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Smart Tourism Destinations from the Perspective of Travelers with Disability

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ABSTRACT

This study elaborates a theoretical structure regarding the drivers of well-being and the conditions under which it is achieved by travelers with disabilities (TwDs) in a smart tourism destination (STD). The grounded theory was applied in the research. The focused coding revealed 65 codes distributed among 14 categories. The correlation among them established the theoretical code with the dimensions of the STD, their consequences, the drivers of well-being, and the moderating conditions of smart tourism experiences (STEs). The results showed that the STD generates trust, safety and autonomy in the TwDs, supporting the overcoming of physical and social barriers and favoring their well-being. The theoretical structure exposed relations that can be tested in future researches and focused codes that support the elaboration of items that can be used to measure the categories. The proposed model provides managers and policymakers with information to better welcome TwDs.

Keywords: Smart tourism destinations; Smart tourism experience; Travelers with disabilities; Grounded theory; Theoretical coding

RESUMO

Este estudo elabora uma estrutura teórica acerca dos condutores do bem-estar e das condições sob as quais ele é alcançado pelo viajante com deficiência (VcD) no destino turístico inteligente (DTI). A teoria fundamentada foi empregada na pesquisa. A

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codificação focalizada revelou 65 códigos distribuídos entre 14 categorias. A correlação entre elas estabeleceu um código teórico com as dimensões do STD, suas consequências, os condutores do bem-estar, e as condições moderadoras das experiências turísticas inteligentes. Os resultados mostraram que o DTI gera confiança, segurança e autonomia no VcD, proporcionando a superação de barreiras físicas e sociais, e favorecendo o seu bem-estar. A estrutura teórica expôs relações que podem ser testadas em pesquisas futuras e códigos focalizados que suportam a elaboração de itens para medir as categorias encontradas. O modelo proposto respalda gestores e formuladores de políticas públicas com informações para melhor receber o VcD.

Keywords: Destinos turísticos inteligentes; Experiência turística inteligente; Viajantes com deficiência; Grounded theory; Codificação teórica

Introduction

Tourism activity is intrinsically associated with the generation of well-being and personal transformation of the traveler. Through tourism, the travelers go outside their comfort zone to live an authentic experience, outside the patterns of their daily life, acquiring higher well-being within a personal transformation process that involves reflection and a review of principles and behaviors (Decrop, Del Chiappa, Mallargé, and Zidda, 2018). Curiously, although the travelers can achieve their own personal transformation and well-being, during the trip one can fall into a series of discomforting situations. The embarrassing situations generated by different habits, culture, language, difficulties in transportation, hosting or financial transactions are only some ways in which one's vulnerability may be exposed.

In addition to these embarrassments, some travelers may have their sense of vulnerability aggravated by disabilities of physical, mental, and cognitive nature, which enhances the constraints that may occur in tourism experiences. They face physical, economical and information barriers, although benefits may also exist for them and their caregivers (Agovino, Casaccia, Garofalo, and Marchesano, 2017). Therefore, accommodation accessibility, smart guides, the sensorial representation of spaces, accessible information systems (Hersh, 2016), and accessible travel products, despite being more expensive (Lyu, 2017), are extremely important for the TwDs. In the face of these specific requirements, the following research question is proposed: Do smart tourism destinations contribute to the reduction of the vulnerability of the TwDs and support their well-being?

The STD is a destination conceived as an ecosystem of digital businesses that connect and collaborate to create a technological infrastructure that converts data into value-adding proposals for tourists (Gretzel and Scarpino-Johns, 2018). This networking allows the formation of a smart ecosystem, which corresponds to the incorporation of innovations of information and communication technology (ICT) in tourism activities and facilitates the integration of resources among the participants.

The studies about STD are in the field of smart tourism. They have been directed to its definition (Mehraliyev, Chan, Choi, Koseoglu, and Law, 2020), the development of

disruptive technologies applied to the destinations (Chung, Lee, Kim, and Koo, 2018), according to the perspective of the tourism industry and its governability (Ivars-Baidal, Celdrán-Bernabeu, Mazón, and Perles-Ivars, 2019). The literature also discusses the practice of management of STDs, not only at a strategic level but also at a micro level (Buhalis and Leung, 2018).

The smart approach adopted by destinations stimulates the active participation of the traveler in the experiences, promoting interaction through the sharing of experiences in social networks, blogs, vlogs and travel apps. In this way, STDs have the potential for stimulating the value co-creation among their tourists (Femenia-serra and Neuhofer, 2018). In this context, new tourists have emerged through the creation, sharing, dissemination and exchange of content and resources. They use the destination's online platforms for designing their own experiences, affecting their emotions and destination engagement (Zhang, Gordon, Buhalis, and Ding, 2018).

The present research is focused on a particular group of this kind of tourists, the TwDs who desire to interact with the destination and its stakeholders through ICT to overcome their disabilities and improve their experience. Two factors justify this interest. First, there are indications that ICT may be favorable to accessibility (Baldassin, Shimizu, and Fachin-Martins, 2018). Second, there is a lack of literature investigating whether STDs contribute to the generation of well-being and the reduction of the state of vulnerability of TwDs, although researchers have shown how the Internet of Things (IoT) is a tool that works in favor of social inclusion of citizens with motor disabilities in Smart Cities (Rashid, Melià-Seguí, Pous, and Peig, 2017).

Therefore, the present article aims to point out the TwDs's perception about the STD and elaborate a theoretical substantive structure regarding the drivers of well-being and the conditions under which it is achieved by TwDs on the STD. Substantive theory comprehends a local, particular or related reality that is related to a group of people, unlike formal theory, which is broad and more general and can be applied to a great variety of disciplines, interests and problems (Charmaz, 2009).

The research provides academic and practical contributions. From the academic point of view, the first contribution is to present STDs from the perspective of the TwDs. Second, the research developed a theoretical model for STDs and its consequences, which was formed by the integration of categories grounded on focused codes extracted from the participants data. Third, these focused codes may be used for supporting the elaboration of scales to measure the theoretical model. And fourth, new opportunities of research emerged from the data analysis. As a practical contribution, the proposed model provides new information for destination managers and economic policymakers, opening up business opportunities to welcome TwDs.

1. Smart tourism destination

The STD is one of the elements of smart tourism. It represents the place where all the layers of smart tourism model converge through technology, data, governance, business and experience (Gretzel and Scarpino-Johns, 2018). A tourism destination becomes smart when it creates an urban platform that instantaneously integrates the entities of

the tourism activity, gathering and exchanging useful information in real time for the enrichment of tourism experiences.

The key aspect of the STD is the integration of ICT in the physical infrastructure of the destination through technological infrastructure (ubiquitous network, sensors, IoT), service platform to the user (apps, cloud computing) and heterogeneous data treatment (big data analytics) (Femenia-serra and Neuhofer, 2018). This technology creates and puts into operation virtual platforms that are spaces where the interconnections between the tourism stakeholders occur through the gathering, creation and real-time exchange of information. Within this framework, the tourism experience and the performance of the organizations are improved through the joint value co-creation. From this perspective, the STD operates within a smart tourism system that uses technology to create, manage and deliver experiences, which are characterized by the intense sharing of information and value co-creation. Within this context, access to the internet, mobile devices such as smartphones, and apps has a key role in interpreting the experience of the traveler before, during and after the trip (Zhang et al., 2018).

However, ICT alone is not sufficient to provide intelligent information to the destination and to the experiences it offers. It is necessary to consider the integration of the social and human capital, leadership and innovations in the establishment of a destination (Buhalis and Sinarta, 2019). ICT creates virtual platforms in which information and knowledge (human capital) are exchanged among the stakeholders who form a cooperative network according to psychosocial factors (social capital). Through sharing of information and knowledge, innovative services are developed for the co-creation of value and personalized experiences, thereby improving the competitiveness of the destination, which is hoped to be maintained by public and private managers according to their planned targets (leadership).

Specific conditions, such as the formation of smart cities, the presence of disruptive ICT and the penetration of social media, have led to the emergence of STDs. However, the sustainability of these destinations is ensured only when the governance of the destination is guided by environmental, economic, social and technological actions, which guarantee the improvement of the tourism experience, the quality of life of the residents and tourists, the maintenance of natural resources, and the convergence of economic, social, political and environmental purposes (Shafiee, Ghatari, Hasanzadeh, and Jahanyan, 2019). The range of the benefits of STDs for tourists and locals is evident. However, both management and academic knowledge may be broadened when specificities of STDs are brought to light according to the perspective of disabilities.

2. Vulnerability, incapacity and disabilities

All human beings have lived or will live in some state of vulnerability that arises from three probable sources (Baker, Gentry, and Rittenburg, 2005). First, in individuals who are experiencing transitions in their lives, suffering and motivational states, such as changes in the family structure. Second, according to the biophysical and psychological characteristics of a person, including age, physical and cognitive disabilities, the social perception of one's own appearance, health and social-economic condition. Third, as a

result of circumstances external to the individual, such as problems, stigmas, physical barriers, logistic elements, and social-economic or political contexts.

Even though it is possible to enumerate several conditions in which human vulnerability emerges, in the field of ethics, vulnerability is understood as an indelible condition of the existing being that, for existing, is doomed to finitude and risk (Jonas, 2006). Therefore, vulnerability is not a provisional and adjective condition of individuals or groups, but a constituent reality of the human being that equals everyone (Neves, 2006). In this sense, vulnerability operates in a logic of solicitude that imposes responsibility as a norm of human moral action in respect of the integrity, dignity and autonomy of the other, with consequences on bioethics and public policies (Jonas, 2006).

The perceptions of the traveler in state of vulnerability due to physical disabilities are investigated in this work. Such travelers are vulnerable due to their biophysical states. Frequently physical disabilities are confused with incapacity. Disability is a physical attribute which does not necessarily make the person impaired. Various models explain impairment. These models are located between two extremes that consider medical aspects (medical model) and social aspects (social model) (Oliver, 1996). The medical approach pinpoints incapacity as a personal tragedy of the individual caused by a pathological, anatomic variation or by an accident. The social model considers impairment as a result of a social construction. A disabled person is only impaired because she lives in an incapacitating physical and social environment with hostile social attitudes.

This is the reason why researchers, professionals and governments have been dedicating efforts to develop accessible tourism (Gillovic, McIntosh, Cockburn-Wootten, and Darcy, 2018). This concept is founded in the philosophy of design universality, which has the purpose of elaborating environments and products that can be used by the greatest number of people as possible without the need to adapt or develop a more elaborate design (Story, Mueller, and Mace, 1998).

It is widely known that ICT improves convenience and the independence of a person with disability. Some examples in this sense include a smart system activated by voice to help a person with a motor disability to perform their domestic chores (Busatlic, Dogru, Lera, and Sukic, 2017) and websites with accessible navigation (Vila, González, and Darcy, 2018). Sensors based on the Internet of Things that enable people with visual disabilities to trace their paths with the aid of tactile and hearing resources can be found in smart cities (Ramirez et al., 2017). Additionally, systems for monitoring the accessibility of smart cities are capable of generating information on the accessibility of public streets (Mora, Gilart-Iglesias, Pérez-Del Hoyo, and Andújar-Montoya, 2017). Therefore, given the capability for technological resources in smart cities to improve the quality of life of their citizens with disabilities, it is hoped that STDs may also contribute to the well-being and personal transformation of TwDs.

3. Methodology

Grounded theory is the appropriate methodology for studies intended to form theoretical propositions in substantive areas by extracting data concepts and organizing

them around basic categories that are integrated by hypothesis to form a theory (Glaser and Strauss, 1967). The categories appear through intense interaction with the collected material and are successively debugged in an interactive process of data gathering and analysis. At the end, the researcher has the information to recognize the relationships between categories and to propose a grounded theory based on data analyzed by comparison.

Three versions of grounded theory are used by tourism researchers. In this present work, grounded theory was applied according to the approach proposed by Charmaz (2009). Data gathering began through intensive interviews, which were characterized by the search for concepts, their meanings and processes. Brazilian citizens with disabilities who had already been in an STD in Brazil or offshore were interviewed. The participants were being selected until the researchers perceived the rise of categories, their meaning (concepts) and their integration forming a substantive theory about the STD. Table 1 presents the list of the participants.

Table 1: Participants

| Interviewee | Age | Profession | Disability |
|--------------------|------------|----------------------|-------------------|
| D1 | 36 | Publicist | Tetraplegia |
| D2 | 52 | Redactor and Blogger | Paraplegia |
| D3 | 35 | Blogger | Blindness |
| D4 | 31 | Writer | Paraplegia |
| D5 | 25 | Accountant | Deafness |
| D6 | 50 | Tourism Agent | Paraplegia |
| D7 | 30 | Commercial Manager | Tetraplegia |
| D8 | 32 | Attorney | Paraplegia |

Source: personal data

The interviewees agreed voluntarily to participate in the research. An initial semi-structured script guided the work field but each interview gained their own dynamic, adjusted to participants according to their trip experiences. They lasted around 50 minutes, were recorded with the consent of the participants, fully transcribed and analyzed in the hermeneutic unit of ATLAS.ti 8.

For the codification and categorization of data, memos were written. At the same time these memos were being written, codes and categories were appearing and many times renamed, until the researchers identified their properties and relations. The categorization process was established through initial, focused and theoretical codification (Charmaz, 2009). In the initial codification the codes were written through sentences that begin with verbs in the gerund form. This approach helped the researchers to think outside statistical topics to understand them as ordered processes and prevented the tendency to apply pre-existing theories to the data. In the focused coding, researchers observed the emergence of categories composed of a group of initial codes, which were used to define and explain their analytic properties. Finally, theoretical codification was performed. This step specifies a central code that addresses the possible relations between the categories developed in the focused codification.

4. Research results

4.1 The smart tourism destination from the perspective of TwDs

Table 2 presents the categories from the STD and their respective concepts according to the TwDs interviewed. The first category is ICT, which is the basis upon which all the other categories are supported (Femenia-serra and Neuhofer, 2018). To visitor D2, it is impossible to travel without technology since technology is more reliable than people:

Without the technology, for us that have disabilities, it gets too difficult because you have to trust people, and people lie on purpose, mostly to people who are vulnerable, because of the difficulty such people have in discovering the truth and in complaining (D2).

Table 2: Categories of the dimensions of the STD in the evaluation of the TwD

| Categories | Focused codes |
|--|--|
| ICT | Finding apps to various tourism functions Using open Wi-Fi Facilitating the communication with sign interpretation language apps in real time online |
| Digital accessibility | Accessing apps through sign language and audio description Accessing apps and websites in different languages Accessing diverse, complete, detailed and accurate information Obtaining digital accessibility with the type of font, illumination, figure size, ratio and use of sign language and audio description |
| Physical accessibility (mobility) | Obtaining mobility through apps Accessing shared spaces by TwDs and visitors Accessing spaces with traveling caregivers, human or animal Obtaining mobility with accessible apps for visitors with hearing disabilities Accessing locations through tactile floor or audio description Adapting seating, restrooms and vehicles to the needs of the TwD Accessing buses with apps designed for visitors with visual disabilities |
| Information accessibility | Accessing the STD through smell, touch (mock-up) and hearing senses Accessing theater plays with audio description and sign language interpretation Identifying sign language and audio description in historical reviews in museums Obtaining information through apps, audio guides, websites, blogs, vlogs, panels and leaflets accessible to the TwD |
| Infrastructure | Obtaining infrastructure and facilities for the TwD in pathways and service spaces Obtaining an environment that provides emotional, mental and physical comfort |

| | |
|-----------------------------|--|
| STEs | Booking and buying tickets through apps Interacting with people, services and products through ICT Using geolocation apps for mobility Adapting the trip script through ICT Researching the costs through ICT Researching adapted cars, shared transportation and open Wi-Fi Accessing the STD through sign languages or audio description in apps, audio guides, tactile aids and electronic panels |
| Information sharing | Sharing experiences and making trip evaluations in apps Helping other travelers through trip reviews Obtaining reliable information for bloggers with disabilities Disclosure of the STD through sharing of information Evaluating the availability of reserved spots for the TwD, the inclination of ramps and pathways |
| Promotion of the STD | Making the STD known as a product to be consumed Offering accessible information about events, attractions or tourism organizations through digital and nondigital channels Informing the digital accessibility of the destination Disclosing of the physical accessibility with rich details (width of doors, size of bathrooms, audio descriptions of rooms, etc.) with the help of imagens or videos Preventing disclosure fake information which are very damage to TwDs |

Source: personal data

However, although ICT aggregates to the technological infrastructure needed for the support of connectivity and smart communication of the visitor, including Wi-Fi, sensors, IoT, big data analytics, mobile edge computing, Bluetooth, NFC, mobile apps and devices such as beacons, smartphones, tablets and smartwatches (Gretzel and Scarpino-Johns, 2018), for the TwDs, the availability of this infrastructure must require not simply technological resources but accessibility too.

Thus, according to the interviewees, accessibility is an essential characteristic of STDs. It includes access to information, physical accessibility (mobility) and digital accessibility which are connected one each other. Without information, the trip can be compromised, as illustrated by interviewee D5. “After, we went to another tourism destination, but I realized that there was no accessibility for me in sign language, and because of that, it was a very difficult moment.”

In the physical aspect, accessibility means the mobility for the TwDs. But the mobility is also dependent on the ICT since with the ICT, the TwDs have access to information, and with information, they can plan their displacements. This information can be in apps, websites, blogs, vlogs, totens, electronic panels and even leaflets or mockups. Interviewee D2 highlights the types of information researched with the aid of ICT:

With the technology, I can research the cost of living in the destination. There is an app to do so. I can research transportation, I can research whether Uber or other apps work in the destination,

(...) whether there is going to be an adapted car for me (...). (With ICT), I (have) a way to schedule shows, buy tickets for the play (D2).

Access to information is supported by digital accessibility which regards the capacity of the app, website, blog or vlog to be accessible to people with disabilities according to the principle of universal design (Story et al., 1998), mainly to those who have visual and hearing disabilities. This aspect includes the concerns with “audio description availability, sign languages and size of the font, illumination and colors, detailed and diverse information, different languages,” among other factors, according to participant D7. In addition, the information must be complete, diverse, detailed and true (Zhang et al., 2018). Therefore, since its absence can compromise, among other aspects, the mobility of TwD, since much information about scheduling and means of transportation are in apps for mobile devices, digital accessibility emerged among the interviewees as a relevant characteristic of DTI.

According to the interviewee D4, TwD may wish to obtain more precise information about the trip, such as information about the pieces in a museum. This information can be in the form of audio guides or described in leaflets, for example. However, if the visitor has visual or hearing disabilities, other devices must be available. For instance, the audio guide cannot be only an audio guide, it can be in an app with the presentation of an art piece with both an audio description and in sign language or even in augmented reality (Rashid et al., 2017). Participant D4 states this possibility: “Another thing that helps is that today, you have apps in which you put the mobile phone next to an art piece and it describes the piece (...) (with) written information (...) and audio information about the work.”

Other less technological resources may help to access information, as noted by participant D3, who hopes that information can be accessed by touch, smell and hearing, and for interviewee D5, who wants lighting-related resources. This point indicates that the TwD also sees “smartness” of the destination on non-technological resources.

Mobility occurs in public streets but also inside parking lots, hosting areas, food supply venues and in attractions. It was evident that spaces cannot be separate, including one for visitors with disabilities and another for visitors without disabilities. Here, once again, the application of the principle of universal design is demanded (Story et al., 1998). TwDs may travel alone but also in company. Therefore, all visitors need to share the same spaces. Interviewee D2 makes clear the interest in sharing the same spaces with other guests:

The hotel was fully adapted, but at the time for breakfast, you had no way to get to the breakfast area. ‘Ah, no, but I will take you breakfast wherever you want’. But this is not what accessibility is all about (D2).

In addition, it is necessary to consider the role of mediators or secondary consumers, who are individuals or groups of individuals who are in the service and are impacted by it but are not the intended recipient of the service (Johns and Davey, 2019). These individuals are friends, relatives, caretakers, but in the case of TwDs, they can also be a pet, as noted by interviewee D3, who has a guide dog. Therefore, when considering the needs of the TwD, the tourism service provider must consider the demand for spaces sharing among people with disabilities and their caregivers, human or animals, to avoid

embarrassing situations such as the experience of interviewee D3. She and her guide dog were prevented from entering in a restaurant.

Care with infrastructure is important for the physical accessibility of TwDs. But there is concern with the access points in historical centers and tourism attractions, revealing the importance of devices that aid mobility without harming the heritage. Attention to physical infrastructure is less emphasized by studies investigating ICT, but for the TwD, this is a relevant topic since inappropriate infrastructure not only makes mobility difficult but can also prevent it. Interviewee D4 relates this need:

When I went to Rome, if there were no elevator, I wouldn't have been able to go up the Coliseum to have the same view as the other people. Therefore, in a monument almost two thousand years old, they had found a solution that did not affect the monument and that was accessible (D4).

Digital accessibility, information and physical accessibility help TwDs enjoy STEs. These aspects are represented by the interactions of the TwD with other stakeholders of STD through sharing of data that promote the personalization and improvement of experiences. These experiences are possible through apps, where visitors can choose services, such as hosting and food, attractions, routes, reservations, how to buy tickets, among other activities, co-creating value in real time (Buhalis and Sinarta, 2019). The presence of disruptive technologies, such as IoT and big data analytics, help capture and process data in support of the generation of interactive knowledge based on tourist-to-tourist communication (Brandt, Bendler, and Neumann, 2017). Interviewee D2 shows how the experience can be customized according to her interests:

You buy a little watch, I don't know where, put in a battery, it synchronizes, and the little watch will provide you with fifty thousand pieces of information regarding the city, schedules, of I don't know what, which destination is better for you, whether on foot or by car (D2).

Arising immediately from STEs is the sharing of information. According to the visitors, sharing is a way to show commitment to the destination since when they share photos on social media, trip apps, blogs and personal vlogs, they are describing the destination. In addition, the evaluations and trip reviews are references for other visitors to find better services, attractions and accessibility conditions of destinations (Huang, Goo, Nam, and Yoo, 2017). Therefore, shared experiences are sources of knowledge to help the TwDs to make their purchasing decisions related to a trip on a smart tourism platform, and subsequently, their own experiences will be shared after the trip to help others (Bae, Lee, Suh, and Suh, 2017). This was the way that three of the TwDs interviewed became bloggers and one of them (D2) became Google's local guide. According to her, sharing of information occurs during and after the trip:

I read the blogs of other disabled people. Not only disabled people using wheelchairs but other people with reduced mobility. (...) Sometimes the person is Brazilian, sometimes not. Then, I write explaining that I use a wheelchair and I need these and these conditions and from these conditions, can you tell me anything? Can you inform me whether there is an app, whether there is a tourism department? (D2).

In addition to sharing of information by tourists, TwDs defend the promotion of the STD in a professional way. This point highlights the role of the governance of STD and their DMOs (destination management organizations) in the promotion of the destination (Gretzel and Scarpino-Johns, 2018). In the words of interviewee D4, STD “still needs to transform itself, maybe into a product to be sold, which can enter more easily in the life of people, that is not a distant thing”. Besides, interviewee D6 notes that STDs should invest in and promote themselves because it forms a niche in market:

To see that we spend a lot. In fact, the disabled person is traveling more and more. (...) We have over 45 million people with some sort of disability in Brazil; (...) people are traveling abroad, where there is more accessibility. So, there are studies (...) calculating how much destinations that do not have accessibility are losing by not dealing with this issue (D6).

The quality of the STD’s advertising is also important. Interviewee D6 describes an example of an STD that discloses its accessibility and another, that in spite of being very accessible, does not disclose its information properly:

In the site of Germany’s tourism department, you have many things, information about accessible tourism in many regions. (Now), you can include the United States as a good country, it is a great country, it has plenty of accessibility, but you do not find this information easily (D6).

This first group of categories shows that a relevant way that the TwDs consolidate their knowledge (human capital) about the STD is through carefully shared information (Femenia-serra and Neuhofer, 2018), which in many cases does not occur due to a lack of information and inefficient release of this information. As a result, digital social networks (social capital) end up working as an endorsed mechanism of official information. Therefore, it is necessary for governance (leadership) (Gretzel and Scarpino-Johns, 2018) to guarantee the physical and digital infrastructure of the STD and proper functioning of service institutions and promotions.

4.2 The consequences of smart tourism destinations for the TwD

Table 3 presents the consequences of the STD and their focused codes. In the evaluation of the TwD, STDs generate well-being through STEs. Well-being is interpreted by the TwD as feeling good about themselves, feeling comfortable, peaceful, satisfied and important to STDs and their organizations as said by interviewee D1 and confirmed by literature (Sharma, Conduit, and Hill, 2017). It’s also observed that well-being is a direct effect of the presence of infrastructure free of barriers, which facilitates the mobility of the TwD, and an indirect effect of the use of ICT. Participants pointed out that the proper infrastructure for visitors with disabilities provides comfort and reduces anxiety related to mobility, generating physical, emotional and mental well-being.

Table 3: Consequences of the STD for the TwD

| Categories | Focused codes |
|--------------------------------|---|
| Well-being | Experiencing a low-stress trip with the help of ICT Obtaining well-being and feeling good about oneself Using the ICT to do more than what was planned and to experience pleasure and satisfaction Using ICT to enjoy the STD Using ICT to obtain a more reliable trip Feeling good about knowing one is important to the STD Obtaining well-being by feeling safe and confident |
| Personal transformation | Transforming oneself by empowerment created using technology Using the environment's facilities to reach goals Overcoming barriers, fulfilling dreams Learning different ways to live daily life Becoming autonomous Transforming oneself by the right to come and go Socially participating Converting difficulties into something better Converting the person in a better person Seeing the world in a much broader way Generating thoughts and more elaborate reflections |

Source: personal data

Another consequence of STE is the personal transformation. This transformation is supported through ICT, in which the TwD experiences learning situations, personal fulfillment, and autonomy, achieves goals, overcomes barriers, fulfills dreams, converts a difficulty in something good, and forms a broader view of the world. It is possible that the confidence developed in the online use of tourism platforms will be transferred to the offline world (Luo and Zhang, 2016), unleashing a transformational process with behavioral and social-psychological consequences (Decrop et al., 2018).

According to interviewee D6, the STD is a proper environment for personal transformation. However, he also understands that not all visitors will be transformed. Personal characteristics, including the types of disabilities, are very different from one visitor to another, and many people will have difficulties in overcoming barriers and go through personal transformation. Some people, depending on the severity of disability, even won't have intention to travel such as families travelling with a child diagnosed with autism spectrum disorder (Freund et al., 2019). From this perspective, Yau, McKercher, and Packer (2004) detailed the stages through which the TwD progresses until becoming an active visitor.

When the TwDs consider facing the risks associated with a trip, they engage in using ICT to obtain information that will ensure a safe stay and positive experiences. According to the interviewees, ICT decreases language barriers and reduces distance from home, helps prevent surprises, and promotes information about hosting, transportation, food, activities, attractions and uncommon situations. With this information, the TwDs feel confident, safe and autonomous in their experiences, achieving well-being. The relation between the search for information through technology and well-being is confirmed by Kim, Nam, and Kim (2018). A similar finding was identified by Sharma et al. (2017) when

describe the sense of freedom (autonomy) and empowerment that appear in vulnerable persons bringing them to a state of well-being when they co-create by themselves their customer experience. Therefore, safety, trust, and autonomy are the drivers that enable the TwD to achieve a sense of well-being (Table 4).

Table 4: Well-being drivers in an STD

| Categories | Focused codes |
|-------------------|---|
| Autonomy | Exercising the right to come and go Using ICT to achieve autonomy, independence, well-being, freedom and enjoy Feeling oneself free Enjoying the STD similar to a person who does not have a disability |
| Trust | Trusting in the STD based on the use of ICT |
| Safety | Feeling security knowing that the TwDs matter to the STD Reducing insecurity with information accessed before the trip through reviews by travelers with and without disabilities Diminishing language barriers, distance from home and difficulties with uncommon situations through the ICT |

Source: personal data

Interviewee D1 explains that the trust generated by the use of ICT is at the base of the formation of autonomy and safety because TwDs know that their needs are satisfied and that DTI cares about them, so they feel a sense of belonging to the place and this generates well-being. The interviewees also said that autonomy and freedom experienced in the STD provide empowerment. In the vision of interviewee D3, this experience is represented by the capacity to enjoy the destination similar to a person without a disability does. To reach this personal state of well-being and freedom, interviewees prefer to travel to destinations that offer proper support for the use of technological resources.

4.3 Moderating category of TwDs's smart tourism experiences

The participants highlight that the categories that form an STD do not exert the same influence on the behavior of all TwDs. The magnitude of such influence depends on the personal characteristics of the TwD. In the view of interviewee D6, some people will feel very comfortable with the use of technology, with the trust, autonomy and safety that it provides, while others will prefer traditional destinations without technological advantages. This result is in accordance with the theory regarding the adoption and use of technology that specifies that personal characteristics such as age, gender and personal experiences moderate the intention to use and adopt technology (Venkatesh, Thong, and Xu, 2012). Additionally, the participant D4 believes that there can be visitors, like him, who enjoy a moment of unpredictability on their trip. In this moment, he gets away from the planning capacity provided by the STD to live the unexpected. Therefore,

the personal characteristics are the moderating category of the TwD's STEs as indicated in Table 5.

Table 5: Moderating category of the TwD's STEs

| Category | Focused codes |
|---------------------------------|---|
| Personal characteristics | Feeling comfortable or uncomfortable with the use of ICT Enjoyment of the unexpected |

Source: personal data

4.4 Theoretical coding

Theoretical coding establishes a theoretical code under which the categories identified are interrelated (Charmaz, 2009). The theoretical code established was "STD from the perspective of TwDs" This code interconnects the dimensions that characterize the STD with the aspects that lead to well-being and to personal transformation. The relations between the categories of this theoretical code are explained in the subsequent text:

To the TwDs, the STD is a destination established through ICT. Through ICT, the TwDs have information accessibility, which allows physical accessibility (mobility) and STEs. However, information accessibility requires digital accessibility, while physical accessibility is supported by the information accessibility and the proper infrastructure for the circulation of TwDs and their accompanying persons (mediator consumers). The information sharing, alongside, promotion of the STD integrates the forms of disclosure of the STD, which are important for TwDs since they help them previously know the destination and make plans to overcome the barriers found there. Through information accessibility, the TwDs gather information useful to achieving trust, safety, autonomy and well-being in their tourism experiences. The infrastructure is also a direct generator of well-being for the TwDs. Finally, the STEs awaken in the TwDs the beginning of their personal transformation that ongoing into their daily life. However, depending the personal characteristics of the TwDs, one may be more or less autonomous on the STEs and on personal transformation.

5. Conclusion and suggestions

The TwDs showed that the trip to STD is rich in interactions mediated by ICT, which occur since before the trip, as well as during and after. Through them, the travelers connect to other people and in each connection, information is given and received. As successive interactions take place, the traveler experiences more trust and autonomy in relation to the destination and the tourism suppliers.

The social exchange theory explains that trust and independence emerge in social actors as favorable elements to the exchange relations between them (Cook, Cheshire, and Gerbasi, 2018). Looking at STDs through the lens of social exchange theory, we see that

they are destinations where social exchanges happen through digital means. The exchanged resource is information and the actors are tourists, locals, and tourism professionals. In this context, ICT is important for TwDs because through it, they acquire confidence and independence (autonomy) to overcome barriers and access successive experiences. Therefore, the TwDs revealed constructs of the social exchange theory that, integrated with the elements that form the STD, establish a model that explains their well-being and their personal transformation (Figure 1). So, the research question is answered as the investigation revealed that the STDs contribute to the reduction of the vulnerability of the TwDs through enhancement their trust, safety and autonomy and consequently supporting their well-being.

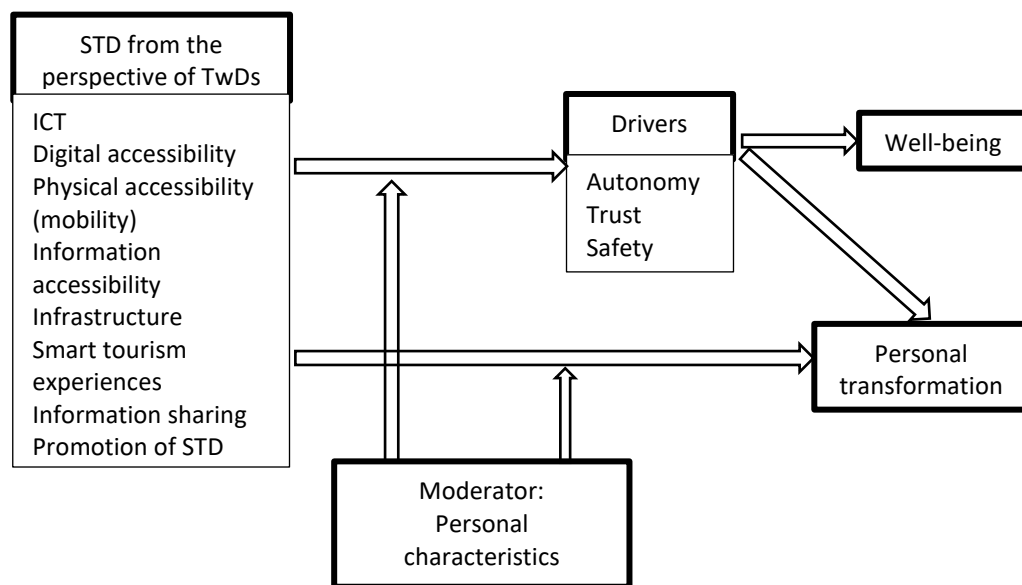


Figure 1: Proposed theoretical model

Source: personal data

In this context, the focused codes are sentences that give meaning to the conceptual categories. They can be used as basis for the elaboration of scale items to measure the identified categories which correspond to latent variables. Therefore, this research provides elements for the elaboration of a quantitative study that may test the relations between the categories.

Furthermore, the employed methodology enables intense immersion in data for identifying concepts and relations. During the study some questions emerged indicating other possibilities for researching, so, knowing that the smart tourist is the one focused on smart tourism (Femenia-serra and Neuhofer, 2018), what personal characteristics make the TwD a “smart tourist”? And, what conditions would favor the flourish of these characteristics?

Another topic, the participants revealed the importance of synesthetic resources for their accessibility and indicated the lack of these resources in the STDs they visited. Thus, knowing that sensory reactions are an important part of the client's experiences (Bleier, Harmeling, and Palmatier, 2019), to what extent the tourism service providers of the STD are using synesthetic resources to improve the experiences of TwDs?

Further, the model proposed here emerged from vulnerable consumers, particularly TwDs, however, would this model appear in exactly the same way among consumers who are outside the state of vulnerability? To what extent the categories found here would have the same meaning among consumers who are out of the state of vulnerability?

Finally, the peculiarities of the employed method places limitations on this study that prevent its generalization. First of all, the method is interpretative therefore the preconceptions are a risk always present. Moreover, the respondents and the researchers were Brazilian, so their interpretation of the smart destinations are filled with the cultural Brazilian references. Therefore, researchers wishing to refer to this study in their own studies are advised to observe the differences in the cultural context of the interviewees and the conditions of the interviews.

6. Contributions

This article has identified the categories of the STD according to the evaluation of the TwDs and elaborated a substantive theoretical structure with the drivers and conditions for reaching their well-being. Academic and practical contributions emerged from the research. The first academic contribution is to present the point of view of TwD for the STD. Second, the research developed a theoretical model for STD and its consequences which can be tested by structural equation modeling. Third, the focused codes may be used for supporting the elaboration of scales to measure the theoretical model.

Besides, the research leads to practical contributions since the proposed model provides new information for destination managers and economic policymakers. Thus, the research points to the importance of DMOs for disclosure of the STD. To be sold as a product, the STD must be carefully promoted with detailed and accurate information so that the TwD can make decisions about the trip. The research also revealed how TwDs help each other by sharing information. The TwDs-generated-content could be extracted and processed by DMOs and tourism organizations to respond to their specific demands. Another possibility is the sentiment analysis of the TwDs-generated-content to understand their social and sentimental conception about STD (Nikoli and Lazakidou, 2019). This information is useful to monitor the reputation of the STD and to direct its disclosure to the necessities of TwDs. Besides, when working with a real data base (TwDs-generated-content), the DMOs and tourism organizations prevent the promotion of false information, which could compromise the experiences of the TwDs.

DMOs can also facilitate the personalization of these experience in real time. In this way, accessible apps may be developed so that the communication is done bilaterally between the DMOs and the TwDs. Thus, the TwDs may access basic information about mobility, accessibility, events, restaurants, etc., or even initial orientation about medical emergencies without having to search for an app to each specific need.

Thus, DMOs have a leadership role stimulating tourism organizations to consider TwDs in their offers. These actions constitute an investment that will result in benefits for the TwD and for the destination itself since the TwDs are a market that expands as they notice that through trips, they acquire well-being and social participation.

As the interviewees indicated, TwDs use senses that are not compromised by disabilities to access objects and experiences. Therefore, it is also the role of DMOs to develop programs and partnerships that guarantee the development of products and services that are kinesthetically accessible to the TwD and the creation of smart, playful and pleasurable experiences.

Another relevant point is that infrastructure is a direct conductor of physical, mental and emotional well-being of the TwD. Therefore, the introduction of ICT in the infrastructure contributes to the elimination of physical and social barriers, enabling the destination to be enjoyed by any tourist, regardless of their physical, sensorial or cognitive abilities (Rashid et al., 2017). Within this aspect, the governance of the STD has an important role to articulate startups and research institutes for producing technological innovations to the benefit of the TwD.

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