino*, pilgrim's hostels and other accommodations (availability, contacts), places to have meals (restaurants, bars, cafes), points of interest (mon-

uments and other places of leisure) and historical/cultural information. Other important features that app developers should also consider for a pilgrimage app are the availability in several languages, the ability to use offline and it should incorporate location based GPS.

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