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Acceptance and use of technology by older adults for choosing a tour-ism destination: a study using UTAUT2

Aceitação e uso da tecnologia para escolha de destinos turísticos por pessoas da terceira idade: um estudo usando a UTAUT2

Aceptación y uso de la tecnología para la elección de destinos turísticos por personas de la tercera edad: un estudio con UTAUT2

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Abstract: *Older adults are increasingly interested in new technologies and relate them to learning, social inclusion, and leisure. Considering the high number of changes in the profile of the Brazilian elderly and the tourism and technological contexts,* ***this work aims*** *to understand the behavioral intentions and the use of the Internet by the elderly for choosing a tourism destination. To this end, the work extended the UTAUT2 Model of Venkatesh, Thong and Xu (2012), including new constructs related to technology: Perceived Risk and Trust, by Slade et al. (2015) and adding Attitude, based on Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014).* ***The study is characterized as exploratory-descriptive. A survey was conducted online and face-to-face, for two months. Statistical analysis of multivariate analysis was performed using SPSS20 and the modeling analysis of structural equations using SmartPLS.*** *The sample obtained was of 211 older adults who use Internet for tourism purposes.* ***As a result****, the relations of the Habit, Hedonic Motivation, Trust, and Performance Expectancy as determinants of the Internet Use Attitude for tourism purposes and, in addition to that, the relation of the Habit construct, positively affecting the Use Behavior.* ***As far as the originality of the work is concerned****, Attitude was a new concept used to compose the model, bringing something unprecedented to this field of studies in Brazil. In addition, the innovations include the application of the UTAUT2 model to the Brazilian context, in a segment and market sector not yet explored in this field of research – older people and tourism.*

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Resumo: Os idosos têm demonstrado crescente interesse por novas tecnologias e as relacionam com a aprendizagem, inserção social e lazer. Considerando-se o elevado número de mudanças no perfil dos idosos brasileiros e os contextos turístico e tecnológico, **esse trabalho tem como objetivo** compreender as intenções comportamentais e o uso da Internet pela terceira idade com fins de escolhas de destinos turísticos. Para isso, o trabalho estendeu o Modelo UTAUT2 de Venkatesh, Thong e Xu (2012), inserindo novos construtos relacionados à tecnologia: Risco Percebido e Confiança, de Slade et al (2015) e também adicionando a Atitude, fundamentada por Curras-Perez, Ruiz-Mafe e Sanz-Blas (2014). **O estudo caracteriza-se como exploratório-descritivo. Para tanto, realizou-se um *Survey*, online e presencial, sendo aplicado por dois meses. Para as análises utilizou-se técnicas estatísticas de análise multivariada, processadas pelo SPSS20 e a análise de modelagem de equações estruturais utilizando-se o SmartPLS**. A amostra obtida foi de 211 idosos que usam Internet para fins turísticos**. Como resultado**, têm-se as relações dos construtos Hábito, Motivação Hedônica, Confiança e Expectativa de Desempenho como determinantes da Atitude de uso da Internet para fins turísticos e, acrescentando-se a isso, a relação do construto Hábito afetando positivamente o Comportamento de uso. **No que tange à originalidade** o trabalho apresentou a Atitude como um conceito novo utilizado para compor o modelo, trazendo algo inédito a este campo de estudos no Brasil. Além disso, apresenta-se como uma inovação à aplicação do modelo UTAUT2 no contexto brasileiro, em um segmento e setor de mercado ainda não explorado neste campo de pesquisa - a terceira idade e o turismo.

Palavras-chave: Idoso. Destinos Turísticos. Internet. Tecnologia. Teoria Unificada de Aceitação e Uso da Tecnologia 2 (UTAUT2).*

Resumen: *La terceira edad han mostrado un creciente interés en las nuevas tecnologías e informar al aprendizaje, la inserción social y de ocio. Teniendo en cuenta el elevado número de cambios en el perfil de las personas mayores de Brasil y los contextos turísticos y tecnológicos**, este trabajo tiene como objetivo** comprender las intenciones de comportamiento y el uso de Internet por parte de los ancianos a los efectos de opciones de destino turístico. Para ello, el trabajo se extendió el modelo de UTAUT2 Venkatesh, tanga y Xu (2012), la inserción de nuevas construcciones relacionadas con la tecnología: La percepción del riesgo y confianza, por Slade et al (2015) y la actitud también añadir, basado en Curras-Pérez Ruiz -Mafe y Sanz-Blas (2014). **El estudio se caracteriza exploratorio-descriptivo. Para ello, la encuesta se realizó, en línea y cara a cara, que se aplica desde hace dos meses. El análisis estadístico de análisis multivariante se realizó mediante SPSS20 y el análisis de modelos de ecuaciones estructurales utilizando SmartPLS.** La muestra obtenida fue de 211 personas mayores que utilizan Internet con fines turísticos. **Como resultado**, las relaciones del hábito, la motivación hedonista, la confianza y las expectativas de rendimiento de los determinantes de Internet Uso de la actitud para fines turísticos y, además de hacer cola, la relación de la construcción del hábito, que afectan positivamente el comportamiento de uso. **En cuanto a la originalidad de la obra** fue la preocupación actitud era un nuevo concepto que se utiliza para componer el modelo, trayendo algo sin precedentes para este campo de estudios en Brasil. Además, las innovaciones incluyen la aplicación del modelo UTAUT2 al contexto brasileño, en un segmento y segmento de mercado aún no explorado en este campo de la investigación - la tercera edad y el turismo.*

Palabras Clave: *Tercera Edad. Destinos Turísticos. Internet. Tecnología. Teoría Unificada de Aceptación y Uso de la Tecnología 2 (UTAUT2).*

1 INTRODUCTION

The World Health Organization (WHO) defines an older person according to the level of development of countries and the chronological age. In developed countries, people aged 65 or older are considered elderly, while in developing countries, are those 60 years of age or older (IBGE, 2015).

The Brazilian Institute of Geography and Statistics (IBGE, 2015) points to the aging of population, with estimates that in 2020 there will be 21.2 elderly per hundred working-age population, and 51.9 in 2050. Despite the evident growth, strategies aimed at this segment of population need to be improved (Pereira, Waismann & Dos Santos, 2012).

For a long time, the elderly has been envisaged as dependent and associated to charity, inefficiency, low productivity, and poverty (Gomes & Moreira, 2016). This profile differs from that identified by Vilela, Carvalho and Araújo (2006), who verified that older adults aspire to fulfill affective, working and socio-economic needs, do exercise, have spirituality, among others. Given these aspirations tourism can be a way of having social interactions and to enhance quality of life (Liz, Ruschmann & Verdinelli, 2011). In addition, senior tourism is a growing business (De Carvalho & Da Silva, 2014). Related to that, older people show a growing interest in new technologies relating them with learning, social inclusion, and leisure; thus, it becomes necessary to improve marketing strategies aimed at seniors regarding tourism-related technology use (Esteves & Slongo, 2012).

In Brazil, according to research by the Internet Management Committee (CGI, 2013), the number of Internet users are increasing. In 2013, the percentage of Internet users surpassed, for the first-time, half of the population, reaching 51%. Among the population aged 60 or older, 11% said they were Internet users. According to data of the 2014 survey, that number rose to 18% (CGI, 2014). Considering the communication activities carried out in the Internet, 60% of older adults users participate in social media, while the most referred activity by this public is the use of email (77%) followed by instant messaging activities (70%), using, for example Facebook, Skype or WhatsApp (CGI, 2013).

Considering the changes in the profile of the Brazilian elderly and the context of tourism and technology, this study aims a better understanding of the behavioral intentions and the use of the Internet by seniors for choosing tourism destinations.

To this end, we adopted the UTAUT2 model (Unified Theory of Acceptance and Use of Technology) developed by Venkatesh, Thong and Xu (2012). We included new constructs related to technology, namely Perceived Risk and Trust as referred by Slade et al. (2015) and the Attitude construct based on the work by Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014) and Nysveen and Pedersen (2016). The inclusion of the latter proceed from the assumption that Attitude is a relevant determinant of the model, based on studies by Ajzen (1991), Ramalho (2006), Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014) and Nysveen and Pedersen (2016). More specifically, we aimed (1) to examine the dimensions of technology use based on the UTAUT2 regarding the Brazilian context of search and choice of tourism destinations by older people, (2) to relate them to attitude, behavioral intention and Internet use and (3) to assess the plausibility of the model put forward to understand the acceptance of technology and, in a different context, addressing tourism and senior population.

The present work is justified to the extent that its aims to contribute to the deep-

ening and consolidation of the theoretical model proposed by the authors Venkatesh, Thong and Xu (2012), who suggest as future research to address older adults, since the average age in the original study was 31 years. The authors also recommend applying the model in other countries and contexts given that their study was done in Hong Kong. The present study aims to address these two gaps by targeting Brazilian older adults, in the tourism context and, moreover, consider the use of the Internet in general, a different approach from the original model that examined only mobile Internet. Another relevant aspect is that we have sought to extend the original model with constructs relating to technology, by including Attitude in the model, making an original contribution to this field of study in Brazil.

2 THEORETICAL FRAMEWORK

2.1 Older adults, tourism, and technology

The age structure of Brazil has undergone significant changes, due to the sharp decline in fertility rates, leading to a demographic transition. The Brazilian population pyramid had a broad base, i.e., there was a considerable young population. With the aging of the population, this proportion has been changing, increasing the proportion of older population (IBGE, 2015). The increase in the elderly population is influenced not only by the decline in the fertility rate, but also by the decrease in mortality in all age groups (IBGE, 2015).

Kuo, Chen and Wu (2012), attribute this longevity to advances in medical science. A survey from IBGE (2015) indicates that the elderly population is the fastest-growing segment. The study estimates an increase of over 4% per year from 2012 to 2022. By 2030 it is projected that the population aged 60 years or older will be approximately 41,500,000 and 73,500,000 by 2060 (IBGE, 2015).

Santos (2010) speaks of aging with dignity, considering it as a wisdom and happy phase of existence. In this sense, senior tourism can have benefits in terms of independence and autonomy (Cress, Buchner, Questad, Esselman & Schwartz, 1999 and Ashton, Cabral, Dos Santos & Kroetz, 2015) and related to health (Cress et al., 1999 and Fechine & Trompieri, 2015).

Older adults are already a large group of society. According to Ashton et al. (2015), senior tourism is a market segment that widens each day, providing new business opportunities (Mello, Liz & Verdinelli, 2015) for travel agencies, hotel industry, transportation, and food services (Trigo, 2005). Considering that the next senior generations tend to have a higher level of education, and hence a higher income, that age-group is considered a promising market for the future (Mello, De Liz & Verdinelli, 2015).

Older adults believe that tourism contributes to enhance the quality of life and they associate it with positive feelings such as joy, well-being, and sociability (Pereira, Waismann & Dos Santos, 2012). Kim, Woo and Uysal (2015), have studied the tourism experience and the quality of life among senior tourists and they have found that the higher the level of involvement the greater the perceived value and life satisfaction.

There is a positive relationship between satisfaction and pleasure and the overall quality of life of the elderly. Tourism activities and experiences tend to positively affect several areas of life, namely, social and family life, leisure, cultural life, among others (Uysal, Sirgy, Woo & Kim, 2016). In this sense, it is the task of managers to enhance the quality of the tourism experience of the elderly (Kim, Woo & Uysal, 2015).

There are various benefits associated with senior tourism: autonomy, independence (Cress et al., 1999 and Ashton et al., 2015), benefits to health (Cress et al., 1999 and Fechine & Trompieri, 2015), mitigation of loss and loneliness (Ashton et al., 2015). Ashton et al. (2015) also include sense of belonging, usefulness, ability to accomplish things, possibility of new discoveries, improvement in self-esteem and self-confidence. Pleasure, socialization, personal satisfaction or to break the monotony have also been pointed as benefits (D' Alencar & Veiga, 2014).

Senior tourism must focus on the well-being and specific needs (Duarte, Santos & Souza, 2015). The adaptations provide a higher quality service, more leisure for the elderly, thus increasing the demand (Duarte, Santos & Souza, 2015). According to D'Alencar and Veiga (2014), the structural adaptations are not sufficient, it is necessary to change the attitudes and provide the staff with training in the best practices for dealing with these consumers. Convenience, comfort, and safety (Moura, Souza, Medeiros & Maracajá 2012) are key criteria when considering an older audience (Schein, Perin, Sampaio & Ugalde, 2009).

In this sense, understanding and meeting this audience is mutually beneficial insofar that, by assisting the elderly the companies gain a promising market segment. A way of catering to this audience is to consider the Internet as an important channel of communication which, according to Souza (2016), is directly related to tourism by facilitating and assisting in various situations, such as online hotel reservations and the use of social media for sharing tourism information and services. Several recent studies have shown the importance of mobile applications to make hotel reservations, arrange tours, and provide tourist information (Noguera, Barranco, Safe & Martínez, 2012; Rodriguez-Sanchez, Martinez-Romo, Borromeo, & Hernandez-Tamames; 2013).

Seniors face obstacles in the adoption of new technologies such as: a) physical challenges to using technology: many seniors have health issues or physical constraints; b) many are skeptical about the benefits of technology; and c) others have difficulties learning how to use new technologies (CGI, 2014). However, in Brazil, older adults have been increasingly using mobile devices (Santos, Ishitani & Nobre, 2013). A survey by the International Game Developers Association (IGDA, 2008) refers that seniors adopt a technological innovation if they recognize an advantage for their lives and not because it is a new thing.

In accordance with a study by the Pew Research Center – PRC (2014), Internet and broadband adoption rates among seniors are steadily increasing in the United States. This growth also occurs in several other countries, such as Korea, for example, where Kim and

Preis (2015) carried out their study. PRC data indicated that in 2014 six in ten American seniors reported using the Internet (59% of respondents), and just under half have adopted broadband.

Access to social networks is important because, as Qualman (2011), Baird and Parasnis (2011) and Moura, Godinho, Gosling and Martins (2014) point out, consumers are increasingly using social media for feedback, comments and opinions from friends, family, and social community. Therefore, considering the social influence construct, mentioned below, social networks can be a means of spreading this influence. In addition, social media enables and facilitates access to tourist information (Guerra, Gosling & Coelho, 2014).

Accessing the Internet via smartphone or tablet, has recently become common for the public in general, in Brazil and all over the world. The Pew Research Center (2014) indicates an increasing and rapid adoption of these mobile devices by American seniors. Also, they are more likely to own a tablet or e-book reader than a smartphone. Only 18% use smartphones, while 77% use regular cell phones.

In Brazil, the reality is a little different since cell phone access to the Internet covers only 6% of the elderly, while for the other age groups cell phones are the most used device. Among Brazilian Internet users aged 60 and older, 78% refer to the desktop computer as the main Internet access device (CGC, 2014).

2.2 TPB Model, UTAUT and UTAUT2 models

The theory of planned behavior (TPB) by Ajzen (1991) is an extension of the theory of reasoned action by Fishbein and Ajzen (1975), and was developed to explain individual behavior based on beliefs-attitudes-intentions-behaviors (Curras-Perez, Ruiz-Mafe & Sanz-Blas, 2014). Thus, in TPB the attitude precedes the behavioral intention. Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014) also consider that the attitude precedes behavior. Their model relates the determinants sociability, fashion/status, and entertainment (from the theory of uses and gratifications) to the Attitude construct. In addition, the authors use the variables of TPB to explain social media use behavior.

Building on the works that consider that Attitude precedes the Behavioral Intention, the present study assumes this relationship which is included in the extended UTAUT2 model, and the predictors of the UTAUT2 model are directly related to Attitude, a relationship explained below.

The UTAUT (Unified Theory of Acceptance and Use of Technology) results from a revision done by Venkatesh et al. (2003) to previous models that address acceptance and use of technology. These models are: Theory of Reasoned Action *(*TRA); Technology Acceptance Model (TAM); Motivational Model (MM); Theory of Planned Behavior (TPB); a combination of TPB and TAM (C-TPB-TAM); Model of PC Utilization (MPCU); Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT).

A construct that was initially tested by Venkatesh et al. (2003), included in TPB – Theory of Planned Behavior – the **attitude**, was not included in UTAUT2 because it was

not significant for the authors' study. However, such construct was added to the proposed model in this study, aiming to enhance it. The recent work by Nysveen and Pedersen (2016) corroborates this assumption. The authors have adopted the UTAUT using the Attitude construct as a predecessor of intention of use and achieving a good fit of the proposed model. Attitude is a strong predictor of behavioral intention according to several authors and it indicates a predisposition for behavior (Ajzen, 1991, Ramalho, 2006, Curras-Perez, Ruiz-Mafe & Sanz-Blas, 2014, among others). In the context of technology, Venkatesh (2003) defines attitude as the individuals' overall affective reaction to using a system. This paper, as mentioned, is an extension of the paper developed by Venkatesh, Thong and Xu (2012), and it presents as novelty (a) the application to the Brazilian context, (b) the inclusion of constructs, (c) the change in the profile of respondents, targeting now the older adults and (d) alteration of the studied sector, the tourism. It is noticeable the growing number of studies using the UTAUT model, though in different contexts.

Internationally, there are multiple studies on different topics, such as the acceptance and use of technology related to radio frequency identification service (Nysveen & Pedersen, 2016), mobile banking in Thailand (Bhatiasevi, 2015), intention of use of QR code by end-users, in Portugal (Luz, 2016). Rho, Kim, Chung and Choi (2015), have studied the factors that influence the acceptance of telemedicine services by patients with diabetes mellitus. Slade et al. (2015), a reference for this study, have applied UTAUT to payments by mobile phone.

In Brazil, following the international trend, the number of studies is increasing. However, in fields different from the one studied here, the tourism context. As an example, the work by Vera (2014) examined the motivation factors for group buying on the Internet, based on UTAUT2. Lima Faria et al. (2014) studied the applicability of UTAT2 in Brazil to mobile Internet users. Souza Meirelles and Longo (2015) investigated the adoption of information technology by teachers of an educational institution. Other authors in this field of research (Oliveira, Ramos, Andrade, Souza Neto and Dias, 2015), have investigated the factors influencing the adoption of distance training by public employees. Oliveira (2015) has analyzed how the use of online games affects the optimization of the selection process in a consulting company.

The above-mentioned examples show the diversity of research using the UTAUT2 model and corroborate the importance of applying it to a new context, tourism.

In the original UTAUT model, four constructs directly influence the acceptance of technology and use behavior: **performance expectancy, effort expectancy, social influence, and facilitating conditions**. In this model, four moderators of the relationship were used: gender, age, experience, and voluntariness (Farias, Luz Vitor, Lins & Pedroza Filho, 2015).

In this sense, the UTAUT unifies several models created to analyze the individual acceptance of technology in the work context. Subsequently, Venkatesh, Thong and Xu

(2012) proposed UTAUT2 to extend the analysis to individual consumption of technology, allowing the use of the model in consumer behavior research (Lima Faria, Giuliani, Pizzinatto, & Pizzinatto, 2014 and Farias et al., 2015). In UTAUT2, the variables **hedonic motivation, price value, and habit** were added and the moderators of the relationship used were age, gender, and experience. In short, the model put forward by these authors consider **performance expectancy, effort expectancy, social influence, facilitating conditions**, **hedonic motivation, price value, and habit** constructs as predictors of behavioral intention and, this, as determinant of use behavior. The model also predicts facilitating conditions and habit constructs as directly affecting use behavior.

Therefore, since the aim of this study is to verify the adoption and use of the Internet for choosing the tourism destination, we selected the UTAUT2 model as theoretical framework. In addition, we added the Attitude construct to the UTAUT2 extended by Slade et al. (2015), putting forward a modified model, presented below.

The UTAUT2 constructs adopted in this study, as well as the research hypotheses derived from this novel model, due to the inclusion of Attitude, focusing on the use of the Internet by older adults for tourism purposes are:

The construct **"performance expectancy"** refers to the degree to which the use of technology will provide benefits to consumers in performing certain activities (Venkatesh, Thong & Xu, 2012). In their original model, Venkatesh et al. (2003) have found that the performance expectancy predicts behavioral intention. The same relationship is confirmed by Bhatiasevi (2015), Rho, Kim, Chung and Choi (2015), Slade et al. (2015), Vera (2014) and Lima Faria et al. (2014). Since the research assumption is that Attitude precedes behavioral intention, and also based on Nysveen and Pedersen (2016), who have confirmed that performance expectancy positively influences the attitude of using radio frequency identification services, we hypothesized the following:

H1: Performance Expectancy positively affects Attitude regarding the use of the Internet for tourism purposes.

Effort Expectancy is "the degree of ease associated with the use of technology by consumers" (Venkatesh, Thong & Xu, 2012, p.159). This construct in the authors' model is hypothesized as having a significant positive effect in behavioral intention. Subsequent works, such as those by Bhatiasevi (2015), Rho, Kim, Chung and Choi (2015) and Lima Faria et al. (2014), confirm such relationship. By including the Attitude construct and drawing on Nysveen and Pedersen (2016) and on other mentioned authors who consider attitude as antecedent of behavioral intention, we hypothesize H2:

H2: Effort expectancy positively affects Attitude regarding the use of the Internet for tourism purposes.

"Social Influence" from the consumer's perspective refers to the degree to which the individual believes that other individuals consider important the use of technology. The assumption is that people tend to refer to their social networks on new technologies and they may be influenced by perceived social pressure from people whom

they consider important. In the Venkatesh, Thong and Xu's (2012) original model social influence is also one of the determinants of behavioral intention. Such relationship is corroborated by subsequent studies (Bhatiasevi, 2015, Rho, Kim, Chung and Choi, 2015, Slade et al., 2015 and Vera, 2014). Considering the attitude as antecedent of behavioral intention, we formulated hypothesis 3 (H3):

H3: Social influence positively affects Attitude regarding the use of the Internet for tourism purposes.

The other constructs considered predictors of behavioral intention in the UTAUT2 model are **"hedonic motivation",** that refers to the amusement and/or the pleasure an individual gets by using the technology in question; **"habit"**, defined as the extent to which people tend to perform behaviors automatically because of learning (Limayem, Hirt & Cheung, 2007) and **"facilitating conditions"**. The original model predicts that habit directly influences behavioral intention and the use behavior. The works by Vera (2014) and Lima Faria et al. (2014) confirm habit as a predictor of behavioral intention. The latter study also finds the relationship of habit as a direct predictor of use behavior. In the present study, the assumption is that these predict-

tors (hedonic motivation and habit) are related to Attitude, that predicts Behavioral Intention, and the Habit as a direct relationship with use behavior, thus the hypotheses encompassing these two constructs are:

H4 – Hedonic Motivation positively affects Attitude regarding the use of the Internet for tourism purposes.

H5a – Habit positively affects Attitude regarding the use of the Internet for tourism purposes.

H5b – Habit positively affects Internet use behavior for tourism purposes.

The **"facilitating conditions"** refer to the degree to which an individual believes that the environment supports the use of the technology in question. In the original UTAUT model is hypothesized that the facilitating conditions are determinants of behavioral intentions (Venkatesh, Thong & Xu, 2012; Nysveen & Pedersen, 2016; Lima Faria et al. 2014) and direct determinants of use behavior (Venkatesh, Thong & Xu, 2012). Given that attitude is antecedent of behavioral intention, the assumption in the present study is that the facilitating conditions are predictors of the Attitude construct, besides directly influencing Internet use behavior. Thus:

H6a – Facilitating Conditions positively affect Attitude regarding the use of the Internet for tourism purposes.

H6b – Facilitating Conditions positively affect Internet Use Behavior for tourism purposes.

Finally, we present the last two constructs of the UTAUT2 model: **"Behavioral Intention"** which refers to the intention of consuming a given technology product or service and the **"Use Behavior"** which refers to the act of consuming a given technology product or service. The hypothesis of the original model and adopted in the proposed model is:

H7 – The behavioral intention of use positively affects Internet use behavior for tourism purposes.

The work by Bhatiasevi (2015) strengthens the hypothesis 7, given that the author found a positive relationship between behavioral Intention and Use Behavior, like the authors of the original model.

Considering the adoption of the Internet by older adults and its use in the tourism context, UTAUT2 underwent a qualitative analysis and, after this analysis, we decided to remove from the original model the construct **price value** because it was not adequate to the object of study.

We considered the extended UTAUT2 model with the addition of **Innovativeness, Perceived Risk**, and **Trust**, developed by Slade et al. (2015), because it applies the UTAUT2 to mobile payments by phone. Since the context of this study is the search and selection of tourism information on the Internet, the transactions may occur thus the inclusion of variables **Perceived Risk** and **Trust** is justified.

Perceived Risk has been a common extension of UTAUT (Williams, Rana, Dwivedi & Lal, 2011). This construct, contrary to others in the model, represents an obstacle to adoption. Thakur and Srivastava (2014) refer that their findings support the hypothesis that Perceived Risk negatively affects the intention of adopting technology.

Corroborating the adoption of the **"Trust"** construct, Lu, Yang, Chau and Cao, (2011) and Zhou (2013) define it as a subjective belief that one party will fulfill its obligations and plays an important role in electronic financial transactions, wherein users are vulnerable to risks such as uncertainty and sense of loss of control. In the context of this research, tourism choices on the internet may entail web transactions, a fact that may involve and require trust between the parties. The findings by Slade et al. (2015) revealed that the perceived risk negatively influences the intention of use. For its part, Trust negatively influences the Perceived Risk and directly and positively influences the Intention of Use, but only for the public who are already familiar with mobile payments. From the UTAUT2 model extended with Perceived Risk and Trust (Slade et al., 2015) we hypothesized as predictors of Attitude the following:

H8: Perceived Risk negatively affects the Attitude regarding the use of the Internet for tourism purposes.

H9: Trust positively affects the Attitude regarding the use of the Internet for tourism purposes.

H10: Trust negatively affects Perceived Risk in Internet use.

Finally, the last hypothesis of the proposed model, based on the TPB - Theory of Planned Behavior by Ajzen (1991) that advocates attitude as a strong predictor of behavioral intention and the work of Nysveen and Pedersen (2016) that confirms this relationship, is as follows:

H11 – Attitude positively affects behavioral intention of Internet use for tourism purposes.

Thus, after the compilation of constructs we developed the proposed model, which is an extension of UTAUT2, with the inclusion of "Perceived Risk" and "Trust", innovating by adding the "Attitude" construct. From this proposed model, we derived the thirteen hypotheses of the proposed modified UTAUT2 model, presented in Figure 1:

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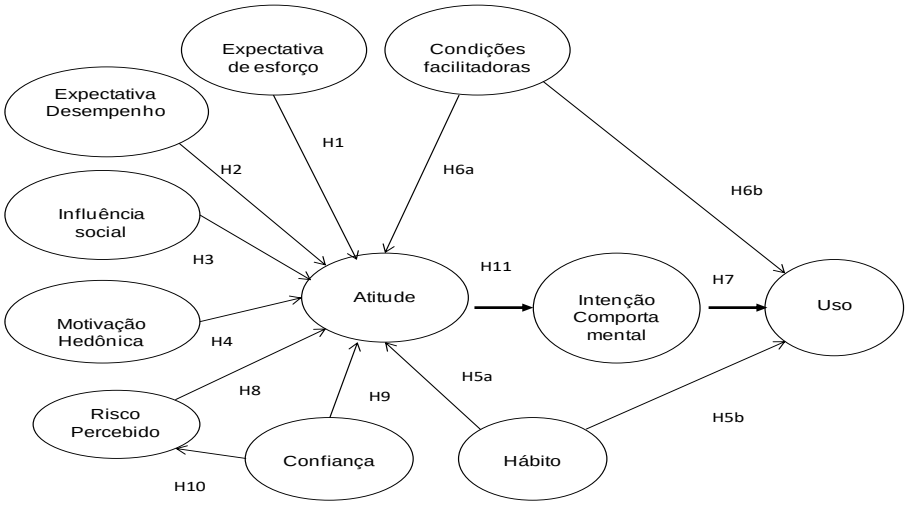
Figure 1- Hypotheses of the UTAUT2 modified model



Source: The authors

3 METHODOLOGY

The present research is exploratory and descriptive and aims to investigate the relationships (associations) between constructs (Malhotra, 2001). It is considered exploratory research given that we have inserted new constructs to the original UTAUT2 model.

This paper examines the adoption of Internet by older adults, verifying the use of fixed or mobile devices. Thus, we examined the access to the Internet of the elderly through desktop computers or mobile devices (smartphones and tablets), as well as access to social media like Facebook, Instagram, WhatsApp for tourism purposes, that is, the use of these networks for choosing a tourism destination. We have chosen this theme given the growing use of technology and social media by older adults, as explained in the theoretical framework.

The sample included the elderly that, according to the WHO classification, are the individuals aged 60 or older. We reached a sample of 293 individuals, with 211 valid respondents, i.e., Internet users and for tourism purposes (which is the object of the search). Sample size followed Hair, Black, Babin, Anderson and Tatham's (2010) recommendation of a minimum of 5 respondents per estimated parameter. Therefore, as the final version of the questionnaire has 38 variables, the minimum number (190) of respondents was achieved.

We used the survey method since it allows data quantification and the generalization to the population (Malhotra, 2001). The survey was developed on Google Forms and applied online (email and social networks), and printed and applied to maturity groups, clubs, and associations of retirees.

Data collection was held in October and November 2016, in the city of Belo Horizonte. The application through social media was made in various senior groups and communities of Facebook and WhatsApp. We used convenience sampling, i.e., we sent the link to the research to acquaintances. It was used also the snowball method, since the elderly shared the link with their social network.

We used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure the constructs of the proposed extended UTAUT2 model. Use Behavior construct was measured using the options 1 (never use) to 5 (many times a day). The items in the scale were obtained from the respective authors shown in Frame 1. In the present study, the moderators referring to the original UTAUT2 were not used since they were not the focus of this research

Data analysis was carried out using SPSS 20 and SmartPLS v. 3.2.6. Multivariate analysis techniques were performed with SPSS and structural equation modeling was developed using SmartPLS. Since the normality of data was not achieved, as it will be discussed below, that assumption is not necessary for the analysis through this software.

Frame 1 – Scale used in the research (continue)

Items of the questionnaire	Author
Considering the objective of choosing tourism destinations, classify your degree of agreement with the following statements:	
ED1. The Internet is useful in my daily life for this purpose.	
ED2. Using the Internet increases my chances of achieving things that are important to me for that purpose.	
ED3. Using the Internet helps me get things done faster for that purpose.	
ED4. Using the Internet makes my search for that purpose more efficient.	
EE1. I learn easily how to use the Internet for that purpose.	
EE2. Interacting with the Internet for that purpose is clear and understandable.	
EE3. The Internet is easy to use for that purpose.	
ED4. It is easy for me to become more skilled at using the Internet for that purpose.	
IS1. People who are important to me think that I should use the Internet for that purpose.	
IS2. People who have a lot of fun with me think that I should use the Internet for that purpose.	Venkatesh, Thong and Xu (2012)
IS3. The people whose opinions I value prefer that I use the Internet for that purpose.	
FC1. I have the necessary resources to use the Internet for that purpose.	
FC2. I have the knowledge to use the Internet for that purpose.	
FC3. The Internet is compatible with other technologies that I use for that purpose.	

Frame 1 – Scale used in the research (conclusion)

Items of the questionnaire	Author
FC4. I can get help from others when I have difficulties using the Internet for that purpose.	
HM1. Using the Internet for that purpose is fun.	
HM2. Using the Internet for that purpose is agreeable.	
HT1. The use of the Internet for that purpose has become a habit for me.	
HT2. I am addicted to using the Internet for that purpose.	
HT3. I must use the Internet for that purpose.	
HT4. Using the Internet for that purpose has become natural to me.	
CF1. I believe that the information obtained on the Internet for that purpose is reliable.	Slade et al. (2015)
CF2. I believe the Internet is safe for that purpose.	
CF3. I believe that the information on the Internet is reliable for that purpose.	
CF4. I rely on information and transactions made through the Internet for that purpose.	
RP1. I feel insecure by providing personal information on the Internet for this purpose.	Slade et al. (2015)
RP2.I worry about using the Internet for that purpose because other people may be able to access my account.	
RP3. I feel insecure sending sensitive information through the Internet.	
AT1. It is fun to access the Internet for tourism purposes.	Curras-Perez,
AT2. I think it is a good idea to use the Internet for this purpose.	Ruiz-Mafe and
AT3. It is pleasant to connect the Internet to that purpose.	Sanz-Blas,
AT4. I think the idea of using the Internet for tourism purposes is positive.	(2014)
AT5. I like to use the Internet for tourism purposes.	
IC1. I intend to continue to use the Internet for that purpose in the future.	Venkatesh,
IC2. I will always try to use the Internet for that purpose daily.	Thong and Xu
IC3. I plan to continue using the Internet for that purpose frequently.	(2012)
CU1 A). Search engines (e.g. Google) for tourism.	
CU2 B) Specific search sites (e.g. city hotel, decolar.com, booking).	
CU3 C) WhatsApp for tourism.	
CU4 D) Social Network (e.g. Instagram, Facebook) aimed at tourism.	

Source: Adapted from Venkatesh, Thong and Xu (2012), Curras-Perez, Ruiz-Mafe and Sanz-Blas, (2014), Slade et al. (2015)

4 RESULTS AND DISCUSSION

4.1 Characteristics of respondents

Aiming to know and characterize the sample, we present the socio-demographic profile of the respondents in Table 1.

The sample of 293 respondents was obtained in October and November 2016. From this, 6.8% are less than 60 years old, thus being discarded for this research; 82.9 % use the Internet and 72% use the Internet for tourism purposes, in a total of 211 partici-pants considered valid for the study.

The sample of older adults that use the Internet for tourism purposes is mostly composed by people between 60 and 70, representing 78.7% of the sample. Regarding gender, women represent 69.7% of users.

Table 1 - Characterization of the valid sample - Developed by the authors

Characteristics	Type	Quantity	Percentage
Age	Between 60 and 70	166	78.7
	Between 71 and 80	38	18.0
	More than 81	7	3.3
Gender	Female	147	69.7
	Male	61	28.9
	Missing data	3	1.4
Education	Incomplete primary education	3	1.4
	Complete primary education	2	.9
	Incomplete secondary education	5	2.4
	Complete secondary education	38	18.0
	Incomplete tertiary education	18	8.5
	Complete tertiary education	91	43.1
	Postgraduate education	52	24.6
	Missing data	2	0.9
Gross Family Income	Up to R$1,620	10	4.7
	From R$1,620.01 to R$3,240	20	9.5
	From R$3,240.01 to R$5,760	52	24.6
	From R$5,760.01 to R$ 8,280	51	24.2
	More than R$ 8,280.01	73	34.6
	Missing data	5	2.4
Marital Status	Single	18	8.5
	Married	109	51.7
	Divorced	33	15.6
	Widowed	43	20.4
	Other	5	2.4
	Missing data	3	1.4
	TOTAL	**211**	

Source: Research data

Vis-à-vis the income, three ranges were predominant, with 34.6% of the sample consisting of those who earn more than de R$8,280.01, followed by incomes between R$3,240.01 and R$ 5,760 (24.6%) and R$ 5,760.01 and R$ 8,280 (24.2%). Most of respondents are married (51.7%) and have completed tertiary education (43.1%).

The representativeness of those who earn more than R$ 8,280.00 and the level of education in the sample concurs with the trend presented by Mello, de Liz and Verdinelli (2015), i.e. the older adults have a higher level of education which influence the increase in the level of income.

4.2 Analysis of outliers and absent data and assumption of normality

Considering the data collected through the questionnaires, all Likert-type variables of the UTAUT2 model and the added constructs presented a non-normal distribution, a characteristic observed in the Kolmogorov-Smirnov and Shapiro-Wilk normality tests, since the null hypothesis of normality in both tests was rejected at 5% level of significance.

In the sample, there were three multivariate outliers identified by Mahalanobis D^2 distance (Hair et al., 2010). Considering the critical value of 2.5 referred to by Hair et al. (2010) for samples of size 200, all observations with that value or more in that calculation, were then classified as multivariate outliers and were excluded from the analysis to avoid compromising the results.

The analysis of missing data is pertinent since the structural equation technique is sensitive to missing values. Thus, this issue was handled by listwise procedure (excluding cases), i.e. only valid and complete questionnaires were considered for analysis.

The Spearman correlations, when evaluated in general, i.e., considering all the constructs, ranged from -0.055 to 0.836. All constructs presented significant linear correlations, except for use behavior (some variables) and perceived risk at the significance level of 0.01.

4.3 Analysis of the dimensions of constructs

According to Hair et al., (2010), it is necessary to verify the unidimensional nature of all constructs before assessing the reliability of the scale by the Cronbach's alpha coefficient. This is achieved using the criterion suggested by Sharma and Patterson (2000) which considers unidimensional the constructs presenting a single factor with the eigenvalue greater than 1 when submitted to the exploratory factorial analysis.

For this study, it was observed that the constructs were unidimensional according to the results of the exploratory factor analysis (EFA) applied to each construct separately.

The analysis of the dimensions, i.e. if the indicators are allocated to their respective theoretical construct, was carried out using EFA, which allows the exploration of the data and generates information on the number of factors that best represent the data and respective factor loadings (Hair et al., 2010). Moreover, EFA was also used because the present study is exploratory with respect to the new constructs inserted in the original UTAUT2 model.

To perform this analysis, the use of EFA using the principal component method with orthogonal Varimax rotation for each assessed construct is recommended, which allows to reach the minimum number of factors necessary to explain the maximum part of the variance represented in the original set of variables (Malhotra, Birks, Wills, 2012 and Hair et al., 2010).

After this choice of extraction and rotation method, we performed factor analysis for the determinant constructs (exogenous) and afterward, analysis of the dimensions with respect to dependent constructs Attitude, Behavioral Intention, and Behavior of Use, as well as the analysis of commonalities.

As can be seen in Table 2, seven dimensions were identified considering the exogenous constructs. As can be observed the variables of the constructs EE Effort Expectancy and CF Facilitating Conditions were grouped in the same factor and not in distinct groups, i.e., the structure revealed that indicators form a same construct and not dissimilar constructs.

Table 2 - Rotation matrix of the determinant constructs (exogenous)

	Components							
	1	2	3	4	5	6	7	Comunal.
ED1			0.638	0.330				0.653
ED2			0.815					0.838
ED3			0.803					0.813
ED4	0.307		0.733					0.705
EE1	0.812							0.767
EE2	0.728							0.711
EE3	0.792							0.758
EE4	0.734				0.311			0.741
IS1					0.849			0.851
IS2					0.883			0.886
IS3					0.723			0.671
MH1						0.799		0.820
MH2						0.834		0.850
MH3						0.850		0.823
HT1	0.306			0.689				0.777
HT2				0.781				0.739
HT3				0.789				0.790
HT4	0.347			0.612		0.337		0.730
CO1		0.797						0.761
CO2		0.874						0.858
CO3		0.882						0.842
CO4		0.865						0.818
RP1							0.752	0.644
RP2							0.869	0.766
RP3							0.903	0.821
CF1	0.448		0.413					0.473
CF2	0.745			0.324				0.731
CF3	0.440		0.347	0.311				0.473
CF4	0.380							0.297

Note: KMO = 0,891
Source: Research data

In addition, the commonalities of the CF1, CF3 and CF4 indicators (0.473, 0.473 and 0.297) were below 0.50 which is the minimum recommended by Hair et al. (2010). Therefore, we decided to eliminate this construct, because besides the commonalities were low, with the elimination of the CF construct, the accumulated explained variance went from 73.812% to 78.930%, i.e., a considerable increase.

From Table 3 it is possible to verify that the indicators of the constructs AT Attitude and IC Behavior Intentions were grouped in the same component, revealing that the indicators form a single construct. The commonality of the IC2 indicator was below acceptable value, thus exclusion is recommended. With the elimination of the IC construct, total variance explained increased from 64.829% to 70.963%, adding to this the fact that it is not recommended that a construct have only 2 Indicators. Thus, we opted for the removal of the IC construct from the analysis.

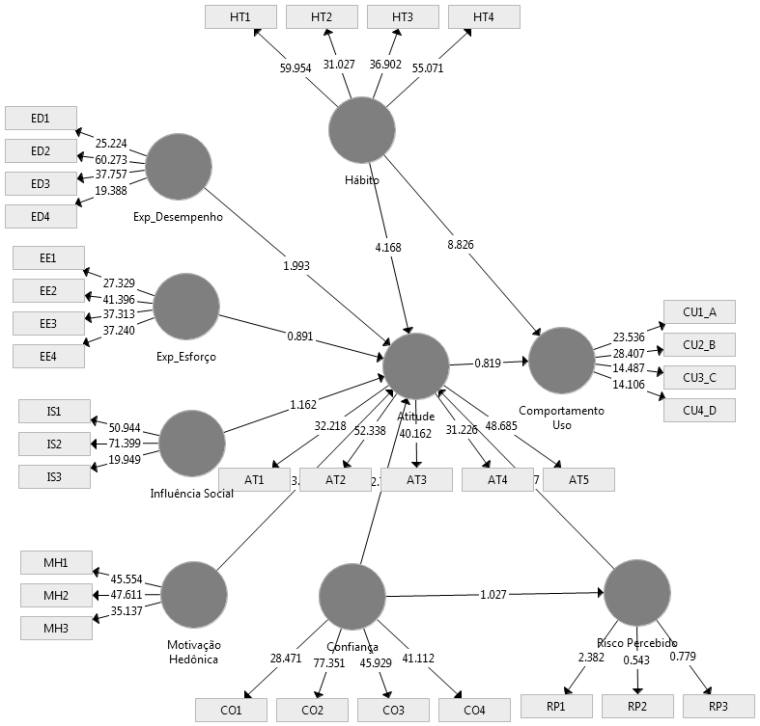
Table 3 – Rotation matrix of other constructs

	Component		
	1	2	Comunal.
AT1	0.841		0.716
AT2	0.890		0.806
AT3	0.838		0.715
AT4	0.864		0.756
AT5	0.859		0.807
IC1	0.756		0.624
IC2	0.531	0.428	0.465
IC3	0.566	0.448	0.520
CU1_A		0.677	0.522
CU2_B		0.731	0.624
CU3_C		0.781	0.613
CU4_D		0.782	0.612

Note: KMO = 0,893
Source: Research data

Figure 2 shows the final measurement model of the proposed model that had changes due to the results of the exploratory factorial analysis, and under which the analyzes were done. In the Figure is shown the model after the bootstrapping procedure that must occur to improve the model, as well as presents the significance of the relationships.

Figure 2 – Measurement model after bootstrapping



Source: Research data

4.4 Analysis of the validity and reliability of the scale

In order to verify the validity and reliability of the constructs we must examine the internal consistency of the model, the validity of the indicators of the constructs, and the discriminant validity.

The internal consistency of the model can be assessed by Cronbach's alpha and Composite Reliability tests, which can be seen in Table 4. These measures range from

0 to 1, so that the higher the value, the greater the reliability of constructs

According to Hair, Hult, Ringle and Sarstedt (2016), constructs are reliable with values above 0.70, drawing attention to values above 0.95 for composite reliability, which are not desirable because they indicate that all indicator variables are measuring the same phenomenon, and probably they are not a valid measure of the construct. As can be seen in Table 5, Cronbach's alpha and Composite Reliability (CR) values met the recommendations of the authors indicating the reliability of the model scale under study.

4.5 Convergent validity

We assessed the convergent validity of reflective constructs considering the outer loadings of the indicators and the average variance extracted (AVE). The outer loadings values recommended by Hair et al. (2016) are 0.708 or more and the AVE at least 0.50. All outer loadings and AVEs values for all indicators in relation to their respective constructs were acceptable, except the outer loadings of Perceived Risk indicators, RP1, RP2 and RP3 were 0.686, 0.643, 0.667, according to Table 5.

When the values are below the threshold level, though between 0.4 and 0.7, Hair et al. (2016) suggest that indicators with outer loadings between these values should be removed from the scale only when the exclusion of the indicator leads to an increase in composite reliability or in average variance extracted. In the case in question, it is not possible to do this test, since removing all the risk indicators implies the removal of the construct. Thus, the exclusion of the Perceived Risk construct was not considered.

Table 4 – Outer Loadings and AVE

Constructs	Indicators	Outer Loadings	AVE	Cronbach's alpha	CR
Attitude	AT1	0.881	0.789	0.933	0.949
	AT2	0.909			
	AT3	0.877			
	AT4	0.868			
	AT5	0.903			
Trust	CO1	0.877	0.814	0.924	0.946
	CO2	0.936			
	CO3	0.905			
	CO4	0.889			
Use behavior	CU1_A	0.797	0.592	0.775	0.852
	CU2_B	0.827			
	CU3_C	0.719			
	CU4_D	0.724			
Performance Expectancy	ED1	0.833	0.735	0.880	0.917
	ED2	0.911			
	ED3	0.877			
	ED4	0.802			
Effort Expectancy	EE1	0.845	0.758	0.894	0.926
	EE2	0.885			
	EE3	0.888			
	EE4	0.863			
Habit	HT1	0.885	0.743	0.885	0.920
	HT2	0.824			
	HT3	0.870			
	HT4	0.867			
Social Influence	IS1	0.920	0.809	0.881	0.927
	IS2	0.941			
	IS3	0.832			
Hedonic Motivation	MH1	0.913	0.825	0.894	0.933
	MH2	0.922			
	MH3	0.888			
Perceived Risk	RP1	0.686	0.553	0.818	0.701
	RP2	0.643			
	RP3	0.667			

Note: After bootstrapping
Source: Research data

4.6 Discriminant validity

In order to assess the discriminant validity, we use the Fornell-Larcker criteria as test procedures, as it can be seen in Table 6, in which the variables are coded as follows: MH Hedonic Motivations, RP Perceived Risk, CO Trust, AT Attitude, EE Performance Expectancy, EE Effort Expectancy, HT Habit, SI Social Influence and CU Use behavior.

Table 5– Fornell-Larcker discriminant validity test

	AT	CO	CU	ED	EE	HT	IS	MH	RP
AT	0.888								
CO	0.467	0.902							
CU	0.395	0.295	0.770						
ED	0.508	0.395	0.420	0.857					
EE	0.489	0.379	0.436	0.576	0.871				
HT	0.628	0.486	0.579	0.574	0.555	0.862			
IS	0.331	0.319	0.407	0.508	0.376	0.487	0.900		
MH	0.566	0.301	0.371	0.464	0.474	0.543	0.393	0.908	
RP	0.047	0.187	0.036	0.121	-0.073	0.056	0.174	0.073	0.560

Source: Research data

Discriminant validity is the extent to which a construct is truly distinct from other constructs (Hair et al., 2016). According to the authors, by the Fornell-Larcker criterion it is obtained the square root of the AVE of each construct in the main diagonal. This must be greater than the correlation between the construct and other constructs of the model, contained in the other cells. As can be seen in Table 6, discriminant validity by Fornell-Larcker criterion can be considered as satisfactory.

4.7 Analysis of the results of the structural model

All the indicators of the constructs were significant for the structural model (p values significant at the 0.05 level), except for the Perceived Risk construct, considering outer weights and outer loadings (RP2 and RP3).

Only the direct effects of the constructs were analyzed to evaluate the significance of the relationships between the constructs; we used SmartPLS path coefficients for assessing the relationships between the constructs and their significance, and for testing model hypotheses (Table 6). The significance of the relationships was obtained after running Bootstrapping to estimate the relationships of the structural model, by this procedure it is possible to improve model fit (Hair et al., 2016).

Table 6- Path Coefficients after bootstrapping

	Original Sample	Sample Average	SD	Statistics T	P value
AT -> CU	0.052	0.056	0.066	0.799	0.424
CO -> AT	0.182	0.180	0.067	2.723	0.006
CO -> RP	0.187	0.056	0.180	1.035	0.301
ED -> AT	0.128	0.125	0.063	2.026	0.043
EE -> AT	0.065	0.070	0.072	0.905	0.366
HT -> AT	0.316	0.311	0.076	4.176	0.000
HT -> CU	0.546	0.548	0.063	8.678	0.000
IS -> AT	-0.077	-0.074	0.066	1.160	0.246
MH -> AT	0.282	0.286	0.073	3.870	0.000
RP -> AT	-0.022	-0.005	0.056	0.393	0.695

Source: Research data

The analysis shows five non-significant relationships between constructs, namely, Attitude and Use Behavior, Trust and Perceived Risk, Effort Expectancy and Attitude, Social Influence and Attitude, and finally Perceived Risk and Attitude.

Five relationships were considered significant in the structural model: Trust and Attitude, Performance Expectancy and Attitude, Habit and Attitude, Habit and Use Behavior, and finally Hedonic Motivation and Attitude.

After we verified the relationships, the predictive accuracy of the model was assessed by R^2 value (Hair et al., 2010). This measure assesses the predictive accuracy of the model, representing the combined effects of endogenous variables on exogenous variables, as can be seen in Table 7.

Table 7 – Model R^2 after bootstrapping

	Original Sample	Sample Average	SD	Statistics T	P Value
AT	0.513	0.535	0.056	9.239	0.000
CU	0.337	0.346	0.049	6.851	0.000
RP	0.035	0.036	0.025	1.407	0.160

Source: Research data

The value of R^2 varies between 0 and 1, the closer it is to 1 the higher the predictive accuracy; in marketing research values close to 0.25, 0.50 or 0.75 are considered, respectively: weak, moderate, or substantial (Hair et al., 2010).

In this study, R^2 values indicate that the model has a moderate level of predictive accuracy regarding the Attitude construct (0.535) and weak predictive accuracy for the Use Behavior construct (0.346). This means that the variation of the Attitude construct is explained by the variation in the predictors (Trust, Performance Expectancy, Habit, and Hedonic Motivation) in 53.5% and the variation in Use Behavior is explained by the variation in Habit in 34.6%. The R^2 representing the variation in Perceived Risk as being explained by Trust was not significant, p-value above 0.05.

It can be stated that the statistical analysis of the data moderately supported the model that the predictors (Trust, Performance Expectancy, Habit, and Hedonic Motivation) affect Attitude. Path coefficient analysis showed that Habit presented the highest relative importance (0.311), followed by Hedonic Motivation (0.286), Trust (0.180) and Performance Expectancy (0.125). With respect to the Use Behavior construct, the Habit construct was shown as a good predictor, with a weight of 0.548, according to Table 7.

Regarding the fit of the model, SRMR measures (standardized root mean square residual) and RMS $_{theta}$ (root mean square residual covariance) test the fit. Following a conservative approach, a SRMR value (RMS $_{theta}$) of less than 0.08 (0.12) indicates good fit of the model (Hair et al., 2016). The values obtained for SRMR and RMS $_{theta}$ were respectively 0.05 and 0.146, which indicates a

partial adjustment model. Table 8 presents a summary of analysis results of the hypotheses, based on the results obtained.

In short, five of the hypotheses were supported, namely: the significance of the relationship between the Performance Expectancy (ED) and Attitude (AT) constructs was satisfactory, thus it can be stated that Performance Expectancy is a predictor of Attitude in the present study. Thus, older adults perceive that the use of the Internet is advantageous to perform certain activities, and the higher the performance expectancy, the more favorable is the attitude toward using the Internet, the same was found by Nysveen and Pedersen (2016). The authors Venkatesh, Thong and Xu (2012) found performance expectancy (ED) to be a predictor of behavioral intention, but as in the present work attitude is an antecedent of intention, the ED construct presented this direct and positive relationship with attitude.

The Habit construct influenced Attitude and Use Behavior constructs. This influence is similar to that observed by Esteves and Slongo (2012), as they understood the seniors' growing interest in learning about new technologies and using them at their advantage. Moreover, the report by PRC (2014) found that once the elderly adopts a digital technology, they integrate it into their daily life, using it frequently. The above-mentioned research is related to Limayem, Hirt and Cheung's (2007) definition of Habit, as the extent to which people tend to perform behaviors automatically because of learning. Thus, the Habit positively affects Attitude (weight of 0.311) and directly affects Use Behavior (weight of 0.548). The latter was also ratified by Lima Faria et al (2014) and Venkatesh, Thong and Xu (2012). However, the relationship of the attitude as mediator of Habit and Use Behavior was not significant.

Vis-à-vis the Hedonic Motivation construct, the relationship obtained showed that such a construct positively influences Attitude. This means that the more intense is the feeling of amusement and/ or pleasure provided by the Internet to seniors more favorable the attitude towards the use of the Internet for tourism purposes. In the UTAUT2 model, the Hedonic Motivation is directly and positively related to the Behavioral Intention, while in the present study it is related to Attitude.

The relationship between Trust (CO) and Attitude (AT) constructs also proved to be significant, and it can be stated that Trust is a predictor of Attitude in this study. In the study by Slade et al. (2015), from which the Trust construct was adopted, the relationship between Trust and Behavioral Intention was rejected. In this study, Trust positively affects Attitude. Thus, the higher the trust the elderly have in the transactions and in the companies, that they engage with in the Internet, the more favorable the attitude toward using the Internet for tourism purposes.

Regarding the rejected hypotheses, it can be said that all hypotheses related to IC (Behavioral Intention) and CF (Facilitating Conditions) constructs were not supported given that these constructs were excluded after the factor analysis results.

In addition, five hypotheses were rejected. The influence of Effort Expectancy on Attitude construct was rejected, as well as

the Social Influence as a predictor of Attitude, Perceived Risk negatively affecting Attitude, Trust negatively influencing Perceived Risk, and Attitude as a predictor of Use Behavior.

Table 8 – Analysis of hypotheses

Hypothesis	Code	Result	Analysis
AT -> IC	H11	Rejected	Factor analysis pointed to the exclusion of IC construct.
CF -> CU	H6b	Rejected	Factor analysis pointed to the exclusion of CF construct.
CF -> AT	H6a	Rejected	Factor analysis pointed to the exclusion of CF construct.
CO -> AT	H9	Supported	The significance of the relationship between Trust (CO) and Attitude (AT) constructs was satisfactory, and it can be said that Trust is a predictor of Attitude in this study.
ED -> AT	H2	Supported	The significance of the relationship between Performance Expectancy (ED) and Attitude (AT) constructs was satisfactory, and it can be said that Performance Expectancy is a predictor of Attitude in this study.
EE -> AT	H1	Rejected	The significance of the relationship between Effort Expectancy (EE) and Attitude (AT) constructs was not satisfactory, and it can be said that Effort Expectancy is not a predictor of Attitude in this study.
HT -> CU	H5b	Supported	The significance of the relationship between Habit (HT) and Use Behavior (CU) constructs was satisfactory, and it can be said that Habit is a predictor of Use Behavior.
HT -> AT	H5a	Supported	The significance of the relationship between Habit (HT) and Attitude (AT) constructs was satisfactory, and it can be said that Habit is a predictor of Attitude.
IC -> CU	H7	Rejected	Factor analysis pointed to the exclusion of IC construct.
IS -> AT	H3	Rejected	The significance of the relationship between Social Influence (IS) and Attitude (AT) was not satisfactory, and it can be said that Social Influence is not a predictor of Attitude in this study.
MH -> AT	H4	Supported	The significance of the relationship between Hedonic Motivation (MH) and Attitude (AT) constructs was satisfactory, and it can be said that Hedonic Motivation is a predictor of Attitude.
RP -> AT	H8	Rejected	The significance of the relationship between Perceived Risk (PR) and Attitude (AT) constructs was not satisfactory, and it can be said that Perceived Risk is not a predictor of Attitude in this study.
CO -> RP	H10	Rejected	The significance of the relationship between Trust (CO) and Perceived Risk (RP) constructs was not satisfactory, and it can be said that Trust does not negatively affect Perceived Risk in this study.
AT -> CU		Rejected	Hypothesis created from the exclusion of the IC construct, leaving a direct relationship between Attitude (AT) and Use Behavior (CU). However, it was rejected.

Source: Research data

In contrast to Nysveen and Pedersen's (2016) findings, the Effort Expectancy was not predictive of Internet use for tourism purposes. The effort expectancy is the consumers' perception of the degree of ease associated to the use of the Internet, however, this perception is not positively related to the use of technology. While it cannot be said that the behavior is different among the different age groups, in the work of both Nysveen and Pedersen (2016) and Ven-

katesh, Thong & Xu, 2012 the segment studied was predominantly young people. It is suggested to investigate further the influence of age in Attitude and Use Behavior determinants.

We believed that the reasons for the rejection of the hypotheses related to Perceived Risk (Perceived Risk and Attitude, Trust and Perceived Risk) are linked to data collection. There might have been understanding or attention issues in responding the questions related to Perceived Risk, whose scale was inverted, i.e. the agreement with the statement reflected an unfavorable response.

In the present study, the Social Influence was also not considered a predictor of Attitude. This shows that the elderly, by the research data, are not as influenced by social pressure or network of contacts to use the Internet as the younger age group (up to 31 years), which was the target of the study by Venkatesh, Thong & Xu, 2012, proponents of UTAUT2.

There was also the rejection of hypotheses related to the influence of Attitude in the Internet Use Behavior for tourism purposes. This direct relationship was tested in the present study in an unprecedented way, since there are no known studies on this. However, there was no empirical support for such a relationship. Further studies could examine this relationship with larger samples and across various age groups.

5 FINAL CONSIDERATIONS

The theoretical contributions of the present study are directly related to the proposed objectives to the extent that, by adopting the UTAUT2 model, together with new constructs (Attitude, Perceived Risk, and Trust) it was verified their link to tourism and technology. The hypotheses that were supported show the plausibility of this modified model, confirming the relationships between Habit, Hedonic Motivation, Trust, and Performance Expectancy constructs as determinants of the Internet use for tourism purposes and, in addition, the positive relationship between the Habit construct and Use Behavior. Among the findings, we highlight the confirmation of new predictors for Attitude, adequate to the context of technology and tourism, in line with the studies by Ajzen (1991) and Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014) and Nysveen and Pedersen (2016). The determinants of attitude in Ajzen's work (1991) are beliefs (behavioral, normative and control). While in the work of Curras-Perez, Ruiz-Mafe and Sanz-Blas (2014) the determinants of attitude - in the context of social networks - are sociability, fashion/status, and entertainment. In the study by Nysveen and Pedersen (2016) the predictors of attitude are performance expectancy, effort expectancy, and technology anxiety.

This study contributes to management practice with information regarding the determinants of attitude (Habit, Hedonic Motivation, Trust, and Performance Expectancy). Such information provides managers with knowledge about Internet use behavior for tourism purposes, enabling more effective strategies regarding traveling, purchase

of tourism packages and tickets, and information search.

The findings also contribute to management practice to the extent that they can improve communication emphasizing a positive attitude towards Internet use. In addition, tourism companies can adopt strategies for narrowing and deepening the company's relationship with senior citizens, since Trust was identified as one of the determinants of attitude toward Internet use and tourism. Moreover, companies can highlight the amusement and entertainment provided by the Internet to older adults.

The managerial implications corroborate the perspective of Pereira, Waismann and Dos Santos (2012) about the potential of this market. The authors argue that it is necessary to know the aspirations and desires of this public to serve them better. In addition, they believe that the number of tourism packages and programs targeted at this public is not substantial, thus providing business opportunities.

The limitations of this study are related to the use of survey. The disadvantage of the method is that respondents may not provide the correct information or understand the questions or they may be reluctant to respond to sensitive or personal issues (Malhotra, 2006). In the field work, the main complaints about the research were about the size of the questionnaire, the respondents found it very extensive, tiresome, and repetitive, and there may have been difficulties in understanding some of the questions.

The generalization of the results of this study to Brazil is compromised given the convenience sampling method used. It is suggested, therefore, the expansion of this research using a larger sample size of older adults encompassing all the Brazilian states.

Considering that Effort Expectancy, Social Influence, Perceived Risk, Behavioral Intention, and Facilitating Conditions constructs were not significant in the context of the present study, it is suggested further studies using other samples, i.e. different publics and/ or contexts to confirm if such relationships exist.

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