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# **ACCESSIBILITY OF TOURISM WEBSITES: ATTITUDES AND BEHAVIORS**

by

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## **PART ONE**

### **Introduction**

The modern world invents and develops manmade models to create tools that would ease individuals' everyday lives, in a simple and effective manner. Online purchasing, as an instance, was predicted to grow as high as \$45 billion in 2000 at 2.4% of total retail sales (Wolfinger and Gilly, 2001) and succeeded to top \$200 billion in 2011 at 7% of total retail sales in the United States. Hospitality industry also did take part in the increase of online purchase as travel indicated a 20% increase in online travel purchase (Burns, 2006). For the travel business, the internet has become a tool for a more effective distribution channels (Carroll and Sigaw, 2003; Dale, 2003; O'Connor and Frew, 2004; Wen, 2009) and disintermediation (Buick, 2003; Garces et al., 2004; Tse, 2003; Wen, 2009). But the internet also has highly intensive information, and had low product tangibility (Rose, Hair & Clark, 2011) which is less of a concern considering the product type of the travel industry.

Travel purchases in the bubble of e-commerce has generated security of sales and creating sales, perhaps, at the same time. Although, historically, the development of online purchasing came as websites became a medium of information and communication. The World Wide Web sites was delivered in three different generations: linear, text based websites; image-embedded websites; and websites with heavily-incorporated graphics (Siegel, 1997; Mills, Han & Clay, 2008). The tool was used mainly to disseminate information and for individuals to access knowledge broadcasted online from their personal computers. Surprisingly, it is not as different as how individuals use websites decades later. Walle (1996) believes that web-based interface cultivates continuous development for destination marketing with the belief that the vast collection of information and its availability is an important of a viable trip-planning. This

generates a trend of development in web interface design in order to create experience that affects the marketing strategy of a destination just as much as an experience in a physical setting.

While hotels and tourism attractions play a huge role in the executive decision making of a destination, government still also plays a great role as a tourism stakeholder. In many cases, representative as far as public university in the area and restaurant owners also have a say in achieving the success of a Destination Management Organization (Presenza, Sheehan & Ritchie, 2005). In New South Wales, Australia, local tourism association, as much as it is supported by the hospitality businesses, is centered around local government's political interest in the tourism success of the area (Dredge, 2006). The internet as a medium of distribution to the tourism industry is as close-knit as the diffusion of information technology to globalization, if not contributory (Dwyer et. al. 2009).

### **The Digital Divide**

The digital divide is a concept that the global society is experiencing along with the vast development of technology. It is a line that divides those who can use technology and improve along with it, with those who do not (Van Dijk, 2006). While the internet opens up access with its interface to user's personal computers and improves connectivity, the presence and absence of basic resources creates a disparity of one being a fast-developing society leaving the other to catch up in a slower pace (Norris, 2001). The digital divide, in a multicultural and global society does not only cover the topic of language and levels of education to find the surface that would show inequality – but disability, especially certain types disability, encourages the topic to be discussed further (Clark and Gorski, 2009)

## **Disability in the United States**

The spirit of the American Disabilities Act of 1991 was to prohibit discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation (U.S. Department of Justice). Bush administration later implement guidelines as a proposal to push a movement with the spirit of the ADA to the lodging industry, specifically for hotels, travel agents, and other relevant businesses to provide equal access for individuals with disability (Burnett and Baker, 2001), that supported the creation of lodging facility checklist. 18.7% of the US citizens have a disability, rounding up to 57 million people – about 38 million of them are severe. The number grew 4% since the 2005 census, resulting in an increasing average of 440,000 each year (U.S. Census Bureau, 2010)

### **Disability and the web**

The Internet has become a resource of everything that we even have businesses that exclusively opens online, for instance, Online Travel Agencies. Since ADA compliance is one of the commonly-known and used accommodations among consumers, providing a choice of accessible rooms is widely practiced by Travel companies, including OTAs (Darcy, 2010). Considering that internet has become highly developed and used, it should be expected that equal opportunity must be met. However, to be able to access those features, it would be sensible that consumer should be able to access the medium of distribution – an issue that has not been a priority in the tourism industry as whole (Mills, Han & Clay, 2008).

Disability can vary from visual impairment to mental disability – both of these may be affected with the present accessibility level of the web interface they are utilizing. Cognitive, visual, motor, and hearing disability are the four common types that will be affected by the

accessibility of a website. These types of disability uses different assistive technologies and approach in order to be provided with the correct accessibility in accommodation of their disability.

### **Section 508**

Section 508 is an extension of Title III of the ADA that protects individuals with disability from the inaccessibility of viewing the information from federal websites. The impact of Section 508 does not only raise questions but also awareness in the new media that was being introduced to become part of our everyday lives: how unaware this development is. Southwest Airlines made the headline when it was sued by an alliance representing individuals with visual impairment by being inaccessible online and claiming discrimination under Section 508. Despite Southwest Airlines' win, this case became the "poster child" of accessibility in commercial business websites. Since then, the motive of Section 508 was later brought by IBM and World Wide Web Consortium to produce guidelines that could be followed in order to build an accessible website. (Fkiaras, 2005)

### **World Wide Web Consortium**

Web content accessibility guidelines (WCAG) is a set of guidelines established by the World Wide Web Consortium (W3C) that is set to abide by the accessible standard used online. It is a guideline that encourages the design of a website with three level of checkpoints. WCAG comes out with 1.0 version, initially, where it has fewer distinction of guidelines than WCAG 2.0. That being said, there has been comments regarding WCAG 2.0 being more difficult to understand and less user-friendly for web designers, whether or not they have used WCAG 1.0 initially (Alonso et. al., 2010; Kapsi et. al. 2009)

## **Purpose Statement**

While developed countries continue to shape an industry that has somehow become an integral part of the society, it only seems fair that the industry should provide equal access for every member of the society, recouping members of the market that is excluded without notice. The basic tier of service in the web interface is to provide information, before any booking systems and online purchasing (Siegel, 1997). In the travel industry, this basic tier is achieved in many different travel businesses, but consistently in destination marketing websites that solely promotes a tourism destination through delivering information about the specific location. Palmer & McCole (2000) claimed that information technology has created a portal whereby potential consumer can browse through the web interface to view what the destination offers and develop a picture that would contribute to imagining a supposed travel experience.

This study will examine the behavior of a website user in assessing the accessibility of Destination Management Organization (DMO) websites. This also acts to suggest the level of complexity that DMO's may solve by recognizing primary errors and consumer attitude in providing equal access.

## **Justification**

The travel industry has also mandated for airline websites for its main web pages containing core travel information to be accessible within two years, and all of their web pages to be accessible within the next three years as of November 2013 (U.S. Department of Transportation, 2013). This is an emerging issue as previous findings such as UK Hotel websites showing a 19% accessibility rate (Williams and Rattray, 2005), 59 out of 66 visitors' information website in Queensland, Australia are accessible, and 100% of samples of US airline carrier

websites being proven to have accessibility errors with 84.9% providing no alternative text – a basic tier standard that would provide a description of any graphics posted on the website (Gutierrez, Loucopoulos, & Reinsch, 2005).

While websites is constantly improving for mainstream customers, it simply widens the digital divide for individuals with disability.

Other groups that could be benefitted by this movement are:

- Older individuals
- Individuals with low literacy
- Populations with low-bandwidth connection
- New web users (Xiong, et. al. 2008)

Research Question:

1. What does a user with disability look for in using Destination Management Organization website?
2. What does an able-bodied user look for in using Destination Management Organization website?
3. What are the common issues a user with disability experience in using Destination Management Organization website?
4. What are the common issues an able-bodied user experience in using Destination Management Organization website?



## **PART TWO**

### **Literature Review**

#### **Introduction**

Just like an accessible physical environment, the web containing information that is available for prospective consumer should be accessible for all individuals including those with disability. Individuals with difficulty of visual impairment, cognitive disability, or hearing disability may or may not need the same level of accessibility and it is the website's responsibility to provide that flexibility for equal access. This chapter will discuss the difficulties that have been found or studied in the past regarding website accessibility, as well as the effectiveness of industrial tools and official guidelines that would accommodate websites to give access for all individuals.

#### **Types of Disability**

##### **Who are affected?**

Disability is defined as difficulty or dependency in carrying out activities essential to independent living, including essential roles, self-care and independent home-living, as well as desired activities that may be important to one's quality of life (Pope and Tarlov, 1991; Adams, Hendershot & Marano, 1996; Fried, et. al., 2004). There are many different types of disabilities that would affect a person's major life activities. Among those, there are some that would affect, specifically, the use of web interface. While an evident type would be visual impairment – cognitive, hearing and motor disability also may submit to a difficulty in navigating the internet

without a sufficient level of disability (United States Department of Education, 2006; Xiong et. al., 2008).

## **Cognitive**

Many individuals with cognitive disability are tied closely to technology. This can be seen from their use of assistive technologies such as adapted eating utensils or a pictorial communication board. This helps not only to help themselves in major life activities, but also in gathering information. Thus, the extended speech synthesizer is one of the extended medium for an individual with cognitive disability among others such as personal digital assistant (PDA) for persons with memory impairment, which is also a type under the cognitive group (Lopresti, Mihailidis & Kirsch, 2004). Due to the number of different types of cognitive disability and needs of a person with a cognitive disability, “cognitive prosthetics” is a computer-based system that has been altered to the needs of a person with cognitive disability both in their daily personal and work life. (Cole, 1999; Lynch, 2002)

## **Visual**

Ever since the Americans with Disabilities Act was released and mandated to commercial businesses under the non-discriminatory basis of providing service for all, businesses has been good with creating an accommodating atmosphere for customers in a physical setting to 21% of all Americans (Quinn, 1995). Today, 18.7% of Americans has a disability, 12% of them being severe disability. Over 8 million people are persons with visual impairment aged 15 or older and 6 million among them suffer non-severe visual impairment (U.S. Census Bureau, 2010) consisting of baby boomers, generation x, and millennial (Glass, 2007). The remaining 2 million Americans are considered to have severe visual impairment, in which case their best corrected

vision (BCV) is between 6/60 to 3/60, as well as blindness ranging from 3/60 to no light perception (NPL) (Dhake et. al., 2011; Reddy and Tan, 2001). While persons with blindness are subject to the inability to see, 30% of persons with blindness are still able to view large texts (Brophy and Craven, 1999; Oppenheim and Selby, 1999).

## **Hearing**

Individuals with hearing disability have closeness to technology in a way that a person with no disability may not relate. Communication is a huge part of the society because due to the difficulty of hearing and, sometimes, speaking, the presence of video conference as a feature is crucial. A study by Bowe (2002) shows the ability for technology to provide them with many channels of communication including emails that 97% of respondents use at home, clearly defining the preferred method of communication (Barak and Sadovsky, 2008). Technology also promotes textuality, invisibility, and anonymity – and environment that a person with disability would prefer over the opposite. Thus, non-auditory communication methods that technology provides not only offer a technical simplicity for usage, but also help them psychologically through a personal empowerment process (Bowker and Tuffin, 2002; Barak and Sadovsky, 2008).

## **Motor**

Motor disability, also known as physical disability, can touch many different areas of difficulty within the accessibility of a person with disability on the web. Based on a study done by Dobransky and Hargittai (2006), this type of disability may involve not being able to leave home or limited walking ability. This allows the possibility of using home-based resources such as the internet to look up information. That being said, motor disability also involves not being

able to reach the keyboard, such as in the case of Dyspraxia, which would encourage those who needs speech recognition technologies to be able to communicate through the interface (Kirby, 2010).

### **Types of Assistive Technologies**

Assistive technologies is provided to accommodate individuals with disability with an instrument to accessing the interface they wish to have and may be different based on the type of disability as well as the severity of the disability of the individual. The following are types of assistive technologies that would be sufficient for an accessible website:

*Alternative input devices* as an method of inputting commands as a means to replace a keyboard or mouse as used in most personal computers;

- Alternative keyboards—that can be manipulated in size based on needs. An alternative keyboard may also have specific key configurations and be used with one hand.
- Electronic pointing devices
- Sip-and-puff systems—activated through breathing process, by inhaling or exhaling.
- Wands and sticks—worn on the head, held in the mouth or strapped to the chin, used as a navigator.
- Joysticks—as an alternative cursor controller used by, but not limited to, foot or hand.
- Trackballs—also an alternative cursor controller.
- Touch screens

*Braille embossers* transfer website text (or computer-generated text) to be printed out by the embosser for braille-users to read what was on the computer.

*Refreshable Braille Display* is essentially the same as Braille Embossers, but rather than printing, it allows the display to have tactile feature.

*Keyboard filters* are typing aids that would detect frequent typing errors. This would immediately – if not utilizes fewer keystrokes than normal – fix the error for the user

*Screen readers* verbalizes text on the screen to be heard by the end-user.

*Speech recognition or voice recognition programs*, allow people to give commands and enter data verbally instead of using a type-in keyboard or mouse. (Microsoft)

### **Human-Computer Interaction**

Human Computer Interaction is defined as a concept where, simply put, computers affect human's work and every day life. This affects the context of the theory to be considered as a “discipline” that has some implications to both the engineering and design of that interface (Dix, 2010). Ultimately, HCI specifically observes the interaction between a computer interface and its user towards a goal of eliminating the barriers between the user's mental goal and the computer's understanding of what the user wishes to accomplish (Sharpe, Rogers & Peerce, 2007; Huang, 2009; Lazar, Heidi & Hochheiser, 2010).

While the most basic idea is to create something that was useful and enjoyable for the user regardless of the how the interface is designed (Huang, 2009), it is found that creating an “experience” has been debated not to take Human Computer Interaction into full account as it requires human to have to “work” their part in achieving what they want to accomplish (McCarthy & Wright, 2004; Diaper and Sanger, 2006; Dix, 2010). It is believed that this is part of what makes HCI effective and builds the “human” aspect of the theory.

## **Craftsmanship vs. Science**

Aside from the ongoing debate that evolves around the defining goals of Human Computer Interaction, there is also a debate on what HCI really is. A study by Dix (2010) discussed the presence of HCI as a “discipline” where it used to be considered a craftsmanship or a science (Long and Dowell, 1989; Huang, 2009). Ultimately, the goal of HCI as a discipline is to “to develop or improve the safety of utility, effectiveness, efficiency and usability of systems that include computers” (Diaper 1989; Diaper & Sanger, 2006). Thus, human Computer Interaction has thrived to become a discipline where many have to follow in designing a technology interface requiring the care of science and/or craftsmanship.

## **Web Interface**

Website usability shares a concern with Human Computer Interaction by eliminating barriers through utilizing that specific interface, in this case, websites. Usability requires the ease of use from a website (Rubin and Chisnell, 2011), but Human Computer Interaction also demands a balance between access and needs which has to be fulfilled (Bertoa, Troya & Vallecillo, 2005). User’s needs and experience become expectations that user has in a time where content keep on being developed and creativity is continuously explored.

However, accessibility plays an important role in deciding whether the needs may even be an option. Essentially, an accessible interface is a gateway to establish interaction. The issue of accessibility may not be the center of discussion in the commercial website development, however, the topic of usability encourages the discussion of providing user with an experience that is efficient and effective, the main goals of usability as a universal concept (Bertoa, Troya & Vallecillo, 2005).

## Usability

In a business setting, Usability is commonly known to be the measure of quality of a firm's website (Agarwal and Viswanath, 2002). Ultimately, Usability is to be usable, in a sense that user is capable of using the interface without any hesitation or questions the way they want to do it and the way they expect the process will go (Rubin and Chisnell, 2011). It is defined by ISO 9126 (2004) as a concept that is built by five of its components: Learnability, Understandability, Operability, Attractiveness, Usability Compliance.

### Usability Components

- *Learnability* is the capability of the software to enable its users to learn about the program. Some effort should be put into the design of the software where it would be easy for the user to learn to operate the software in a proper amount of time (Rafique et. al, 2012).
- *Understandability* is the capability of the interface to be understood by its user and that they can identify whether the interface is suitable for what they need to do.
- *Operability* is the measure that users are able to operate the interface as well as control it. Some of the components of operability are, but not limited to: suitability of component, controllability of the component and the error tolerance of the component.
- *Attractiveness* is the capability of the interface to attract the user.
- *Usability Compliance*: the capability of a software component that complies to a certain regulation that is adjusted for the specific user or type of users (Bertoa, Troya & Vallecillo, 2006).

Others would argue that satisfaction, *effectiveness* and *efficiency* should also be included in the mix, even when it is essentially what these components are to be used as a foundation of (Bertoa, Troya & Vallecillo, 2005; Rubin and Chisnell, 2011).

The subject of disability, in different point of views, is discussed in one way or another. Accessibility for individuals with disability is sometimes mentioned as a component to Usability, however, this does not necessarily apply to an able-body individual in any level. Usability compliance, on the other hand, could be defined as any regulation that may have an impact to the usability of the interface and eliminate any barrier that gets in the way of utilizing the interface, thus fulfilling the needs of the user without fail.

### **User Centered Design**

User Center Design is an approach to Web Development that includes a design specified for the needs of particular users of a specific website (Vredenberg et. al., 2002) that is shadowed by the principle of Usability. This was built when traditional software development programs do not support, or made little impact, on the traditional software development (Curtis, Krasner, & Iscoe, 1988; Vredenberg et. al., 2002). It was later believed that practicing UCD, which has been developed at the time, is expensive and time-consuming for corporate use (Nielsen, 1999). User-Centered Design was built to produce the interfaces that exist today such as telephone and computers. The concept went beyond their capabilities when websites exist and the usability of websites are tested as the world is developing in a very fast manner.

UCD has many stages that begins with planning, analyzing, designing and, finally, testing. The planning and analyzing process primarily breaks down the creation of a framework that is based on the user's profile and the goals that the developer would like to achieve through



the design process. It is important to understand and collect as much data about the end-user as it will be tested before it goes to the market for use by the end-user. The more pre-design research is collected, the smoother the test will be (U.S. Department of Health & Human Services)

In regards to disability, official guidelines are very important in measuring the Usability of the website or interface. However, it is only one part of the Usability cycle and other components must be considered as well. To access the interface, one must be able to learn, understand and operate in the most efficient and effective way they know how.

### **Measuring Accessibility**

Technology use is naturally dependent of type, severity and the literacy of any disability. That being said, the birth of assistive technologies show that the community is highly invested in the development of technology – even if it takes a different direction than the technology that is commercially used and discussed. However, today’s society tries to use technology as much as they can to its full potential.

A study by Seymour and Lupton (2004) discusses the communication issues and benefits that is found when an individual with disability use the internet primarily to communicate with other people. The study found that their disability does not necessarily limit their options but rather empower them to find their community. The Internet become such an essential tool in their social life for they never have to reveal their true identity and still able to hold enjoyable conversations. From communicating, the researchers discovered that these individuals found that they are able to do more things online without having to step out at home and be socially intimidated by the environment thus it became the primary feature of technology that individuals with disability has always utilized (Seymour and Lupton, 2004).

A study done by Dobransky and Hargittai (2006) investigated the assumption of previous studies that find communication, entertainment, and obtaining information on disability. Through the survey samples obtained from the group of individuals with disability, the study found that communicating, searching for product information and accessing the news are among the top three online activities that a person with disability participates in, followed by online purchase (Lawrence and Giles, 2000; Dobrasky and Hargittai, 2006). The findings bring up the question of how much of information searching was devoted to online purchase.

As compared to Internet users without a disability, data found for users with disability do not have a significant difference when responding to specific online activities ( $p=0.000$ ) among the represented populations. This finding may be similar to the effort of creating an accessible classroom technology where its presence has become effective to the learning of individuals with a disability (Bernard-Opitz, Sriram, & Nakhoda-Sapuan, 2001).

## **Accessibility Standards**

### **History of Website Accessibility**

The issue becomes the method of accommodation to persons with disability in which the Travel and Tourism industry is lacking. Southwest Airlines became one of the leading news stories that involves the disallowance of persons with disability to access their website as a booking agent according to the spirit of Section 508. The Fortune 500 company was sued for its incompliance to the rule that requires all federal agency websites to be accessible to a person with disability (section508.gov, 1998). The court agreed that Southwest.com is not a “place of public accommodation” and, therefore, the website is not within the scope to abide with Title III of the ADA. The case of Southwest Airlines not only bring up questions, but it also sparks the

attention of consumers, potential consumers, and also businesses that there is a need for this segment to be accommodated – regardless of it being the integral part of the business or not.

### **Section 508**

The spirit of section 508 was taken from § 12182 as it discusses the prohibition of discrimination towards a person with disability with respect to access in physical facilities, its policies and practices (Maroney, 2000). This applies to all “places of public accommodation” to which was never defined by the American Disabilities Act of 1990. While it became obvious that physical facilities shall all abide to this act, it became harder when the Internet was readily achievable and referral to government website for easy access to information and resources turned into a preference. The argument strengthen with the ada’s regulation to “furnish appropriate auxiliary aids and services where necessary to ensure effective communication with individuals with disabilities” (ADA, 2010; Carter & Markel, 2001). That being said, it was later counter-argued to be invalid as the ADA of 1990 was not created when the World Wide Web was found to become a new method of distribution or communication (Carter & Markel, 2001). Still, the idea became very realistic as soon as we arrive to the new world of e-commerce and available online resources. Lawsuits involving giant retailers such as Target, Southwest Airlines, and Priceline.com became a sign that someone is affected and the attention is being paid. (Peters and Bradbard, 2010).

### **Web Content Accessibility Guidelines**

Web Content Accessibility Guideline is a product created by World Wide Web consortium, a guideline for web developers as a basis of complying with the accessibility of the mass, both to persons with disability or without. The W3C is an international consortium from different organizations where full-time staff and the general public work together to create a mission of

web accessibility (Hackett, Parmanto & Zeng, 2005). The W3C, before coming up with WCAG 2.0 IN 2008, they had come up with WCAG 1.0 – an early predecessor to the standard guideline consisting of 14 guidelines and 67 web checkpoints that the website has to meet with three levels of conformance a website can achieve. W3C was part of the forefront to consider disability in web browsing alongside United State’s Section 508, IBM and Microsoft, so much so that the European Union (EU) recommends this development for their public (federal) websites within their states in 2001.

The second version, WCAG 2.0, is known to be a “less ambiguous” version of the older guideline is developed to adapt with new advanced web design, be approachable to more audience, easier to implement, and to be able to be tested more precisely (Brewer, 2003; Li, Yen & Lin, 2012). While the United States has previously used U.S. Access Board’s Electronic and Information Technology Accessibility Standards, known as Section 508 guidelines, for federal websites, the book overlaps with the checkpoints that W3C has developed and some that WCAG doesn’t have.

WCAG has a more comprehensive checklist and provides conformance levels to show the overall accessibility and severity of violation in each checkpoint (Parmanto and Zeng, 2005). WCAG 2.0 serves to a larger scope of web pages by including the entire site so as to prioritize the audience with disability, but ultimately, the new version also compromised by allowing a substitute for non-accessibility supported material to include a complement that is accessibility supported as long as the non-accessibility-supported does not interfere (World Wide Web Consortium, 2009; Peters & Bradbard, 2010).

## **WCAG 1.0 vs WCAG 2.0**

In WCAG 1.0, the three conformances were distinguished in Priority 1, 2 and 3 – with 3 being the most accessibility-supported level of conformance. Priority 1 has 29 checkpoints that must be satisfied, Priority 2 contains 40 checkpoints that should be satisfied; and Priority 3 contains 22 checkpoints that may be satisfied. The level of accessibility changed, in name, but essentially did not lose its purpose regardless of its changes in checkpoints. WCAG 2.0 is divided into four guidelines that shall all be met by Perceivable, Operable, Understandable and Robust. These guidelines will then decide whether a website is a level A, AA, or AAA with AAA being the most supportive of accessibility.

The WCAG checkpoints are divided into 4 different guidelines: perceivable, making sure that user is able to perceive the information being presented, those including graphics through alternative texts; operable – making sure that the interface is functional and operable; understandable – user must understand the information and the operation of the interface and cannot go beyond their level of understanding; robust – as technology advances, the interface should still be accessible at all times. (W3C, 2008)

## **Accommodating Disability in Tourism**

While the tourism industry are mandated to be in compliance with the American Disabilities Act for all of its assets, this is done on a ruling-basis that suffice by the standards of the government, but not necessarily the customer. Thus far, it has been discussed how the internet can be a threat to those that needs access more than a person without a disability, however, in the standpoint of a business owner, the thought may not have occurred in one's mind. This may be caused by underrepresentation of the market, as claimed by a focus group of

managers in Australian hotels or the reality that accessible rooms have a low occupancy (O'Neill and Knight, 2000), even any understanding of the importance to the regulations standing by accessibility for a person with disability, both in the tourism context and in our environment (Packer, McKercher, and Yau, 2007). Moreover, this lack of understanding in its importance results in the limited understanding of their participations, preference, choice and travel patterns to satisfy the need of this subgroup (Packer, McKercher & Yau, 2007).

In a study by Darcy (2002), it was discussed how disability was no more looked upon as a personal tragedy or a limitation. It is rather considered as a social oppression, creating more impact in their social life than trying to do major life activities. The history of social acceptance of individuals with disability and the activities that are unconsciously made strictly for individuals without a disability created a feeling of isolation and marginalization among those that are left out in the diagram (Antonak & Livneh, 1988; Stein and Kean, 2000).

While they don't usually interact with hotel managers directly, before the internet houses online travel agencies as the more effective medium of transaction, a study done by McKercher et. al. (2003) explores the relationship that a person with disability has with travel agents, that at the time, plays a big role in consumer's travel planning process. The study observed that the relationship between the travel agent and the individual with disability based on the consumer's perception. They found that while lack of knowledge is still a problem in the delivery of information for leisure sales – the idea of upselling to this market in purchasing leisure services has not been implemented, as they don't see travel as much of a leisure activity as an activity that individuals with disability partake in.

## **Web Accessibility Studies in Tourism**

There are many misconceptions about the hotel industry not being an ideal place for an accessible service online as shown in previous studies. However, it is not industry-specific as the business world is also involved in this unsolved and unregulated issue. A study by Xiong et. al. (2008) examines the web accessibility level of hospitality websites for different barriers that may affect the accessibility for individuals with disability. The study is a content analysis that uses a point-based scoring system for different tests for holistic web content review – WCAG and Section 508 – as well as colorblind testing and text-based approach towards web content. The study found that 96% of the hospitality websites, with samples from 60 restaurants and 60 hotel websites, fall between 6 to 10 point scores out of the 30 that they may achieve. The researchers also answered one of the questions being that alternative text is scarce and is needed for the amount of graphics used. This study almost completes the scope of disability, physical disability specifically, based on the guideline that was used and the different tests being run.

Mills, Han and Clay (2008) did a similar study as these researchers observe the issues involved that may be experienced by an individual with visual impairment. This particular study looks at the individual problems occurring when a test was run to check the accessibility. From the mean score of individual guidelines from WCAG 1.0, it was found that “If you use color, make sure the information is presented in some other way” received the highest mean score for problem barrier. This hinders an individual with disability to distinguish any contrast between the background and the color – perhaps when the individual is colorblind.

The chart was also followed by the absence of alternative text as the second biggest problem barrier for website accessibility in the study. This issue has always been one of the most discussed issues in previous studies in a business and hospitality setting (Slatin, 2001;

Mills, Han & Clay, 2008; Xiong et. al., 2008). Contrary to popular beliefs, this process requires less time than a developer would spend had they design the site properly. Rather, it is not seen as a tedious task due the absence of user-focused plan of design.

Han and Mills (2006) also did a focus group with individuals with disability to really understand what they would like in such interface and what they experience while using the interface. In this study, the researchers were not able to pinpoint what the exact problems are, but would be able to by features as the participants describe them to the moderator. They found some of the problems to be: the amount of unnecessary pop-ups; assistive device that would not read; as well as the amount of times the site has been reconstructed.

### **Summary**

The development of Web Accessibility, whilst discussed, has not been quite the delight for the users who has a disability. The business world has been focused highly on Web Accessibility levels and testing – which is important. However, there has not been much sociological study on what the user wants from the interface itself. User-centered design is a useful approach to go about what is needed to cater to the public; however, it has not been emphasized in research in terms of “fixing” the issue instead of putting the industry to blame. It is shown in the methodology of the studies mentioned that, while most uses random sampling, they include a website that contains booking systems. The same automated testing method was used for the federal government website as well as the hospitality websites for the study. The booking system’s code was not broken, neither was it considered to be an error in the study’s result. Thus, while hospitality websites are just as similar as any other websites, only those informational-based website can only be used in a proper manner, producing proper results.



Guidelines are sometimes misused with the absence of research that the industry is currently experiencing. While guidelines are great to direct the industry and users on the same page but it does not necessarily help in the improvement of that guideline itself – which hinders from an immediate action from any business that uses a website (Zahra, 2008).

It is true that developers should initially understand that Accessibility must be integrated into the development of a website, however, with technology moving very fast, it was easier to make the website attractive and not necessarily accessible. Only 13% of User-Centered Design projects have fulfilled all the three main stages of UCD (Vredenberg et. al., 2002).

The industry is developing to a wider scope of people, creating many different products that will cater any market we wish to reach. Individuals with a disability is not a specific “market,” rather, it is a collection of different people that may have different things they are attracted to. Providing what fits their generational profile is important, but for them to access the plane is even more crucial.

## **PART THREE**

### **Introduction**

This section will introduce a proposal exploratory study based on the gap in the literature observing individuals with disability and individuals that are able-body and their behavior towards navigating a certain website. The tourism industry has become one of the largest industry and some countries and geographical areas are highly dependent of its presence. Enlarging the market scope by being available to more people through the web interface shall help the existence and the reputation of the business. The American Disabilities Act has mandated that an employee with a disability shall be treated fairly. On the contrary, the fast development that the Internet and technology has created a rather inaccessible environment for individual with disabilities when one would expect otherwise.

### **Missing Variables and Limitations to Existing Research**

Most studies in existence regarding the issue of accessibility have taken the course of finding an accessible level of the websites one may come across. This measure is important for the web interface because the plane has to be able to hold the pressure, which in this case, is the assistive technology that an individual with a disability may have.

That being said, it is also important to know that guidelines are regulations – but they are not necessarily the best indicator of what the consumer needed in terms of fulfilling their expectations in utilizing the web interface (Jay, Lunn & Michallidou, 2008). The end-user's experience is more important that establishing a standard that commercial websites may follow because the experience and issues faced when accessing the interface is what should shape the guidelines.

It has been noted that understanding the needs of users with disability that are apathetic, reluctant, and disinterested should be a gateway to enhancing their experience on the website and, hopefully, many others (Mills, Han & Clay, 2008). The ease-of-use aspect of the experience ultimately comes down to how it transmits to the assistive technology. We know that the simpler a website is, the more that assistive technology would be able to capture the website for the user (trade publication). However, exploring the substance that would not only cater to the usability of the website when an individual is able body and/or with a disability would be the recipe for improvement.

Booking systems have always been the primary goal of reaching out via online or mobile websites for the tourism industry, as it is a revenue center. It is a system that the industry uses as a direct marketing and revenue generator whether it is through the website or a third party website. Many of the literature uses random sampling to choose hotel or travel websites and most have not successfully reach more than 30% of what could be considered an accessible website (Mills, Han & Clay, 2008; Xiong, et. al., 2009; Goncalves, et. al., 2013). There has not been much discussion on booking systems being inaccessible due to Flash, Java, or anything else that may affect the high level of inaccessibility. Thus, much research is still needed in that area.

## **Proposal**

### **The Study**

The study will be primarily focus on the behavior of a user with disability when using the web interface as an information-seeking medium through a comparison study between a person with disability and a person who are able-bodied in using the web interface. As most of the studies in this area falls upon the availability of accessible sources, it was shown that the tourism industry does not have a strong standing in being accessible and available to individuals with

disability. With no staggering improvements made in the last few years, the issue may lie on the enforcement of the guideline and the familiarity of the industry (Mills, Han & Clay, 2008; Xiong, et. al., 2009; Goncalves, et. al., 2013). Thus, it could be helpful for the industry to understand the main problems if it came from the population itself and what they are more concerned about. Despite the many usability components, usability of a website is tailored to the expectations and needs of the user, regardless of how more or less each components are emphasized in the design process.

The approach that the study will revolve around the methods of User-Centered Design by understanding the user before any competition or web design innovation made that may not eliminate the barrier a user with disability may face when using the interface. Using an informational website that caters to individuals who are able-bodied may have a different premise than a federal website that are mandated to be accessible (Hackett et. al. 2005) when they goals are the same: providing information to the public. Emphasis on *Attractiveness* may perhaps be a key to meet the expectations of an able-bodied individual with a 20/20 vision. Although, the error tolerance of a person with visual important may be lower and not as important as the the attractiveness of the website in the way the alternative text was put together.

## **Methodology**

According to Jay, Lunn and Michallidou (2008), the common methods to reach the end-user in finding the data needed can both be done quantitatively or qualitatively.

*Quantitative method* of research in this area include, but not limited to, Performance Measure, involving numerical value to judge website success; Logging User Experience,

measuring low-level interaction such as time spent and navigation; as well as questionnaires in a survey distributed.

*Qualitative method* includes observations, real-time interaction of computer and end-user; Interviews, in which could be done for various research questions but particularly testing the familiarity of the system interface; lastly, think aloud when navigating the site for the researcher to spot technical problems (Jay, Lunn and Michallidou, 2008).

Knowing that it could be done in two different directions of methodology, the complexity of Usability as a concept would be easier done in a quantitative form so as to instantly compare and discuss the result that was obtained through the methods mentioned previously. That being said, qualitative data will be able to capture the specific motivation when the researcher was not able to pinpoint. Han and Mills (2006) focus group on the limitations that a person with visual impairment has in accessing websites, which became more prolific in profiling the user so as to achieve a better User-Centered Design.

Thus, the study will use a qualitative method of “Think Aloud” which will allow the researchers to have an idea of what goes through the minds of the participants when navigating on the website that has been chosen. The participants of the study will consist of two groups – first, 25 individuals with visual impairment to use both braille display and speech synthesizer to navigate the web and reduce bias; second, 25 individuals with 20/20 vision that will be asked to do the same task. They will be asked to navigate towards two separate tasks involving more than 5 keystrokes.

The participants will later begin a focus group which would allow them to express their opinions about the accessibility of the website.

The website will be a Destination Management Website with an accessibility level of Priority 1 from the Web Content Accessibility Guidelines 1.0 that do not have any trace of Java or Flash animation or booking system. This will ease the navigation process for the guideline not to complicate the adjustment of the level of conformance. One website will be used and will be adjusted to meet

Table 1 is a sample of demographic profiling of the participants that will be used for this study to keep track of their familiarity of travel and use of online website. Modifications will be done with Extend of Visual Impairment for “20/20 Vision” to be added to the mix.

Gender	Age		Employment		Education		
	N	N		N		N	
Male	17	18-24	1	Full time	20	None, grade 1-12	2
Female	21	25-34	3	Part time	4	HS graduate	12
		35-44	13	Retired	1	Technical after HS	7
		45-54	18	Not employed	5	Some college	13
		55-64	2	Student	9	College graduate	4
		65 or older	3			Post graduate	2
Race	Income		Extend of Visual Impairment		Web Use		
	N	N		N		N	
White	20	< \$20,000	14	Totally blind	21	Yes	36
Black	18	\$20,000-\$40,00	18	Very limited	11	No	4
Mixed race	1	0	6	Limited	8		
Native American	1	\$40,000-\$60,00	2				
		0					
		>\$80,000					
Period of Web Use	Travel Website Use		Period of Travel Website Use		Travel Website Use Expectation		
	N	N		N		N	
< 6 months	4	10 - 20 hrs a wk	3	< 6 months ago	5	Much more	5
6 months - 1 yr	7	5- 10 hrs a wk	4	6 mth - 1 yr ago	4	Somewhat more	11
1 yr - 2 yrs	1	1 - 5 hrs a wk	4	1 - 2 yrs ago	2	About the same	10
2yrs - 3yrs	3	1 hr or less a wk	16	2 - 3yrs ago	4	Somewhat less	1
> 3 yrs	21			> 3 yrs ago	12		

*Table 1.* Participant profiling in the study. *Note.* Adapted from Mills, J. E., Han, J., & Clay, J. M. (2008). Accessibility of hospitality and tourism websites: A challenge for visually impaired persons. *Cornell Hospitality Quarterly*, 49(1), 28-41.

## Guiding Questions

### Engagement Questions

- How was your experience with the website today?

### Exploration Questions

- Do you have to learn how to navigate the site?
- Do you understand very quickly how to navigate to different pages?
- Do you find any attractiveness to the site?
- Is it important? If yes, in what form?
- Is information more important than attractiveness in travel websites?
- What would make a website most effective in terms of its information?
- What would make a website more attractive?
- What problems did you encounter?

### Exiting Questions

- What do you think of technology?

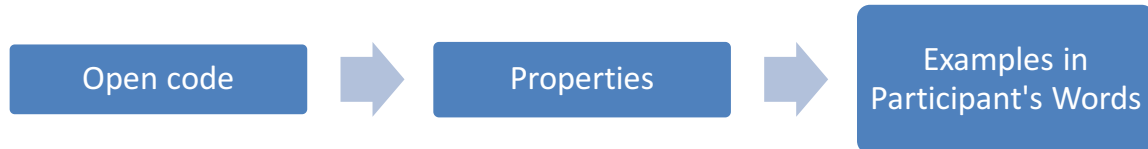
## Data Analysis & Anticipated Results

### Data Analysis

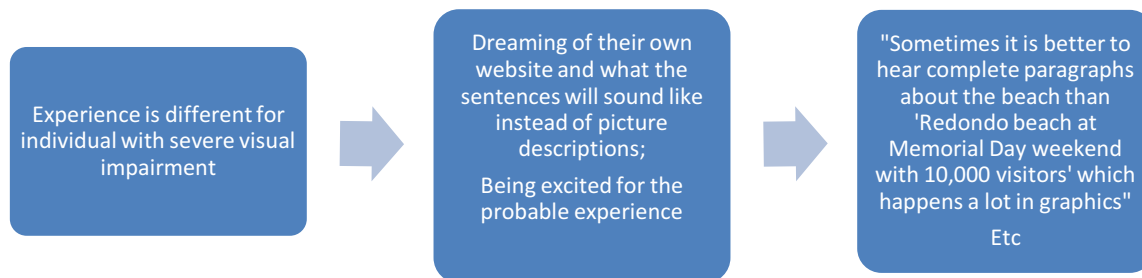
The data will be accomplished per group and will be grouped together according to the groups that they belong to. It will then be broken down based on the points that we had accomplished or any common denominator that the results can be categorized under. Open coding, axial coding, and selective coding will be used to conceptualize data and show similar traits that exist between groups. Open coding is a way that allows all the answers to be conceptualized, line-by-line and each one. The data will then be categorized and put into different dimensions whether it is positive or negative before it was selectively defined by a behavior that becomes a bubble to these dimensions and concepts (Strauss and Corbin, 1990). Selective coding will act as an “umbrella” to create a theme in which the answers will all fall

under. This is important in order to decide whether it is what is expected by some of the literature that exists concerning this issue. This is a good way to come up with one principle that could affect market and business decisions where needed and is appropriate.

The coding that will be used to analyze the results may have to be used in different trees of answer types according to what comes out of the focus group session. The behavior concepts will come mostly from the motivation key points and issues may be addressed in separate tables. That being said, if there seems to be a correlation, it could definitely fall under one room of a table that is shown in Figure 4.



*Figure 1.* Open Coding created by conceptualizing properties and examples of participants' statements



*Figure 2.* Open Coding dummy process



Open Coding	Axial Coding	Selective Coding
Different experience is acceptable (Group B); Screen reader usage is important (Group B,C); Technology is a method for fast access (Group C)	Experience should highly depend on audio quality and the text-content to cater specific demographic that are audio-dependent.	Accessibility to commercial website should vary depending on most viewer's severity of impairment
Experience should be adjusted and cohesive (Group A & B); Medium is important according to visibility (Group A& B); Technology is a whole new world to explore(Group A& B)	It is important to find a middle ground in accessibility as long as experience is good in both visual and audio.	

*Table 2.* Open, Axial, and Selective Coding dummy table

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