

INFLUENCING SUSTAINABLE TRAVEL USING INSTAGRAM

by

Brianne James

Bachelor of Arts, Ryerson University, 2017

A MRP

presented to Ryerson University

in partial fulfillment of the
requirements for the degree of

Master of Digital Media

in the program of

Digital Media

Toronto, Ontario, Canada, 2019

© Brianne James, 2019

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A MRP

I hereby declare that I am the sole author of this MRP. This is a true copy of the MRP, including any required final revisions.

I authorize Ryerson University to lend this MRP to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this MRP by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

I understand that my MRP may be made electronically available to the public.

Brianne James

ABSTRACT

INFLUENCING SUSTAINABLE TRAVEL USING INSTAGRAM

Brianne James

Master of Digital Media

Digital Media

Ryerson University, 2019

Sustainable tourism is defined as a development of tourism that does not exploit natural and constructed environment and instead preserves the culture, inheritance, and artistic values of the local community (Dávid, 2011). Global mass tourism, a form of tourism that involves tens of thousands of travellers going to the same destination during the same time of year, has contributed to an increase in waste, carbon, water scarcity, cost of living, overcrowding, and misconstrued cultural identities (Juvan, Ring, Leisch, & Dolnicar, 2016; Eraqi, 2014; Smith, 2018). The use of social media has changed the way people discover, research, discuss, and book travel destinations. As a tool that hosts travel discussions and affords travel experiences to be documented, viewed, and narrated, the content posted to Instagram plays an instrumental role in shaping pre-travel narrative. Using studies on sustainable tourism, social media, and persuasive design, this Major Research Project analyzes how Instagram can promote sustainable tourism by integrating new features to its platform.

ACKNOWLEDGEMENTS

I would like to express the utmost gratitude to my co-supervisory team, Dr. Jenna Jacobson and Dr. Frederic Dimanche, for their patience and guidance through this study's many pivots—without their direction, this MRP would not be what it is today. Secondly, I would like to thank my second reader, Chris Ambedkar, for his valuable feedback and ideas. I would also like to thank the Master of Digital Media faculty, Ahmed Sagarwala, Dr. Alex Ferworn, and Lissa Quaglia, for their support and advice leading up to the completion of this MRP.

DEDICATIONS

In dedication to my family, whose dynamic support, love, and prayers continually fuel my endeavours.

TABLE OF CONTENTS

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A MRP	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
DEDICATIONS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
1. INTRODUCTION	1
Research Objectives	2
Terminology	2
2. LITERATURE REVIEW	4
2.1 Sustainable Tourism	4
2.2 Social Media and Tourism	5
2.2a A change to tourism industry's conventional framework	6
2.2b Social media influencers	6
2.2c Overtourism	7
2.2d Instagram's role in tourism	8
2.3 Persuasive Technology	10
2.3.1 Increasing behaviour performance	11
2.3.2 Influence Principles and Personalization	14
2.3.3 Gamification of persuasive systems	15
3. METHOD AND IMPLEMENTATION	18
Overview	18
Materials	18
Equipment	19
4. EVALUATION: INSTAGRAM TRAVEL	20
4.1 Travel Resume	20
4.2 Travel Book	22
4.3 Travel Wish List	26
4.4 Travel Home	28

4.5 Travel Insights	31
5. CONCLUSION	35
REFERENCES	37

LIST OF TABLES

Table 1. Instagram Terminology	2
Table 2. Game Elements, consolidated by Buckley et al. (2018)	17

LIST OF FIGURES

Figure 1. Travel Resume—Check In	21
Figure 2. Travel Resume—User Profile	21
Figure 3. Instagram 95.0 Information Page	23
Figure 4. Travel Book 1	23
Figure 5. Travel Book 2	24
Figure 6. Travel Book 3	24
Figure 7. Country Explore	25
Figure 8. View Information Banner	25
Figure 9. Travel Wish List	27
Figure 10. Travel Wish List—Suggestion	27
Figure 11. Collections Page	28
Figure 12. Travel Wish List—Country Grouping	28
Figure 13. Travel Home	30
Figure 14. Travel Home IGTV VR	30
Figure 15. Travel Insights—Activity	32
Figure 16. Travel Insights—City Stats	32
Figure 17. Travel Insights—Scene	33
Figure 18. Travel Insights—Home	33

1. INTRODUCTION

Instagram is a visual storytelling social media application owned by Facebook Inc. (Instagram Inc., 2019). With over one billion active monthly users worldwide (Instagram Inc., 2019) Instagram allows users to post, view, comment, and share photographs and videos. Since its inception in 2010, Instagram has iterated its design to adapt to user wants, combat competitors, and respond to societal issues (Instagram Inc., 2019). Currently, Instagram is on version 95.0 for iOS, with approximately 50 of the 95 iterations introducing new product features, such as Instagram Stories, Direct Messages, and the muting function (Instagram Inc., 2019). Though originally created as a mobile application meant for sharing and liking photos, Instagram is a platform that has grown to have a significant impact on society. The tourism sector in particular has seen exponential growth in the past few years (Leung et al., 2013; Xu & Pratt, 2018). According to the United Nations World Tourism Organization (2019), the tourism industry generated 1.4 billion international tourist arrivals and \$1.7 trillion USD in international tourism exports in 2018 (United Nations World Tourism Organization, 2019).

With the growth of the tourism industry, there is a growing body of research that focuses on the use of social media in tourism (Xiang & Gretzel, 2010; Zeng & Gerritsen, 2014; Xiang, Magnini, & Fesenmaier, 2015; Smith, 2018; Xu & Pratt, 2018). With much success, tourism authorities use social media marketing techniques and tools, such as the recruitment of social media influencers, to promote and commodify their destinations (Xu & Pratt, 2018). While research has shown that many people are traveling more than ever before (United Nations World Tourism Organization, 2019), there is also evidence suggesting that social media use is contributing negatively to the quality of travel as well as the quality of living for the local communities in privileged and underprivileged, heavily touristed areas (Muench, 2017; Karsten, 2019). Travellers often fail to experience the authenticity they had hoped for due to overcrowding as well as resort lodging that does not accurately mirror the essence of foreign cultures (Annand, 2017). Correspondingly, the profit of tourism commonly fails to be evenly distributed back to locals—instead, profits fall into the hands of large corporations (López-Guzmán et al., 2011). Using studies on persuasive design, this study focuses on Instagram and sustainable travel. Just as Instagram has integrated seamless shopping into its interface and

enabled comment filtering to promote prosocial behaviour (Instagram Inc., 2019), this study strives to uncover how Instagram can integrate new features to its user interface aimed at influencing users to make sustainable travel plans.

Research Objectives

The main objective of this MRP is to create an artifact that demonstrates my research in a non-written format. Specifically, this project's artifact will be an evolutionary prototype depicting Instagram 110.0, a version of the social media mobile application that adopts the findings of this study.

Terminology

Table 1 provides definitional precision for the Instagram terminology used throughout this study.

Term	Description
Collections	The home for saved photos. Users have the option of saving photos to customized groups, called collections.
Emoji	A small icon or graphic used to express an idea or emotion.
Explore Page	Where a user can search for accounts, keywords, hashtags, and topics simply by typing in the "Search" bar at the top of the screen. Accessed by tapping the magnifying glass on the bottom of the navigation panel.
Followers	The Instagram users that subscribe to a user's Instagram profile.
Hashtag	The “#” symbol placed in front of a keyword or emoji. Hashtags are searchable terms on Instagram.
Home/Feed	The default view of Instagram where the content from a user's followers will appear. This screen can also be accessed by clicking on the “house” icon on the bottom navigation panel.
IGTV	Instagram's longform video section (over than one minute) accessed by tapping the TV icon in the top-right corner of the home screen.
Insights	Where a user can use statistics regarding the demographic of their following as well as the best time to post. Only accessible with a Business Profile.
Like	To show appreciation for a post by double-tapping on the image or tapping on the heart icon below the post.
Mention	Begins with the @ symbol, followed by a user's Instagram handle. This is a way for users to get another user's attention.

Post	Any video or image content uploaded to an Instagram profile.
Profile	A hub consisting of a user's name, username, profile photo, bio, "following" and "follower" count, tagged photos, story highlights, IGTV channel (if applicable), photo gallery, and profile settings.
Save	Bookmarking a post for a user's personal reference. This is completed by tapping on the bookmark icon in the bottom-right corner of a post.
Sticker	A static or interactive graphic available to add to a user's Instagram Story.
Story	An ephemeral way to share photos and videos with one's followers. Stories disappear from a user's profile and Feed after 24 hours unless a user adds it as a profile highlight.
Tag	To add a @ symbol in front of another Instagram users' username (i.e. @briannealanna). Users can only tag other users on a picture or a video.

Table 1. Instagram terminology

2. LITERATURE REVIEW

This study draws on and contributes to three distinct streams of literature—sustainable tourism, social media and tourism, and persuasive design.

2.1 Sustainable Tourism

Tourism is an industry growing faster than the automotive, healthcare, and financial sectors (Mtapuri & Giampiccolib, 2019). For many countries, tourism is a main driver of employment, income generation, improved livelihoods, and overall development (Mtapuri & Giampiccolib, 2019). However, global mass tourism, a form of tourism that involves tens of thousands of travellers going to the same destination during the same time of year, has proven to be unsustainable as it has brought an increase in issues of waste, carbon, and water scarcity (Juvan, Ring, Leisch, & Dolnicar, 2016), an unwaveringly high cost of living for locals (Eraqi, 2014), overcrowding, and misconstrued cultural identities (Smith, 2018). In response to these issues, the United Nations Environmental Programme (UNEP) and the United Nations World Tourism Organization (UNWTO) (2005) have declared that all forms of tourism (including adventure tourism, ecotourism, medical tourism, and alternative tourism) should strive to be more sustainable in nature. The term “sustainable tourism” (also referred to as “responsible tourism”) emerged in the early 1990s and has since become the main paradigm for instructing the planning and managing contemporary global tourism (Weaver, 2014). This study will use Dávid’s (2011) definition of sustainable tourism. According to Dávid (2011), sustainable tourism highlights a development of tourism that “does not exploit natural and constructed environment, but preserves the culture, inheritance and artistic values of the local community” (p. 213).

In order to be considered sustainable tourism, the experience must be economically executable, as well as socially and ethically fair in relation to the local population. Weaver (2014) suggests that contemporary sustainable tourism is evolving as an agalamation of mass tourism and alternative tourism (travel that is personal, authentic and encourages interaction with local communities), and the subsector is heavily skewed in favour of the latter. This is a result of the need to position sustainable tourism as the new framework of mass tourism in order to satisfy both economic development and environmental conservation (Weaver, 2014). As a result, some

of what is marketed as “sustainable tourism” often tends to contradict itself, as it is more concerned with economic gain rather than sustainable development (Weaver, 2014).

Dávid (2011) states that sustainable tourism is unachievable without the application of ecological thinking. Ecological thinking (also referred to as “life cycle thinking”) pertains to the view that humans are not separate from nature, but rather connected and a part of it (Dávid, 2011). According to Dávid (2011), because tourists have complex motivational factors, they have different behaviours or attitudes towards foreign destinations. Participating in environmental protection whilst maintaining tourism behaviours within a foreign destination would attain the desired outcomes envisioned in tourism ecology and the sustainable tourism economy. Dávid (2011) hypothesizes that practices such as environmental excursions, waste-collecting excursions, and ethical code of tourism make effective sustainable tourism possible (p. 214).

The previous section has outlined the tourism industry as a sector that is profitable and flourishing. However, while tourism acts as a dominant economic driver for many countries, academics and industry professionals have identified a problem with the sector’s sustainability. To combat this issue, Dávid (2011) suggests applying ecological thinking to the issue. As the world continues to become increasingly digitized, it is important to consider how social media can play a role in contributing to successful ecological thinking in tourism.

2.2 Social Media and Tourism

Understanding the nature of the online domain and how it influences consumer behaviour is integral in an information-intensive industry such as tourism (Xiang & Gretzel, 2010). Kaplan and Haenlein (2010) describe social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content” (p. 61). Instagram, the photo and video sharing platform, has become one of the most popular social media mobile applications among young people (Huang & Su, 2018). Huang and Su (2018) conducted a study about how young people use social media and found approximately 77% of young people between the ages of 18 and 24 check their smartphones before doing anything else (Huang & Su, 2018). Similarly, among adults that use

their smartphones for approximately three hours a day, 59% are especially reliant on social media, with over 50% admitting to using social media at least once every hour (Huang & Su, 2018).

2.2a A change to tourism industry's conventional framework

The use of social media has changed the way people discover, research, discuss, and book travel destinations (Sotiriadis, 2017; Smith, 2018). Before the internet, travel marketing, distribution, and customer services relied heavily on the use of intermediaries, such as travel agencies, to connect and engage with their target market (Xiang et. al, 2014). Today, tourism authorities are able to market destinations and converse with travellers from around the world using social media (Xiang et. al, 2014). Twenty-percent of all international travellers say that Instagram is critical to travel planning; they report to using the platform as a necessary tool to complete their pre-travel “dreaming phase” (Smith, 2018, p. 173). Correspondingly, Millennials in 7 of 9 markets surveyed by Facebook are more likely than Gen Xers to consider social media as the best way to learn about new travel experiences (Facebook, 2018). For tourism authorities, travel destinations are considered brands or intangible products. Compared to other consumer goods, tourism destination images are relatively hard to market. This is due to the constraints tourism authorities must operate under (Stoldt, Wellman, Ekdale, & Tully, 2019). According to Stoldt et al. (2019) tourism authorities have an “inability to change the name or offerings of the geographic location they represent, lack of control over the actual visitor experience, little contact with visitors, and little control over the host community’s acceptance of tourism” (p. 2). Unlike typical consumer goods, destinations can only be conceptualized. This is why destinations use endorsements as a tool to create a distinct brand identity for their destination (Huang & Su, 2018). Social media influencers play a large role in developing a niche consumer-base for tourism destinations.

2.2b Social media influencers

Social media influencers (SMIs) are individuals who produce social media content to serve niche audiences (Huang & Su, 2018; Stoldt et al., 2019). Considered micro-celebrities, SMIs are “sellers, buyers, and commodities” as they “consume products and services; promote

products and services; and sell themselves as a brand to be consumed by audiences” (Stoldt et al., 2019, p. 2). SMIs have the ability to shape public opinion, and as a result, many choose to enter into financial and contractual relationships with product advertisers and brands (Stoldt et al., 2019). Due to their successful influence and personal branding, it is not uncommon for the marketing agencies working with tourism authorities to invite SMIs to endorse their destinations. According to Huang and Su (2018), destinations can also be viewed as indicators of style and status because the documentation of travel experiences on social media can be a way for individuals to communicate perceptions about themselves to peers. If tourists have a desire to follow the attitudes and values of their preferred SMIs, then Huang and Su (2018) conclude that SMI endorsement is the best marketing tool for tourism brands on social media. However, there is a growing implication that comes with this marketing solution.

2.2c Overtourism

When SMIs take on the role of a destination endorser, they become travel writers, broadcasting their travel content to be consumed and imitated to a broad audience (Smith, 2018). Due to an SMI's mass following, SMI endorsement of travel destinations has the ability to contribute to the phenomenon of overtourism (Capocchi, Vallone, Pierotti, & Amaduzzi, 2019). The term “overtourism” pertains to an occurrence when an excessive amount of visitors or tourists arrive in a particular place at the same time, negatively impacting on host communities (Koens et. al, 2018; Capocchi et al., 2019). In overtouristed areas, the roads, attractions, public transportation, and buildings created for local use tend to “suffer under increasing tourist numbers,” diminishing the quality of life and quality of travel of residents and visitors respectively (Koens et. al, 2018, p.1; Capocchi et al., 2019). According to Capocchi et al. (2019), overtourism is continuing to accumulate further concern as industry professionals correlate recent increases of tourism to “heightened accessibility involving low-cost carriers and declining airfares and the global relevance of social media and other evaluation platforms in streamlining opinion and influencing demand, as well as new and inexpensive accommodation offers through Airbnb and other online platforms” (p. 10). These changes affect factors such as visitor

composition, length of stay, place of stay, tourist expectations and resident perceptions (Capocchi et al., 2019).

In response to this issue, some destinations subject to overcrowding (predominantly those in Europe) have responded with aggressive positions of “anti-tourism” or “tourismphobia” (Capocchi et al., 2019). Given the growing reports of overtourism, overcrowding, and anti-tourism, destination marketing organizations have begun to “openly and critically discuss the desirability of continued growth-focused perspectives for tourism” (Capocchi et al., 2019, p. 10). In their review of overtourism, Capocchi et al. (2019) suggest that the tourism industry place increased importance on educating tourists on the topic of overtourism. Specifically, Capocchi et al. (2019) identify that educational methods should “take place with reference to the knowledge of the destination, its customs and traditions, and with respect to the territories and communities that maintain them” (p. 15). As this study aims to approach sustainable solutions to tourism through the design of Instagram, there is merit in understanding the current role Instagram plays in tourism. How does the social media platform inform travel and how can it be used to better educate tourists on the destinations they are travelling to?

2.2d Instagram’s role in tourism

As a relatively new form of travel writing, Instagram affords anyone the ability to be a travel writer. As a travel writing and popular marketing tool, Smith (2018) argues that Instagram “provides a blueprint of the ideologies underpinning contemporary tourism” (p. 188). Social media now plays a large part in travel planning, and photography plays an instrumental role in shaping pre-tour narrative (Crang, 1997; Sotiriadis, 2017; Smith, 2018). The photographs and videos posted to Instagram inform how tourists perceive and interact with destinations—establishing what a tourist is “supposed to do” when they travel to a new place (Smith, 2018, p. 174). In line with this, Edensor (2001) states that tourists are guided by a set of “embodied norms” that administer guidelines for what should be performed when a tourist is interacting with a destination (p. 71). While tourists can and do deviate from these norms, the imitation of

experiences already seen on Instagram creates “prevailing narratives about a destination” (Smith, 2018, p. 174).

As a tool that allows for travel discussions and affords travel experiences to be documented, viewed, and narrated, the travel content posted to Instagram can re-establish colonialism (Frow, 1991; Smith, 2018). Though this study does not aim to change the content that Instagram users post to the platform, part of the design iteration strives to improve and create guidelines for the type of sustainable content that the platform should promote and prioritize when users are exploring the travel and location tags. Thus, it is imperative to outline the type of content that does not constitute as sustainable.

Tourist destinations, particularly those located in the tropics, are often portrayed as destinations available for possession and consumption—privileging affluent tourists over local histories and land occupancy (Wong, 2015). According to Smith (2018), there are three distinct visual motifs that reoccur in travel images posted to Instagram, in each case, these motifs present colonial images of conquering and privilege. The tropical exotic visual motif centers on portraying a dehistoricized landscape of ‘paradise’ with an emphasis on one or more sexualized bodies, implying that they are the true owners of the land (Smith, 2018). In this sense, the image could be of a European woman lying on an empty, white-sand beach. The promontory-witness visual motif eludes to control of a destination, as it removes any sign of human habitation but that of the tourist (Smith, 2018). In this scenario, the image could be of a man sitting on the edge of a cliff, overlooking a foggy, scenic landscape. Finally, the fantasized assimilation visual motif is the capturing of a tourist wearing or performing a local identity. Though the intention may be to honor a destination, the act often showcases an imbalance of power that allows a tourist to “don and discard local-ness” at will (Smith, 2018, p. 189). It is important to note that these motifs can also be applied to travel throughout Western countries in communities that are often depicted as “Other.” Linked to Edward Said’s *Orientalism* (1979), the term “The Other” relates to a conceptual framework known as postcolonial theory and often refers to marginalized and vulnerable communities (Burney, 2012). *Orientalism* “questions the foundation of Western representation and the social construction of the ‘Orient’ as the ultimate Other in history, literature, art, music, and popular culture” (Burney, 2012, p. 23). According to Said (1979), the

Western world falsely creates a binary construct that depicts the Orient (the Other) as lesser than, reinforcing cultural stereotypes and prejudice that are historically seen throughout society (Said, 1979).

The use of social media has changed the way people discover, research, discuss, and book travel destinations (Sotiriadis, 2017; Smith, 2018). This section has outlined the role social media plays in shaping the current state of the tourism industry. Though Instagram does not have much control over the content users publish to the platform, it does have the authority to emphasize sustainability. However, Instagram's current design and black-boxed algorithm does not place emphasis on promoting sustainable travel content (Instagram Inc., 2019). If the best solution to combating the sustainability issue in tourism is to think ecologically (Dávid, 2011) and educate tourists on sustainable travel (Capocchi et al., 2019), then it is worth addressing how a platform that informs travel decisions can persuade its users to embark on sustainable travel.

2.3 Persuasive Technology

Computers were originally meant for fulfilling elementary tasks such as calculating, storing, and receiving data. Since its inception, the computer has evolved dramatically—now taking on smaller forms, such as a smartphone, and assuming roles that are increasingly persuasive in nature (Oduor, Alahäivälä & Oinas-Kukkonen, 2014). Kaptein, Markopoulos, Ruyter, and Aarts (2015) define persuasive technology as an interactive computing system designed to change a user's attitude and behaviour by “delivering the right message at the right time, in the right way” (p. 38). Sethumadhavan (2018) refers to persuasive technology as systems that are “designed to change users' behaviours without pressuring them” (p. 32). This study draws on Kaptein et al. (2015) and Sethumadhavan's (2018) definitions; persuasive technology is defined here as an interactive computing system designed to change a user's attitude and behaviour through the use of psychological and social motivation theories.

The design of persuasive technologies play a fundamental role in influencing user behaviour (Oduor et al., 2014). The principles of persuasive design are commonly employed in digital product that requires a target market's long-term engagement, such as e-commerce and

public health technologies (Sethumadhavan, 2018). According to Sethumadhavan (2018), persuasive design can take a variety of forms, including wearables, smartphone apps, games, virtual reality environments, and robots. Following this explanation of persuasive design, it is undeniable that Instagram is a platform that successfully runs on the framework. Therefore, there is justification for this study to focus on evaluating persuasive design, as the goal of this project is to change an Instagram user's behaviour without any added pressure.

2.3.1 Increasing behaviour performance

Attempts at persuasive design often fail because designers do not understand the factors that lead to behaviour change (Fogg, 2009). In order for a person to be persuaded to perform a behaviour, the three factors of motivation, ability (simplicity), and a trigger must come together simultaneously (Fogg, 2009). The Fogg Behaviour Model or "FBM" is a psychological framework used to examine persuasive designs and uncover new potentials for persuading users. According to this model, the user must have "some non-zero" level of motivation and ability in order for a behaviour to occur (Fogg, 2009, p. 3). Fogg (2009) notes that increasing motivation is not always the sole answer to designing persuasively—often, increasing ability (simplifying the behaviour) is the solution in widening behaviour performance. The FBM identifies motivation and ability as trade-offs; users with low motivation may perform a behaviour if the behaviour is high on their ability scale (meaning it is simple enough for them to complete) whereas someone with high motivation may perform a behaviour even though their ability to perform it is low. For instance, suppose a retailer is holding a contest to win a \$5,000 shopping spree and the entry requires an answer to a difficult math problem. Samantha, who is excellent at math, does not particularly like the retailer that is hosting the competition, but knows the answer to the question upon first glance. In this scenario, Samantha has low motivation, but a high ability. Due to the simplicity of the contest entry, Samantha will likely find a way to boost her motivation level (for example, she remembers that her friend Peter buys clothing from the retailer all the time), leading her to enter the contest. Inversely, Peter is terrible at math, but adores the retailer hosting the competition. Peter's high motivation will influence him to find a new way to increase his ability, such as calling his friend Samantha to help him complete his contest entry. While these

scenarios are possible, Fogg (2009) notes that in most cases of persuasion, users are less likely to be on these extremes. Usually, users have a moderate degree of motivation and ability, and these levels can be manipulated through design. When designing for behaviour activation, successful persuasive technologies should boost motivation, ability, or both.

The FBM contains three elements of motivation: (1) pleasure and pain, (2) hope and fear, and (3) social acceptance and social rejection. When designing for motivation, the goal is to increase a user's motivating factors in order for them to move up in the behaviour activation threshold (Fogg, 2009). The first core motivator is pleasure and pain: primitive responses that are almost immediate, as there is little thought or anticipation that come with them (Fogg, 2009). The second motivator is hope and fear: a dimension characterised by the contemplation of an outcome. According to Fogg (2009), hope and fear can be a more powerful tool than pleasure and pain as, "in some situations, people will accept pain (a flu shot) in order to overcome fear (anticipation of getting the flu)" (Fogg, 2009, p. 4). The final motivator in this model is social acceptance and social rejection. According to the FBM, this final motivator controls a large portion of an individual's social behaviour, as people are motivated to do things that win them social acceptance and even more motivated to avoid being socially rejected—"as fables and folktales show, being banished from a community was a severe punishment for humans" (Fogg, 2009, p. 4).

In order to increase ability, a persuasive technology must make things easier to do rather than require users to learn new things. The FBM notes that boosting ability is not about teaching people new things or training them for improvement, as "this clashes with the natural wiring of human adults: [who] are fundamentally lazy" (Fogg, 2009, p. 5). A common example of simplification in persuasive design is Amazon's 1-click shopping—because it is easy to do, people buy more things (Fogg, 2009). According to Fogg (2009), ability or "simplicity," is a framework that includes six elements that relate to one another like "links on a chain" (p. 5). The six elements of ability include: (1) time, (2) money, (3) physical effort, (4) brain cycles, (5) social deviance, and (6) non-routine.

A target behaviour is not considered simple if the task requires (1) time from a user and the user does not have time to give, (2) costs money that the user cannot afford, and (3) requires

physical effort that is not within the physical bounds of the user. Additionally, (4) Brain cycles refers to the amount of thinking that is required to participate in a target behaviour, (5) social deviance refers to going against the norms of society, and (6) non-routine speaks to the tendency for people to find behaviours simple when they are something that an individual does over and over again. If there is a high amount of thinking involved in completing a task, if a target behaviour requires an individual to be socially deviant, or if a target behaviour is outside of an individual's routine, the FBM model does not classify the task as simple. When designing to increase ability, it is integral to note that simplicity is subjective—everyone has their own simplicity profile that varies depending on their circumstances. The FBM calls on researchers and designers of behaviour change to identify the scarcest resource for their target market in order to reduce the barriers for completing a target behaviour. According to Fogg (2009), “persuasive design succeeds faster when we focus on making the behaviour simpler instead of trying to pile on motivation...people often resist attempts at motivation, but we humans naturally love simplicity” (p. 6).

In addition to increasing motivation and ability, triggering behaviour at the appropriate time is a vital aspect of persuasive design (Fogg, 2009). The FBM defines a trigger as “something that tells people to perform a behaviour now” (Fogg, 2009, p. 6). A trigger can come in many forms, such as a sound, a banner, or a message. In order for a trigger to be effective a user must notice the trigger, associate the trigger with a target behaviour, and notice the trigger when they are motivated and able to perform the behaviour (Fogg, 2009). The FBM states that there are three types of triggers: (1) sparks, (2) facilitators, and (3) signals. A (1) spark trigger is one that appears at the same time as a motivational element—this would usually be when a user lacks the motivation to perform a target behaviour. Examples of a spark trigger include copy that perpetuates fear or an inspirational video that instills hope. A (2) facilitating trigger is one that prompts behaviour while also making the behaviour easier to achieve. This type of trigger is used when users are highly motivated but lack ability. A common social media facilitating trigger is the “contact list uploader” option, which helps users locate the people they know with minimal effort. Finally, the FBM recommends that a (3) signal trigger serves as a reminder to perform the target behaviour. A signal trigger is used when a user has the ability and the motivation to

perform the target behaviour (Foggs, 2009). Traffic lights are one of the most common examples of a signaling trigger. Overall, Fogg (2009) identifies triggers as more important than ever before, as information technology allows users to perform a target behaviour almost immediately and triggers can influence an individual to act on impulse.

This will be of uttermost importance. By using the Fogg Behaviour Model framework, I consistently consider the elements of motivation and ability, as well as the approaches used for triggering behaviour when designing new features for the Instagram interface.

2.3.2 Influence Principles and Personalization

Fogg (2009) notes that professionals in psychology, marketing, and related disciplines have other ways of designing for motivation. Persuasive designers also often turn to psychology's influence principles (Kaptein et al., 2015). Kaptein et al. (2015) outlines these principles as (1) authority, (2) consensus, (3) consistency and commitment, (4) scarcity, (5) liking, and (6) reciprocity. These six principles will be consistently used and referenced throughout this study. (1) Authority pertains to how individuals are more inclined to follow suggestions that come from an authority figure (i.e. Instagram "Who to Follow" suggestions). (2) The consensus principle states that when an individual observes others performing the same belief or behaviour, they become more likely to believe and behave similarly (i.e. Instagram's "Following" page, which is dedicated to a black-boxed algorithm that shows an individual what posts their followers have liked). (3) Consistency and commitment refers to the habit individuals have to maintain consistent beliefs and act accordingly (i.e. a wanderlust Instagram user may predominantly follow accounts associated to travel) (Kaptein et al., 2015). (4) The scarcity principle refers to the tactic of identifying a product or a service as limited in order to increase the chance of purchase. (5) The liking principle refers to an individual's tendency to adhere to people they like. (6) Finally, the reciprocity principle states that individuals are inclined to reciprocate a favour. Though these influence principles have traditionally proven to be most effective when designing persuasively, recent research has begun to examine how understanding differences in individual personalities can create more personalized persuasive applications (Kaptein et al., 2015).

Personalized persuasive technology refers to a system that customizes and adapts psychology's influence principles to individual users (Kaptein et al., 2015). According to Kaptein et al. (2015), a personalized persuasive system could collect data by requiring users to fill out a questionnaire or by collecting observations of real behavioural responses. In this sense, Instagram can be considered a growing, personalized persuasive technology, as certain features of its interface tailor to each user's attitudes and behaviours. For instance, in an attempt to increase e-commerce and marketing revenue (Instagram Inc., 2019), Instagram advertisements differ for users based on the observation of individual user behavioural patterns. Kaptein et al. (2015) state that persuasion profiling as in contemporary technological development needs strengthening, as it is the continued way forward in developing information technologies. In response to these findings, when considering how to design Instagram version 110.0, the principles of persuasive design and persuasion profiling will be embraced.

2.3.3 Gamification of persuasive systems

Games and game technologies are transcending the classic constraints of their medium—evidenced by the growth in numerous mass-market, “gamified” consumer technologies, ranging from productivity to finance, health, sustainability, entertainment, user-generated content and tutorials (Deterding, Sicart, Nacke, O'Hara & Dixon, 2011). Gamification is an informal umbrella term defined as the application of video game elements to non-gaming systems in an attempt to improve user experience and user engagement (Deterding et al., 2011). In the study of persuasive technology, there is consensus that game elements have the potential to afford users considerable opportunities to increase motivation (Deterding et al., 2011; Buckley, DeWille, Exton C, Exton G & Murray, 2018). Non-gaming systems, such as the Starbucks mobile app, turn to gamification as a means to enhance their service by adding a layer of reward and reputation that involves game-like characteristics such as points, badges, levels, or leaderboards (Deterding et al., 2011).

In order for gamification to change user behaviour, a non-gaming applications must possess game design elements. According to a growing body of research (Deterding et al., 2011; Aparicio et al., 2012; Groh, 2012; Barata et al., 2013), the identification of game design elements

is best based on self-determination theory (SDT) (Ryan & Deci, 2000). SDT is a psychological approach on human motivation that argues that an individual experiences the intrinsic motivation needed to complete target behaviours if three constructs are met: autonomy, competence, and relatedness (Ryan & Deci, 2000 ; Buckley, DeWille, Exton C, Exton G, & Murray, 2018 ; Wee & Choong, 2019). The need for autonomy refers to choice and the feeling that an individual can self-determine what they do (Ryan & Deci, 2000). Competence refers to the desire to control an outcome and experience mastery while relatedness pertains to the need for social connection—to feel needed and cared about by others (Ryan & Deci, 2000).

The term “game elements” can be defined as a set of components from which a game can be constructed from or analyzed with (Deterding et al., 2011; Buckley et al., 2018). Buckley et al. (2018) created a consolidated list of the most commonly referenced game elements using the work of Fitz-Walter (2015) and Seaborn and Fels (2015), who surveyed over 30 published works on gamification, and Werbach and Hunter (2012), two game players who used their own experiences to choose and study the elements that they considered to be integral to game play (see Table 1). From their consolidation of literature, Buckley et al. (2018) found that the most commonly referenced game elements included badges (14 articles), points (12 articles), leaderboards (10 articles), rewards/achievements (9 articles), and avatars (8 articles). Overall, viewing the elements of gamified systems as motivational affordances binds gamification and motivation together. In this view, “game elements are seen as a way of affording participants the chance to feel motivated, by relating specific motivational drivers to the types of elements that may be used to bring about behaviour change” (Buckley et al., 2018, p. 108). Understanding and applying gamification principles to this study’s prototype is valuable, as it provides a framework for using persuasion in an entertaining, socially-valued way.

Game element	Description
Achievements	In-game content that is earned by player behavior, e.g., Content for avatar customization
Avatars	Visual representation of a player in a game, personalized with chosen elements
Badges	Visual representations of rewards or achievements
Boss fights	Final challenges in order to Level up
Collections	Sets of in-game items that may or may not be useful within the game
Combat	Fights, battles, duels within games
Content-unlocking	Content withheld from players until a certain level of ability is reached
Gifting	The practice of giving in-game Virtual goods to other players, as a reward or as part of a Team strategy
Leaderboards	All players' positions in a system, usually in relation to the number of points they have been awarded
Levels	Levels express the number of Points a player has, and subsequent levels become more difficult as a player progresses
Points	Awarded for various deeds in a game
Quests	Specific tasks which act as goals and can further a narrative thread in a game
Social graphs	Information data sets presented to specific groups or Teams of people within a game, e.g., to spur one group on to compete against another
Teams	Groups of people who may or may not know each other outside the game
Virtual goods	In-game items which may be purchased by performing tasks within a game

Table 1. Game Elements, consolidated by Buckley et al. (2018)

3. METHOD AND IMPLEMENTATION

Overview

Prototyping was the main research method of this study. A prototype is an artifact that visually represents the pre-production of a product, service, or system (Camburn et al., 2017). Prototyping requires a unique strategy to resolve this study's research question, as the choice in strategy would directly influence the information that could be explored and learned from the prototype. Drawing on the literature review, this study utilizes the techniques of persuasive design as a way to better motivate users toward sustainable trip planning while using the Instagram platform. To understand the current gaps in sustainable tourism persuasion on Instagram, the current Instagram interface (version 95.0) was analyzed. After determining what the platform currently affords its users to do in relation to everyday use and analyzing the successful design features of popular digital competitors, this study then turned to prototyping. The evolutionary design of this study's artifact entailed two iterations of its analysis, design, and development. After the completion of each iteration, the working artifact was analyzed by the research committee and I, resulting in this study's current prototype.

Materials

The graphics used to compliment this study's prototype, are a combination of royalty-free stock images and original photography, most of which was captured in the Caribbean island of Antigua and Barbuda, during what can be considered a sustainable trip to the nation (May 26, 2019–June 2, 2019). The photographs did not involve any interaction with human participants, as individuals themselves were not the focus of this research. Original photographs in the prototype that captured an individual other than myself were edited or captured to ensure that the individual was not recognizable in the image.

Equipment

The software used to build the prototype included a selection of programs offered by the Adobe Creative Suite. Adobe XD, a vector-based tool used for designing and prototyping web and mobile app user experiences, was the main software used to build the prototype. Photoshop, Adobe's photo editing software, and Illustrator, Adobe's vector graphics editor were also used for the creation of this project.

4. EVALUATION: INSTAGRAM TRAVEL

Instagram Travel is a prototype that introduces five new features to the Instagram interface: (1) *Travel Resume*, (2) *Travel Book*, (3) *Travel Wish List*, (4) *Travel Home*, and (5) *Travel Insights*. Utilizing persuasive design principles, as well as sampling features implemented by successful digital products, such as Waze, Spotify, and Google Cardboard, Instagram Travel encourages the pro-social discovery, research, and discussion of travel destinations.

4.1 Travel Resume

The goal of *Travel Resume* is to add a new layer of gamification to Instagram in order to encourage users to travel more. Under this feature, when users arrive in a new country, they will be asked to “check in” (see Figure 1). The check in screen is a signal trigger, simply reminding the user to check in; considering they are in a new country suggests that the user already has high motivation and a high ability to do so. Once checked in, the location is added to the user’s *Travel Resume*, which can be found on their profile page (see Figure 2). A check in is needed in order for the location can be added to the user’s country count. This feature allows users to display where they have travelled to by breaking down their location-tagged photos geographically. If a user fails to “check in” to a new country before leaving it, the country will not be added to the user’s Instagram travel resume. The idea to visually present photo clusters on a map was inspired by Apple Photos, as Apple already does this with the photos an iPhone user has saved to their Camera Roll. The critical difference is that there is no way of socially sharing the Apple Photos map with friends.

Travel Resume uses the game elements of achievements (country count) and content-unlocking (countries on the map) to intrinsically motivate users to diversity their travel portfolio. Rather than telling people where they should and should not travel to, *Travel Resume* simply encourages people to not only travel more, but travel to different places. This adheres to the principle of liking (Kaptein et al., 2015) and the motivational element of social acceptance (Fogg, 2009), as the endorsement of a destination from someone a user follows will likely lead the user to inquire about travel to the destination. Furthermore, *Travel Resume* affords the ability to simply see the countries a user has been to—when a user taps on geographic grouping of

photos, a banner appears at the bottom, spark-triggering (Fogg, 2009) them to view more information about the country they are currently viewing.

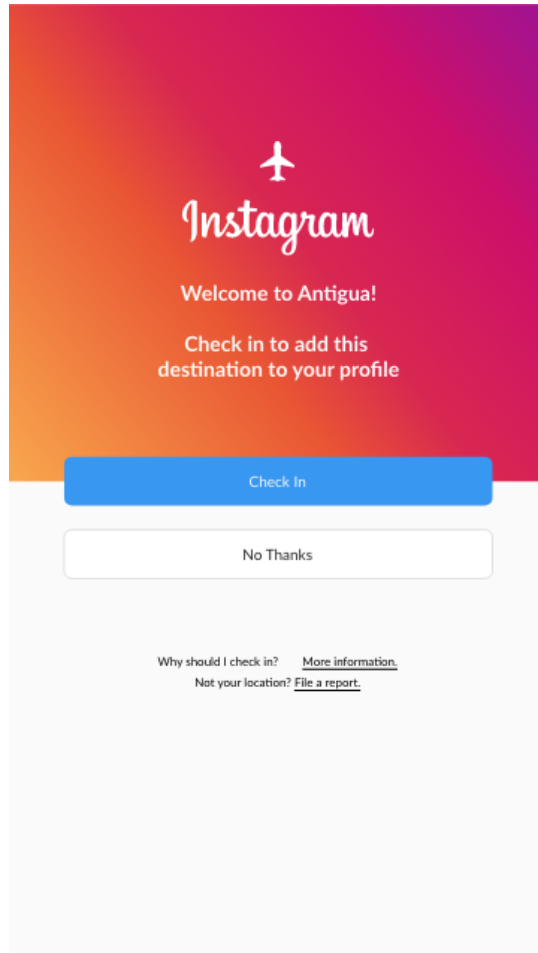


Figure 1. Travel Resume—Check In

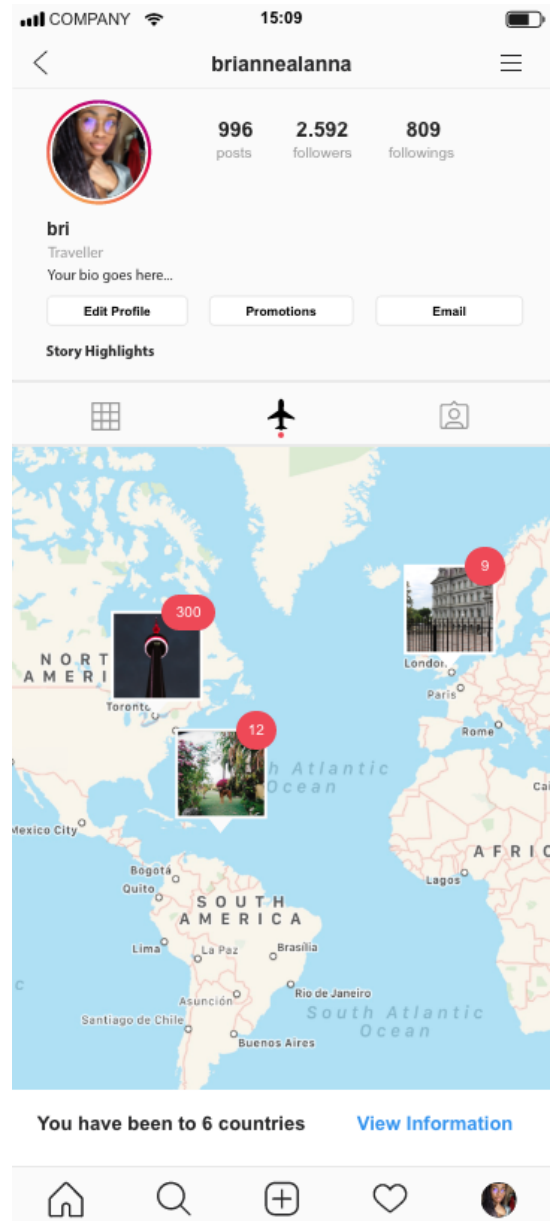


Figure 2. Travel Resume—User Profile

4.2 Travel Book

Travel Book is a revamp of Instagram's current "View Information" page (see Figure 3), which is currently accessed when users navigate to a destination's explore page using Instagram's search function. *Travel Book* is only available for country pages. Using dynamic information about weather, currency exchange rates, upcoming events, etc., *Travel Book* is the digital recreation of the traditional travel book format prevalent in the tourism industry (see Figure 4-6). *Travel Book*'s information is periodically updated, so users will find use in re-visiting the page if they are curious about travelling to a specific country. Additionally, this page will increase audience retention statistics, as users will be less likely to leave the mobile app to Google information. The sections for this page were inspired by Lonely Planet's travel book model with a particular focus on sustainable tourism.

In the first section (see Figure 4), users are given a brief description of the country. In the second section, users are shown a preview of the country's official tourism Instagram page. The third section is Instagram's "Sustainable Recommendation," that provides a quick tip on how to be more sustainable when travelling to the country. The fourth section (see Figure 5) is "Need to Know," which allows users to toggle between weather, currency (where the widget will automatically convert the user's currency to the country's currency), time (showing what time it is in the destination), and quick stats (select statistics about the country, i.e., religion). This section also includes "Key Phrases," which displays with three to four local words and phrases they should learn before travelling, "Getting Around," which displays the best transportation options, and "Opening Hours," information on what time businesses open and close. The final section of this page is titled, "Events" (see Figure 6), which shows users what is going on in the country during the current and upcoming month. If the event has a notable hashtag, Instagram will preview a few images for the user to see.

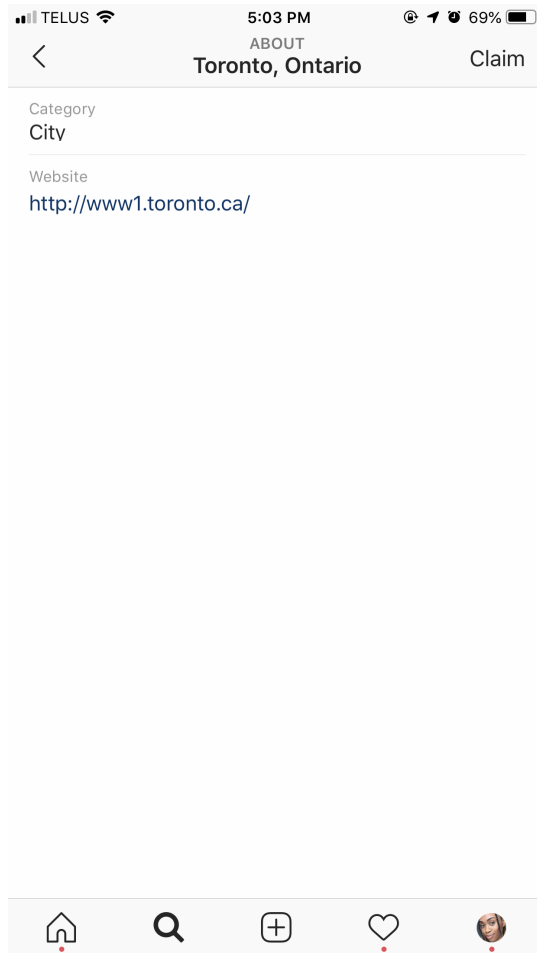


Figure 3. Instagram 95.0 Information Page

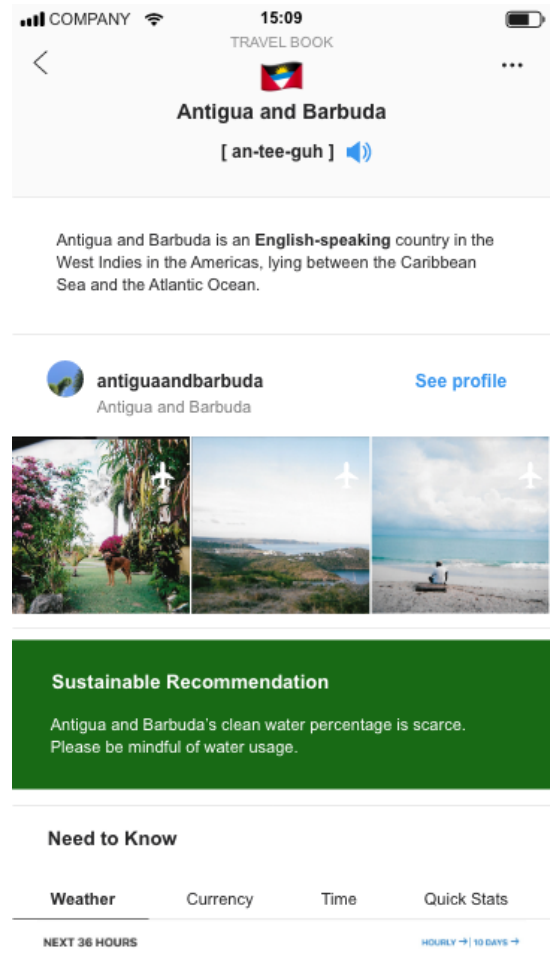


Figure 4. Travel Book 1

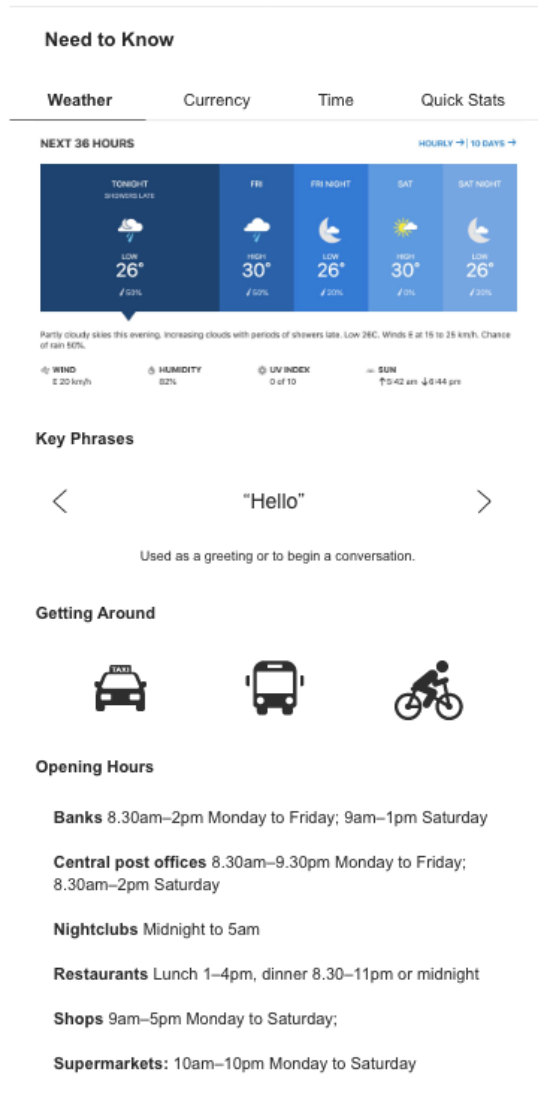


Figure 5. Travel Book 2

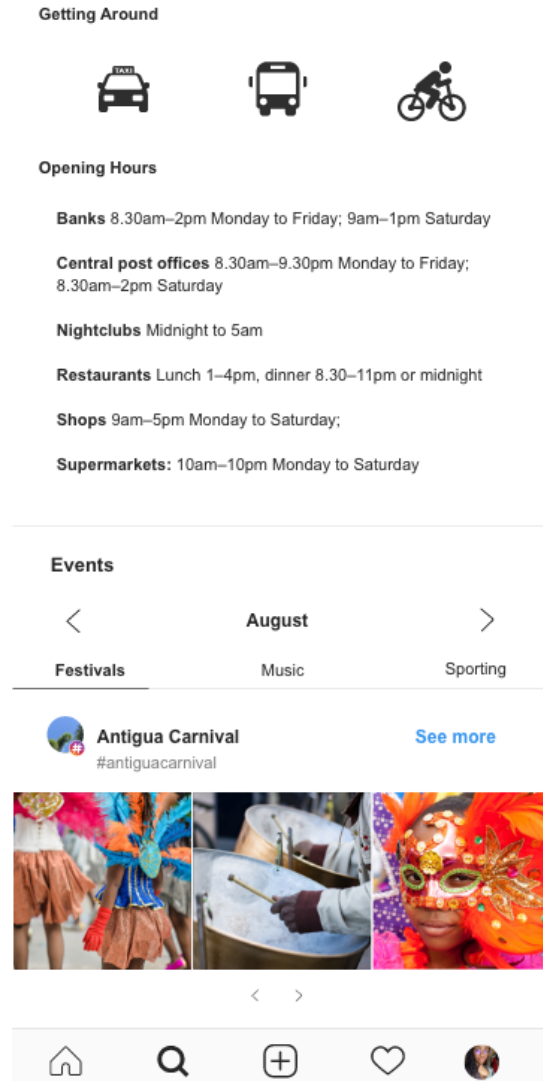


Figure 6. Travel Book 3

To access *Travel Book*, users will follow the same navigation journey they would to arrive at a location's explore page. Once on a country's explore page, users will notice a few new add-ons to the interface: (1) A follow by location option, (2) *Travel Book*, and (3) the sort images by category (see Figure 7). The follow by location option allows users to follow a location from a time period set by the user. When a user follows a location, the top posts determined by the Instagram algorithm will be integrated into their Instagram feed. The purpose of this is to provide users with insight as to what is going on in a location. Sorting images by categories varies

country by country—a design decision that makes it easier for a user to quickly identify what a country is well known for. Users can access *Travel Book* through the incorporation of spark triggers throughout their Instagram usage. For instance, when a user saves an image to their *Travel Wish List*, a red banner will appear prompting them to view more information about the country the image was location-tagged in (see Figure 8). This incorporation of these spark triggers is in response to influence principles of authority and consistency.

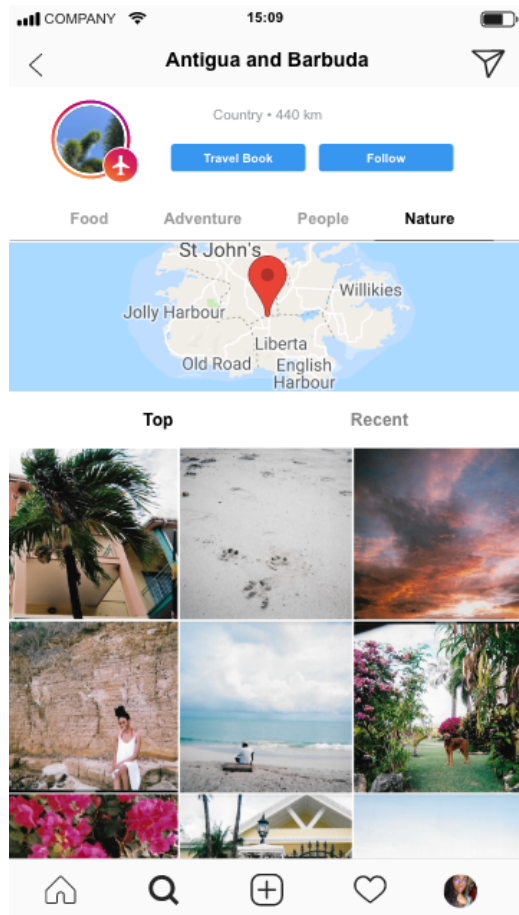


Figure 7. Country Explore

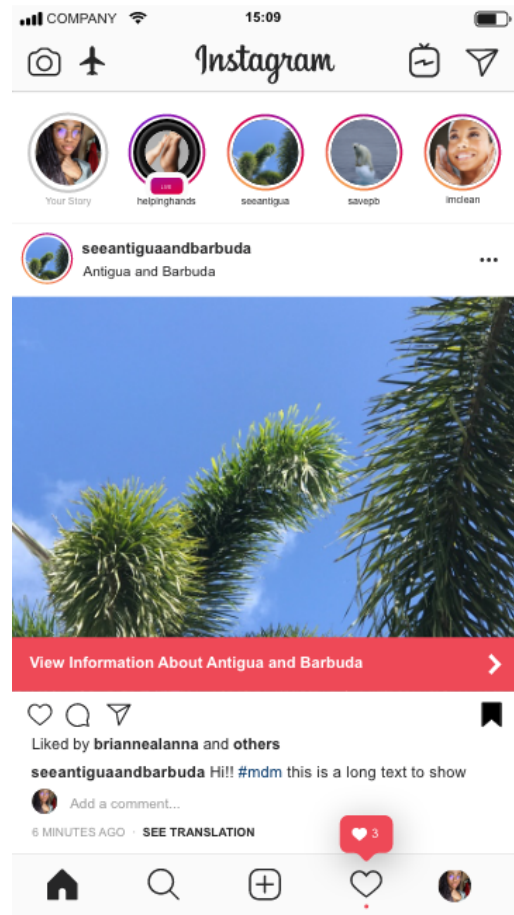


Figure 8. View Information banner

4.3 Travel Wish List

Travel Wish List uses personalization to feature posts with locations saved by a user (see Figure 9). *Travel Wish List* also has a suggestion feature that highlights other countries of interest that users may also like (see Figure 10). *Travel Wish List* can be accessed by visiting the *Travel Home* page or by visiting the Collections page (see Figure 11). Instagram 110.0 will automatically create a Travel collection shell and separate the images and videos in the collection by country. The graphics saved to this collection must have a location tag in order to be added to *Travel Wish List*. Once users scroll to the bottom of their personalized *Travel Wish List* page, they will notice that Instagram suggests country pages for the user to view, based on the locations they have already saved to their Wish List. This suggestion feature was influenced by Spotify, a popular music streaming service that suggests and auto-plays new music for users based on their listening habits. Instagram currently implements a suggestion feature with user profiles (when a user follows someone else, Instagram automatically suggests other users to follow). The suggestion feature shown here is also influenced by the authority influence principle. When a user taps on a country grouping, the “View Information...” banner will appear again, falling in line with the influence principles of consistency and authority (see Figure 12).



Suggested for You

[See All](#)



Suggested for You

[Close](#)



Dominica



Antigua



Jamaica

Figure 9. Travel Wish List

Figure 10. Travel Wish List—Suggestion

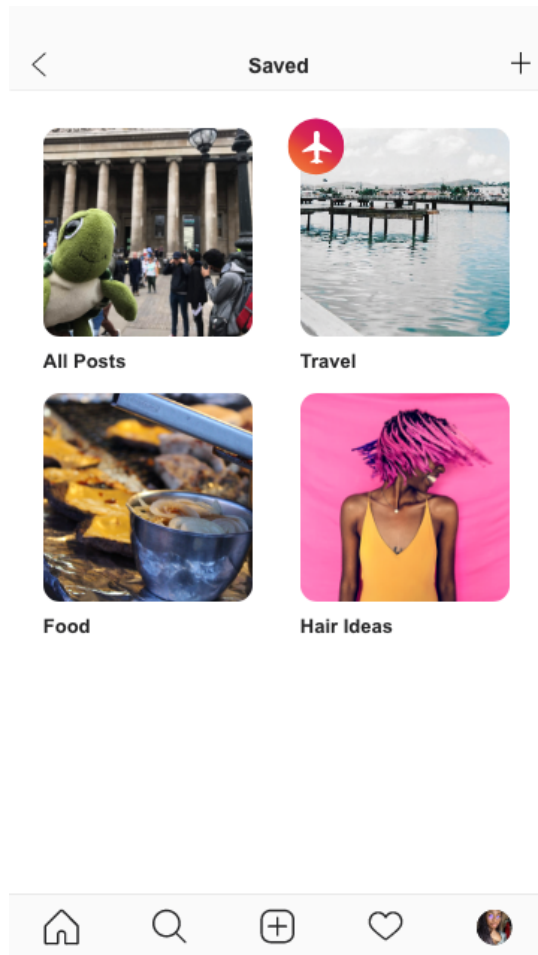


Figure 11. Collections Page

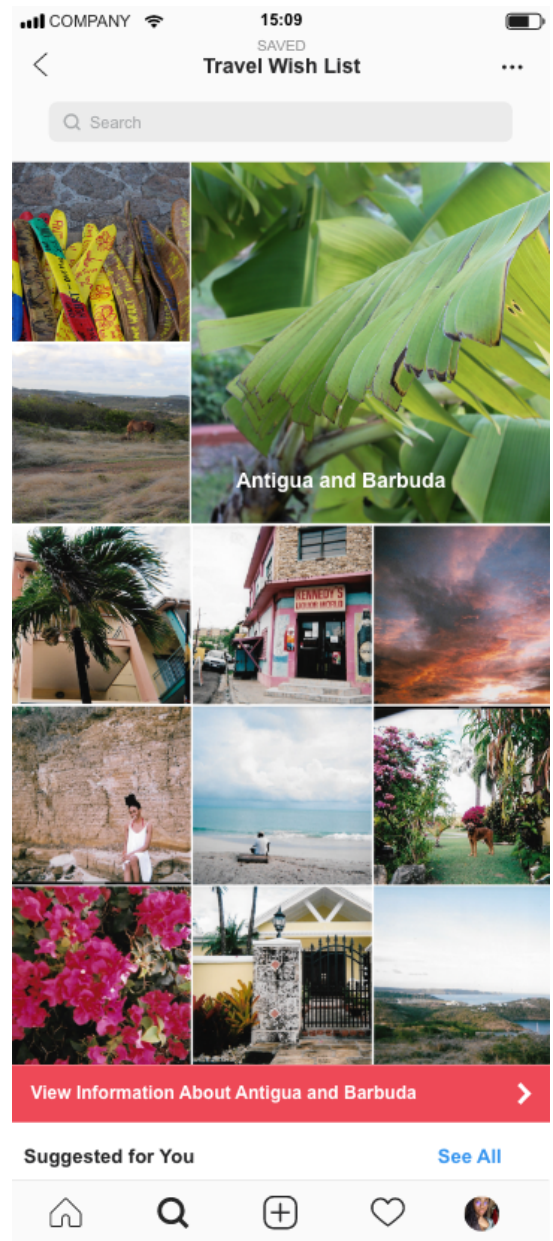


Figure 12. Travel Wish List—Country Grouping

4.4 Travel Home

The Instagram Travel homepage, titled *Travel Home*, is modelled after Instagram's current homepages for IGTV and Shop (see Figure 13). With the intent of evoking empathy and increasing global travel awareness, *Travel Home* allows users to experience 360° travel videos in virtual reality (VR), as well as see trending travel photographs and standard videos. The option

of adding VR content to *Travel Home* (which works in tandem with IGTV) is only available to verified travel authority accounts (see Figure 14). This decision to incorporate VR into Instagram was influenced by Google Cardboard, a mobile application which allows for immersive, virtual reality viewing straight from one's smartphone. By viewing a video in VR, *Travel Home* has the potential to combat the fear a user may have when anticipating travel to a new place, give users more insight into what a day in the life of a local looks like, and open the door to more effective educational marketing techniques.

Travel Home draws from various principles from persuasive design. Drawing on Fogg's (2009) motivational elements of hope and fear, *Travel Home* strives to increase an Instagram user's motivation to travel. Though no one user's *Travel Home* content will look the same, the content featured on *Travel Home* will be carefully curated to ensure that Instagram users are exposed to diverse and worldly content. For example, *Travel Home* may call upon the motivational element of fear by highlighting a video that showcases the hardships citizens of Antigua and Barbuda face due to the country's lack of clean water. By viewing such a video, Instagram users may feel fear for the community and inquire as to ways they can support Antigua and Barbuda. The influence principle of scarcity is also drawn upon; the content featured may tactically identify travel to a specific place as time-sensitive—such as travelling to Antigua and Barbuda to help address their water shortage crisis.

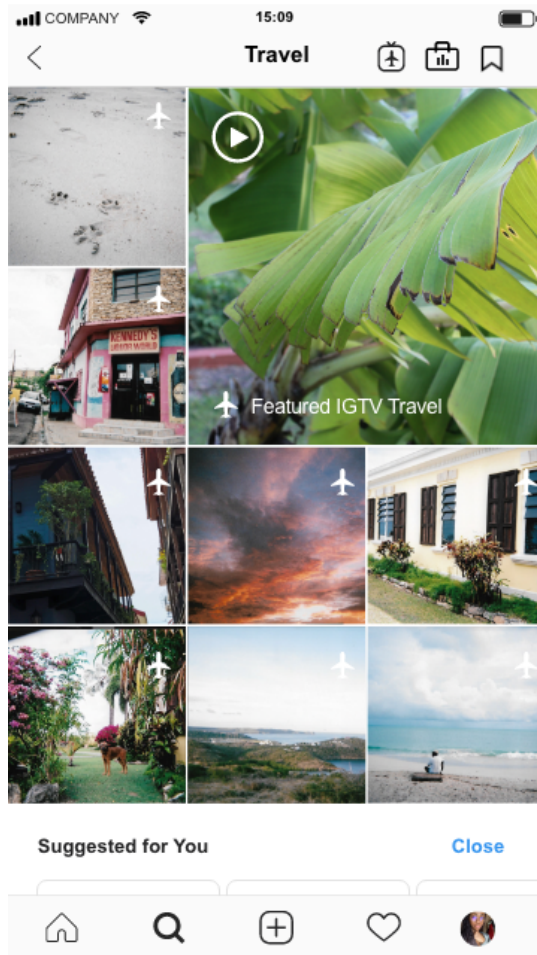


Figure 13. Travel Home



Figure 14. Travel Home IGTV VR

4.5 Travel Insights

Travel Insights expands Instagram's current "Insights" feature by affording users the opportunity to view real-time data of the location and migration habits of Instagram users in a specific area. Specifically, *Travel Insights* highlights overcrowded locations by showing users Instagram activity statistics at the country and city level (see Figure 15-16). One of the *Travel Insights* features Instagram users will be introduced to is the "How's the Scene?" trigger (see Figure 17). "How's the Scene?" is a short survey that uses crowdsourcing to tackle the overcrowding problem in tourism. After a user posts a story with a location tag, the screen will appear, asking users to report how crowded the location was. Users have the option to opt out of this specific feature. Results calculated will be reported on the main *Travel Insights* page (see Figure 18). *Travel Insights*' "How's the scene?" was inspired by Waze, a geo-social network that provides real-time, crowdsourced navigation. With Waze, users submit travel times and route details such as traffic information in order to provide users with the best route in real time (Waze Mobile, 2019). As Facebook Inc. and Instagram collect and retain a large amount of data on a daily basis, *Travel Insights* exemplifies what it looks like if the data was used to combat overtourism by notifying users about overcrowded areas.

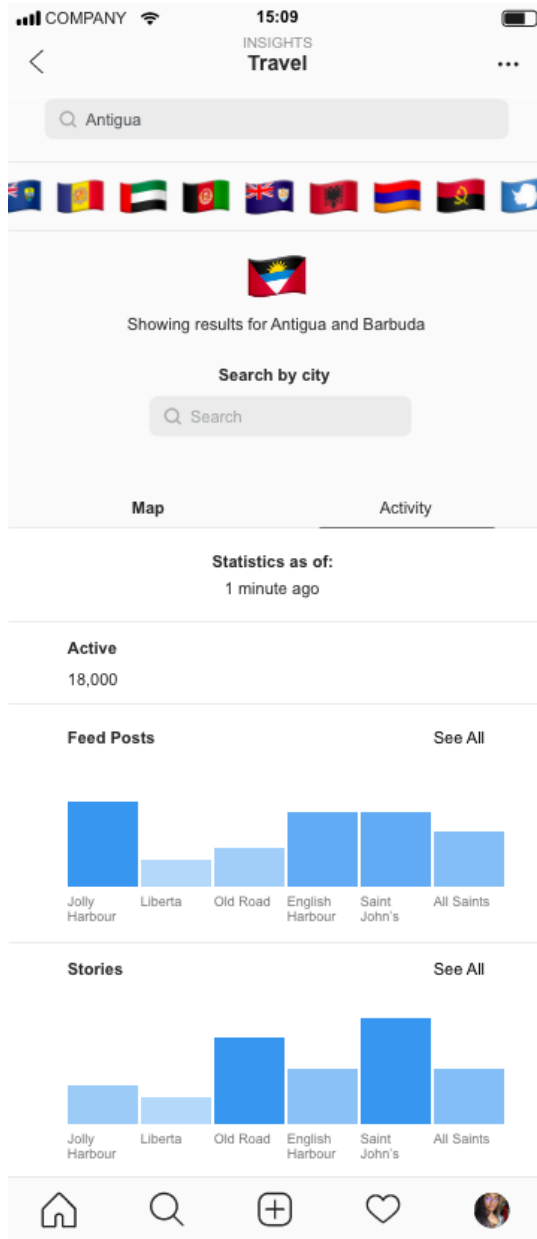


Figure 15. Travel Insights—Activity

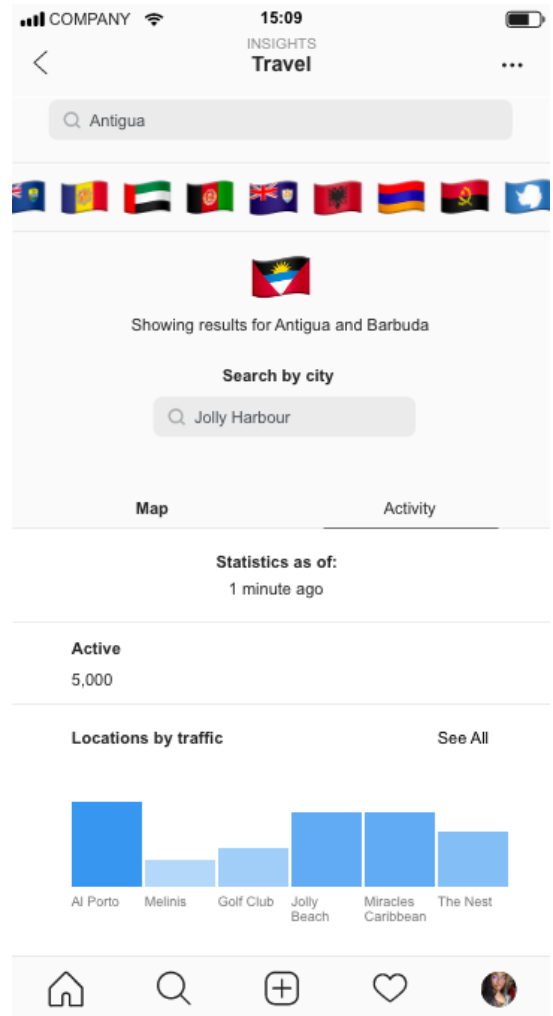


Figure 16. Travel Insights—City Stats

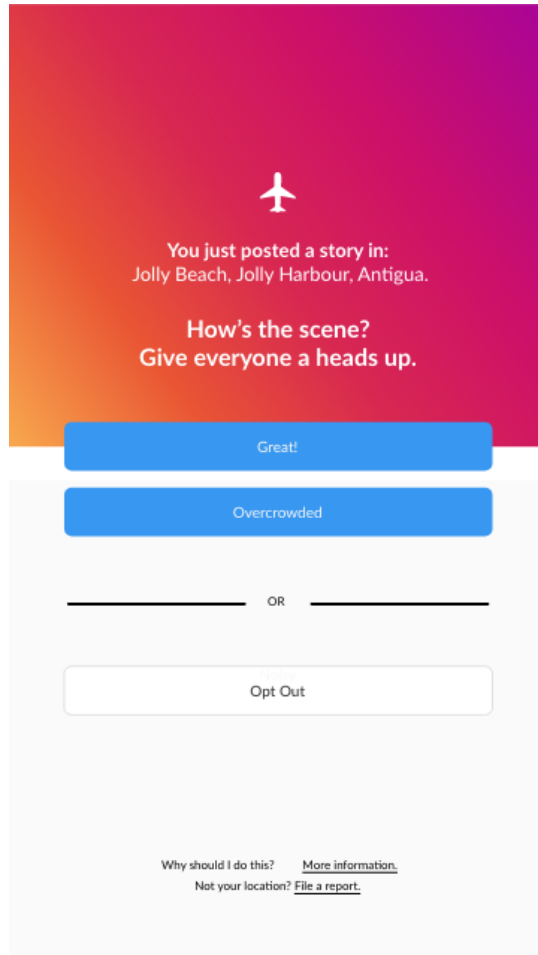


Figure 17. Travel Insights—Scene

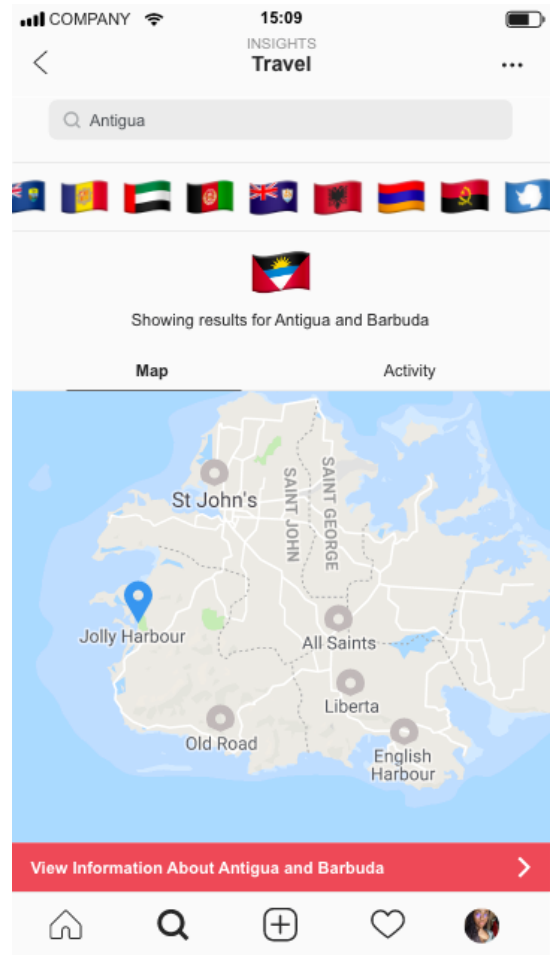


Figure 18. Travel Insights—Home

Travel Insights is located on the *Travel Home* homepage. By tapping on the *Travel Insights* icon, a user will arrive on the feature's homepage, where they will be shown insights for the county they are currently in. Users have the option of looking at other country insights by typing a country's name into the search bar or by tapping an emoji flag. This emoji feature was integrated as an accessible way to educate users on the appearance of country flags. Overall, *Travel Insights* shows a user places in the country that have a high amount of Instagram use at the moment. It is important to note that this traffic is based on Instagram users rather than total

inhabitants. This is made apparent by the option of displaying the volume of feed posts by major city and the volume of stories being posted by major city.

Travel Insights is also influenced by gamification, as it is an example of the “social graphs” game element. By showing users volume statistics, *Travel Insights* draws on Fogg’s (2009) motivational element of fear, Ryan and Deci’s (2000) motivational element of competence, and Kaptein et al.’s (2015) influence principle of consensus to potentially influence people to avoid overcrowded spaces. Some users may fear the repercussions of visiting an overcrowded location while others may enjoy knowing where they are headed to visit is an uncrowded location.

It is important to note that there are limitations to this feature, as some users may be motivated by their yearning for social acceptance and migrate to locations labelled as overcrowded due to a fear of missing out (FOMO) (Hodkinson, 2016). However, one can also hypothesize that a user’s adherence to FOMO influences may also be the unlikely solution to overcrowding, as FOMO may prevent long-term dwelling in spaces. For instance, after a tourist in Santorini sees the world-renowned Santorini sunset, they may use *Travel Insights* to see where they can travel to on the island directly after.

5. CONCLUSION

Sustainable tourism highlights a development of tourism that maintains the culture, legacy, and artistic values of a tourism destination's local community (Dávid, 2011). The United Nations Environmental Programme (UNEP) and the United Nations World Tourism Organization (UNWTO) (2005) have declared that all forms of tourism should strive to be more sustainable in nature. However, that is currently not the case in the tourism industry. Global mass tourism has resulted in an increase in waste, carbon, and water scarcity (Juvan, Ring, Leisch, & Dolnicar, 2016), an unwaveringly high cost of living for locals (Eraqi, 2014), overcrowding, and misconstrued cultural identities (Smith, 2018). This study's literature review covered sustainable tourism, social media and tourism, and persuasive technology—identifying that social media has changed the way people discover, research, discuss, and book travel destinations (Sotiriadis, 2017; Smith, 2018). It is for these reasons that it is necessary to re-think the method in which the tourism industry can be revolutionized. Recognizing the prevalence of social media in popular culture, this study has analyzed how Instagram can influence behavioural change in the tourism industry.

Drawing on the design of persuasive technologies, this study developed Instagram 110.0, a futuristic prototype of the social network that introduces *Instagram Travel*, a five-part feature that supports sustainable travel and destination research. Using psychological motivation theories (Fogg, 2009; Ryan & Deci, 2000) and influence principles (Kaptein et al., 2015), *Instagram Travel* possesses features of gamification (social graphs, achievements, and content unlocking), elements of motivation (pleasure and pain; hope and fear; social acceptance and social rejection), as well as the elements of ability (time, money, physical effort, brain cycles, and routine). *Travel Resume* uses the game elements of achievements (country count) and content-unlocking (countries on the map) to intrinsically motivate users to diversity their travel portfolio. *Travel Book* is the digital recreation of the traditional tourism travel book, providing users with dynamic information about weather, currency exchange rates, and upcoming events. *Travel Wish List* uses personalization to feature posts with locations saved by a user. *Travel Home* allows users to experience 360° travel videos in virtual reality (VR), as well as see trending travel photographs and standard videos. Finally, *Travel Insights* expands Instagram's current "Insights" feature by

affording users the opportunity to view real-time data of the location and migration habits of Instagram users in a specific area. Overall, *Instagram Travel* boosts sustainable travel motivation and makes travel planning simpler.

Though this study has used Instagram as its focus, it is important to note that all social media networks have an opportunity to integrate sustainable practices and encourage sustainable behaviour through persuasive design. By using this study as a framework, other digital businesses can identify where their influence on society lies, what social issues their platforms are facilitating or contributing to, and work accordingly to find a balance between monetary gain and sustainable business practices.

REFERENCES

- Aall, C. (2014). Sustainable tourism in practice: Promoting or perverting the quest for a sustainable development? *Sustainability*, 6(5), 2562-2583. doi:<http://dx.doi.org/ezproxy.lib.ryerson.ca/10.3390/su6052562>
- Aparicio, A. F., Vela, F. L., Sánchez, J. L., & Montes, J. L. (2012). Analysis and application of gamification. *Proceedings of the 13th International Conference on Interacción Persona-Ordenador - INTERACCION '12*. doi:10.1145/2379636.2379653
- Barata, G., Gama, S., Jorge, J., & Gonçalves, D. (2013). Improving participation and learning with gamification. *Proceedings of the First International Conference on Gameful Design, Research, and Applications - Gamification '13*. doi:10.1145/2583008.2583010
- Buckley, J., DeWille, T., Exton, C., Exton, G., & Murray, L. (2018). A Gamification–Motivation design framework for educational software developers. *Journal of Educational Technology Systems*, 47(1), 101-127. doi:10.1177/0047239518783153
- Burney, S. (2012). CHAPTER ONE: Orientalism: The Making of the Other. *Counterpoints*, 417, 23-39. Retrieved from <http://www.jstor.org/stable/42981698>
- Camburn, B., Viswanathan, V., Linsey, J., Anderson, D., Jensen, D., Crawford, R., Wood, K. (2017). Design prototyping methods: State of the art in strategies, techniques, and guidelines. *Design Science*, 3, E13. doi:10.1017/dsj.2017.10
- Capocchi, Vallone, Pierotti, & Amaduzzi. (2019). Overtourism: A literature review to assess implications and future perspectives. *Sustainability*, 11(12), 3303. doi:10.3390/su11123303
- Crang, M. (1997). Picturing practices: research through the tourist gaze. *Progress in Human Geography*, 21(3), 359-373. doi:10.1191/030913297669603510
- Dávid, L. (2011). Tourism ecology: Towards the responsible, sustainable tourism future. *Worldwide Hospitality and Tourism Themes*, 3(3), 210-216. doi:<http://dx.doi.org/ezproxy.lib.ryerson.ca/10.1108/17554211111142176>
- Deterding, S., Sicart, M., Nacke, L., O'Hara, K., & Dixon, D. (2011). Gamification. using game-design elements in non-gaming contexts. *Proceedings of the 2011 annual conference extended abstracts on Human factors in computing systems - CHI EA '11*. doi:10.1145/1979742.1979575
- Edensor, T. (2001). Performing tourism, staging tourism: (Re)producing tourist space and practice. *Tourist Studies*, 1(1), 59–81. <https://doi.org/10.1177/146879760100100104>

- Eraqi, M. I. (2014). Responsible tourism management as an integrated approach for enhancing the standards of living of local people in Egypt. *International Journal of Services and Operations Management*, 17(1), 17. doi:10.1504/ij som.2014.057993
- Fogg, B. (2009). A behavior model for persuasive design. *Proceedings of the 4th International Conference on Persuasive Technology - Persuasive '09*. doi:10.1145/1541948.1541999
- Frow, J. (1991). Tourism and the Semiotics of Nostalgia. *October*, 57, 123. doi:10.2307/778875
- Groh, F. (2012). Gamification: State of the art definition and utilization. *Institute of Media Informatics*, 39-46. Retrieved from http://hubscher.org/roland/courses/hf765/readings/Groh_2012.pdf
- Hodkinson, C. (2016). 'Fear of Missing Out' (FOMO) marketing appeals: A conceptual model. *Journal of Marketing Communications*, 25(1), 65-88. doi:10.1080/13527266.2016.1234504
- Huang, Y., & Su, S. (2018). Motives for Instagram Use and Topics of Interest among Young Adults. *Future Internet*, 10(8), 1-12. doi:10.3390/fi10080077
- Instagram Inc. (2019). *Instagram*. Retrieved May 28, 2019, from <https://instagram-press.com>
- Instagram Inc. (2019). *Instagram*. Mobile app. Version 95.0. Available from: <https://itunes.apple.com/ag/app/instagram/id389801252?mt=8>
- Juvan, E., Ring, A., Leisch, F., & Dolnicar, S. (2016). Tourist segments' justifications for behaving in an environmentally unsustainable way. *Journal of Sustainable Tourism*, 24(11), 1506-1522. doi:10.1080/09669582.2015.1136635
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! the challenges and opportunities of social media. *Business Horizons*, 53(1), 59-68. doi:10.1016/j.bushor.2009.09.003
- Kaptein, M., Markopoulos, P., De Ruyter, B., & Aarts, E. (2015). Personalizing persuasive technologies: Explicit and implicit personalization using persuasion profiles. *International Journal of Human-Computer Studies*, 77, 38-51. doi:10.1016/j.ijhcs.2015.01.004
- Karsten, M. (2019, March 24). *Liked To Death: Is Instagram & Social Media Ruining Travel?* Retrieved from <https://expertvagabond.com/instagram-tourism-impact/>
- Koens, K., Postma, A., & Papp, B. (2018). Is overtourism overused? understanding the impact of tourism in a city context. *Sustainability*, 10(12), 4384. doi:10.3390/su10124384

- López-Guzmán, T., Sánchez-Cañizares, S., & Pavón, P. (2011). Community-based tourism in developing countries: a case study. *Tourismos: An International Multidisciplinary Journal of Tourism*, 6(1), 69-84. Retrieved from https://www.researchgate.net/profile/Sandra_Sanchez12/publication/50418221_Community_-_based_tourism_in_developing_countries_A_case_study/links/02e7e5369e2f48e175000000/Community-based-tourism-in-developing-countries-A-case-study.pdf
- Mtapuri, O., & Giampiccoli, A. (2019). Tourism, community-based tourism and ecotourism: a definitional problematic. *South African Geographical Journal*, 101(1), 22-35. Retrieved from <https://doi.org/10.1080/03736245.2018.1522598>
- Muench, T. (2017, November 10). *Tourism helped Iceland recover from crash, but some residents have had enough*. Retrieved from <https://www.thestar.com/business/2017/11/10/tourism-helped-iceland-recover-from-crash-but-some-residents-have-had-enough.html>
- Oduor, M., Alahäivälä, T., & Oinas-Kukkonen, H. (2014). Persuasive software design patterns for social influence. *Personal and Ubiquitous Computing*, 18(7), 1689-1704. doi: 10.1007/s00779-014-0778-z
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. doi:10.1037/0003-066X.55.1.68
- Said, E. W. (1979). *orientalism* (1st Vintage Books ed.) Vintage Books.
- Sethumadhavan, A. (2018). Principles of persuasive design. *Ergonomics in Design: The Quarterly of Human Factors Applications*, 26(3), 32-32. doi:10.1177/1064804618776963
- Smith, S. P. (2018). Instagram abroad: performance, consumption and colonial narrative in tourism. *Postcolonial Studies*, 21(2), 172-191. doi:10.1080/13688790.2018.1461173
- Sotiriadis, M. D. (2017). Sharing tourism experiences in social media: A literature review and a set of suggested business strategies. *International Journal of Contemporary Hospitality Management*, 29(1), 179-225. doi:10.1108/IJCHM-05-2016-0300
- Stoldt, R., Wellman, M., Ekdale, B., & Tully, M. (2019). Professionalizing and Profiting: The Rise of Intermediaries in the Social Media Influencer Industry. *Social Media + Society*, 5(1), 205630511983258. doi:10.1177/2056305119832587
- United Nations Environment Programme and World Tourism Organization. (2005). *Making*

- Tourism More Sustainable: A Guide for Policy Makers*. Retrieved from World Tourism Organization Publications website: <http://www.unep.fr/shared/publications/pdf/DITx0592xPA-TourismPolicyEN.pdf>
- United Nations World Tourism Organization. (2019). *World Tourism Organization UNWTO - specialized agency of the United Nations*. Retrieved from <http://www2.unwto.org/>
- United Nations World Tourism Organization. (2019). *Market intelligence and competitiveness*. Retrieved from <http://marketintelligence.unwto.org/>
- Waze Mobile. (2019). About us. Retrieved from <https://www.waze.com/about>
- Weaver, D. B. (2014). Asymmetrical Dialectics of Sustainable Tourism: Toward Enlightened Mass Tourism. *Journal of Travel Research*, 53(2), 131–140. <https://doi.org/10.1177/0047287513491335>
- Wee, S., & Choong, W. (2019). Gamification: Predicting the effectiveness of variety game design elements to intrinsically motivate users' energy conservation behaviour. *Journal of Environmental Management*, 233, 97-106. doi:10.1016/j.jenvman.2018.11.127
- Wong, A. (2015). Caribbean island tourism: pathway to continued colonial servitude. *Études caribéennes*, (31-32). doi:10.4000/etudescaribeennes.7524
- Xiang, Z., & Gretzel, U. (2010). Role of social media in online travel information search. *Tourism Management*, 31(2), 179-188. doi:10.1016/j.tourman.2009.02.016
- Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet. *Journal of Retailing and Consumer Services*, 22, 244-249. doi:10.1016/j.jretconser.2014.08.005
- Xu (Rinka), X., & Pratt, S. (2018). Social media influencers as endorsers to promote travel destinations: an application of self-congruence theory to the Chinese Generation Y. *Journal of Travel & Tourism Marketing*, 35(7), 958-972. doi:10.1080/10548408.2018.146885
- Zeng, B., & Gerritsen, R. (2014). What do we know about social media in tourism? A review. *Tourism Management Perspectives*, 10, 27-36. doi:10.1016/j.tmp.2014.01.001